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Preface

This volume is a collection of papers presented at the 30th Japanese/Korean Linguistics Conference, hosted by Simon Fraser University in Vancouver, British Columbia, Canada, on March 11–13, 2023.

We would like to take this opportunity to express our heartfelt appreciation for the individuals and organizations whose contributions helped to make possible both the conference and the publication of these proceedings.

First, we would like to thank the JK 30 organizing committee for their time and tireless dedication to ensuring the conference’s success: Chung-hye Han, Sylvia Cho, Ivan Fong, and Sara Williamson. We would also like to thank Brigid Porter, SFU Linguistics Department Research Grants and Projects Coordinator, for her support.

Second, we extend our thanks to the David Lam Centre, the National Institute for Japanese Language and Linguistics, and Simon Fraser University for their generous financial support.

Third, we would like to thank the conference reviewers for their invaluable commentary: Hee-Don Ahn, Mikyung Ahn, Kimi Akita, Yoshihiko Asao, Michael Barrie, Lucien Brown, Matthew Burdelski, Sungdai Cho, Taehong Cho, Young-Mee Cho, Jinsun Choe, Soonja Choi, Haruko Cook, Stuart Davis, Kamil Deen, Tomoko Endo, Bjarke Frellesvig, Tomohiro Fujii, Shin Fukuda, Naoki Fukui, Kazuhiko Fukushima, Naomi Geyer, Nobu Goto, Makoto Hayashi, Caroline Heycock, Ken Hiraiwa, Masako Hirotani, Jeffrey J. Holliday, Kaoru Horie, Shinichiro Ishihara, Noriko Iwasaki, Hae-Sung Jeon, Sun-Ah Jun, Hijo Kang, Yoonjung Kang, Shigeto Kawahara,
Fourth, we would like to thank the SFU graduate and undergraduate student volunteers who contributed to organizing and facilitating the conference: Adeola Babayode-Lawal, Nicole Chan, Jiyun Choi, Jingyi Jia, Si Jia, Tyne Johnson-Dhillon, Tabatha Mason, Julia Schillo, Sze Ching Sara Wong, SzeWing Wong, and Nuo Xu.

Finally, we extend our thanks to all the JK 30 presenters and audience members who made the conference a success.
SECTION I
Plenary Papers
Re-examining Island Effects with NP-scrambling in Japanese: The Effect of Individual Variation*

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1 Introduction

Long-distance dependencies and island effects have been some of the most prolific areas of investigation in recent experimental syntactic studies. A handful of such studies investigated whether long-distance NP-scrambling

* We would like to thank Brian Agbayani, Chung-hye Han, Utako Minai, John Whitman, Kyoko Yamakoshi, Masaya Yoshida, the members of the Experimental Approaches to Theoretical Syntax lab at the University of Hawai‘i at Mānoa, and the audiences at the JK 30 for their helpful comments and suggestions that improved this study.
incurs island effects with potential island structures in Japanese and arrived at different conclusions.

Jurka (2010) and Jurka et al. (2011) argue that NP-scrambling out of complex NP subjects as opposed to complex NP objects incurs island effects, while Omaki et al. (2020) argue that there is no subject-object asymmetry in NP-scrambling. Yano (2019) provides experimental evidence for island effects with NP-scrambling out of noun complements and adjunct clauses. In Fukuda et al. (2022), we examined NP-scrambling out of noun complements, relative clauses, and coordinate structures, and argue that NP-scrambling exhibits clear island effects only with relative clauses and coordinate structures.

In Fukuda et al. (2022), we also found that, while a good number of participants gave predictably high ratings to items that involve by-hypothesis grammatical instances of NP-scrambling, e.g., NP-scrambling out of embedded declarative CPs, a non-negligible number of participants gave the same items surprisingly low ratings. In fact, the same tendency can be observed in Yano (2019) and Omaki et al. (2020). In these studies, NP-scrambling out of the intended non-island structures – embedded declarative CPs in Yano (2019) and complex NP objects in Omaki et al. (2022) – received ratings that are below the middle-of-the-scale ratings. These observations illustrate potential difficulties with investigating island effects with NP-scrambling, and suggest something did not go as expected in these previous studies.

This study reports on two acceptability judgment experiments that reexamine NP-scrambling out of three potential island structures in Japanese: subjects, because-adjunct clauses, and relative clauses. Experiment 1 examines island effects of NP-scrambling out of subjects and because-adjunct clauses, and Experiment 2 tests NP-scrambling out of subject and object relative clauses. The results of these experiments show significant individual differences in the effect size of NP-scrambling out of structures that are by-hypothesis non-islands, i.e., complex NP objects and declarative CPs. Once these individual differences are taken into consideration, our findings provide clear evidence of island effects with NP-scrambling out of because-adjunct clauses and relative clauses, and suggestive evidence of island effects with NP-scrambling out of subjects.

The rest of the study is structured as follows. Section 2 introduces the factorial definition of island effects (e.g., Sprouse 2007; Sprouse et al. 2011, 2012), which we adopt to interpret our results. Section 3 critically reviews five previous studies that examined NP-scrambling out of subjects (Jurka 2010; Jurka et al. 2011; Omaki et al. 2020), because-adjunct clauses (Yano 2019), and relative clauses (Fukuda et al. 2022), and identifies their potential issues. Section 4 discusses the results of Experiment 1 with subjects and because-adjunct clauses, and Section 5 re-evaluates the results of Experiment 1, taking into consideration individual differences in the effect size of NP-
scrambling. Section 6 discusses the results of Experiment 2 with subject and object relative clauses, and Section 7 concludes the study.

2 The Factorial Definition of Island Effects

The goal of the factorial definition of island effects is to “isolate the acceptability effect that cannot be accounted for by known effects” (Sprouse et al. 2016: 313). With NP-scrambling, there are two known factors that could affect acceptability: the presence of NP-scrambling and the effect of having a complex syntactic structure, i.e., a potential island. A factorial design acceptability judgment experiment can be constructed with these two factors: SCRAMBLING manipulates the presence or absence of NP-scrambling, and STRUCTURE manipulates the structure of the embedded clause. Fully crossing these two factors leads to the following four conditions.

(1) a. No-scrambling/non-island
   b. No-scrambling/island
   c. Scrambling/non-island
   d. Scrambling/island

The factorial definition isolates the island effect in the interaction between SCRAMBLING and STRUCTURE. If there is no island effect, we expect to see no interaction as illustrated in the leftmost panel of Figure 1, where the two lines that connect the two means for the island condition items, (1b) and (1d), and the non-island condition items, (1a) and (1c), are parallel. If there is an island effect, we expect to see a superadditive interaction as illustrated in the center and rightmost panels, where the two lines are not parallel because the mean for the scrambling/island condition items, (1d), is lower than expected if the effects of the two manipulations are all there are. In statistical terms, this superadditive interaction manifests as a significant interaction between the two factors. We can also look at the size of the interaction as a measure of the size of the island effect; the center panel illustrates a smaller effect, and the rightmost panel illustrates a larger effect.

Figure 1. Possible results using the factorial definition of island effects.
3 Previous Experimental Studies on NP-scrambling out of Subjects, Because-adjunct Clauses, and Relative Clauses

This section reviews five previous studies that examined NP-scrambling out of subjects (Jurka 2010; Jurka et al. 2011; Omaki et al. 2020), because-adjunct clauses (Yano 2019), and relative clauses (Fukuda et al. 2022), and identify their potential issues.

3.1 NP-scrambling out of Subjects

To the best of our knowledge, Jurka (2010) and Jurka et al. (2011) are the first studies to examine NP-scrambling out of subjects in Japanese with acceptability judgment experiments. Jurka (2010) and Jurka et al. (2011) pointed out several issues in the data based on which previous studies claim that subjects are not islands to NP-scrambling in Japanese and examined acceptability of NP-scrambling out of complex NP subjects and complex NP objects with a 2 x 2 factorial design experiment that manipulated SCRAMBLING (no scrambling vs. scrambling) and STRUCTURE (complex NP subject vs. object). Examples of their experimental items in the no-scrambling condition are found in (2). In (2a-b) and all example sentences that follow, the scrambled constituents are outlined with a box.

(2) a. Non-island (complex NP object)/no-scrambling

Sono syouzyo-wa [CP iziwaruna ane-ga [OBJ PROi that girl-TOP mean sister-NOM kuma-no-nuigurumi-o] dumped fact-ACC secret-DAT siteita to] kept that claimed

‘The girl claimed that her mean sister kept as a secret the fact that she dumped her teddy bear.’ (Jurka et al. 2011: 130; (7b))

b. Island (complex NP subject)/no-scrambling

Sono syouzyo-wa [CP [SUBJ iziwaruna ane-ga kuma-no- that girl-TOP mean sister-NOM teddy.bear-nuigurumi-o] dumped fact-NOM fight-GEN cause be that

‘The girl claimed that the fact that her mean sister dumped her teddy bear is the cause of the fight.’ (Jurka et al. 2011: 130; (7a))
The experiment presented three tokens per condition to twenty-seven self-claimed native speakers of Japanese and asked them to judge their naturalness with a 7-point scale. While their results showed that there was no significant difference in the mean acceptability judgments between complex NP subjects (2.73) and complex NP objects (2.85) in the scrambling condition, there was a significant difference between the mean acceptability judgments of complex NP subjects (6.93) and complex NP objects (5.79) in the no-scrambling condition. The interaction between SCRAMBLING and STRUCTURE was also significant. Based on these findings, Jurka (2010) and Jurka et al. (2011) concluded that Japanese subjects are islands with respect to NP-scrambling.

Omaki et al. (2020) challenge Jurka and his colleagues’ conclusion, arguing that there is a confounding factor in their experiment. In particular, Omaki et al. (2020) point out that the complex NP object items in the non-scrambling condition (3a) are inconsistent with a well-known psycholinguistic constraint in Japanese, long-before-short preference, a preference to place longer constituents before shorter constituents (e.g., Dryer 1980; Hawkins 1994; Yamashita and Chang 2001) while the complex NP subject items in the same condition (3b) are consistent with it. In the schematic examples (3a-b), the complex NPs are highlighted in bold.

(3) a. Complex NP Object
   NP-TOP [cp NP1-NOM
   [obj PRO1 NP-ACC EMBEDDED fact]-ACC NP Copula-C]
   VMATRIX

b. Complex NP Subject
   NP-TOP [cp [subj NP-NOM NP-ACC] EMBEDDED fact]-NOM NP Copula-C]
   VMATRIX

In (3b), the complex NP subject is the first constituent inside the embedded clause, conforming to the long-before-short preference inside the embedded clause. In contrast, in (3a), the complex NP object is in the middle of the embedded clause after a shorter embedded subject, making the embedded clause inconsistent with the long-before-short preference. Omaki et al. (2020) conjecture that the significant difference in the mean acceptability judgments between the complex NP subject items and the complex NP object items in the no-scrambling condition in Jurka (2010) and Jurka et al. (2011) may have been because only the former is consistent with the long-before-short preference. To test their hypothesis, Omaki et al. (2020) conducted a 2 x 2 factorial design experiment manipulated SCRAMBLING (no scrambling vs. scrambling) and STRUCTURE (complex NP object vs. subject). Crucially, in their materials,
complex NP objects were scrambled to the embedded sentence initial position, as in (4), to be consistent with the long-before-short preference.

(4) According to NP, 
[OBJ NP-NOM] [NP-ACC EMBEDDED fact]-ACC/DAT1 NP-NOM t1

Omakì et al. (2020) found a significant main effect of SCRAMBLING, but neither the main effect of STRUCTURE nor the interaction between these two factors was significant. Based on these findings, Omakì et al. (2020) concluded that there is no subject-object asymmetry in NP-scrambling in Japanese.

There is one potential issue in Omakì et al.’s (2020) experiment, however. Following the standard procedure, the study $z$-score transformed the raw scores elicited with a 7-point scale. The $z$-score transformation converts a participant’s scores to units that represent the number of standard deviations a particular rating is from that participant’s mean rating and corrects for the potential individual biases in treating the scale differently, e.g., using only a subset of the available ratings (Cowart 1997; Schütze and Sprouse 2014; Langsford et al. 2018). Therefore, the $z$-score value of zero represents each participant’s middle-of-the-scale rating. As such, a positive $z$-score means that the structure was rated as more acceptable than the average rating, while a negative $z$-score means that it was rated as less acceptable than the average rating. In Omakì et al.’s (2020) experiment, the mean $z$-scores for the complex NP object items and the complex subject NP items in the scrambling condition were both below $-0.25$, i.e., they received mean ratings that are below the average. This raises the following question: If there were no island violations with these items, why were they rated so low?

3.2 NP-scrambling out of Adjunct Clauses

To our best knowledge, Yano (2019) is the only study that examined island effects of NP-scrambling out of adjunct clauses in Japanese with formal acceptability judgment experiments. Yano (2019) examined whether D(is-course)-linked NPs like *sono hon* ‘the book’ undergo syntactic movement when they appear in a fronted position. Using island effects as a diagnostic of movement, the study tested two island types: adjunct clauses headed by node ‘because’ (because-adjunct clauses) and noun complements. Yano (2019) tested both D-linked NPs (with *sono* ‘the/that’) as the target of investigation, and non-D-linked NPs (without *sono* ‘the/that’) as a baseline comparison. Here we focus on NP-scrambling of non-D-linked NPs out of because-adjunct clauses, which incurs island effects according to Saito (1985).
Yano (2019) conducted two acceptability judgement experiments with a 2 x 2 x 2 factorial design with SCRAMBLING (no-scrambling vs. scrambling), STRUCTURE (declarative CP vs. because-adjunct clause), and D-LINKING (non-D-linked vs. D-linked). In both experiments, the same sentences were used and participants were asked to judge the naturalness of sentences with a 5-point scale. The only difference between the two experiments was that the sentences were presented with contexts only in Experiment 2. Below are examples of a non-island item with an embedded declarative CP (6a) and an island condition item with the because-adjunct clause (6b) (Yano 2019: 4).

(6) a. Non-island (declarative CP)/no-scrambling
Choonan-wa sakki [CP imooto-ga okashi-o tabeta-to] brother-TOP a.while.ago sister-NOM snacks-ACC ate-C omotteiru.
think
‘The brother thinks that his younger sister ate snacks a little while ago.’

b. Island (because-adjunct clause)/no-scrambling
Choonan-wa sakki [Adj imooto-ga okashi-o tabeta-node] brother-TOP a.while.ago sister-NOM snacks-ACC ate-because okotteiru.
angry
‘The son is angry because his younger sister ate the snacks a while ago.’

Forty-two and forty-seven native speakers participated in Experiments 1 and 2, respectively. In both experiments, a significant interaction between SCRAMBLING and STRUCTURE was found within the non-Dinked condition items, providing experimental support to Saito’s (1985) claim that NP-scrambling out of because-adjunct clauses incurs island effects.

Just like Omaki et al. (2020), the raw scores obtained in Yano’s (2019) two experiments were z-score transformed, and it is worth noting that the mean z-scores for the non-island declarative CP items and the island because-adjunct clause items in the scrambling condition were below −0.5, i.e., they received mean ratings that are lower than the average rating.
3.3 NP-scrambling out of Relative Clauses

In Fukuda et al. (2022), we examined island effects with NP-scrambling out of relative clauses, noun complements, and coordinate structures. Early theoretical studies such as Haig (1976) and Saito (1985) agree that NP-scrambling out of relative clauses in Japanese incurs island effects.

(7) a. *Ano hon-o [RC ec] tatsu hito]-ni that book-ACC I-TOP wrote person-to

want.to.meet

(I want to meet the person who wrote that book.) (Haig 1976: 370; (30))

b. ?Ano hon-o [RC ec] tatsu hito]-o that book-ACC J-NOM bought person-ACC

sagashiteiru seem

('It seems that John is looking for the person who bought that book.')

(Saito 1985: 246; (146a))

We conducted two factorial design acceptability judgment experiments for this study. Focusing on relative clauses, both experiments had a 2 x 2 design with SCRAMBLING (no-scrambling vs. scrambling) and STRUCTURE (declarative CP vs. relative clause).

(8) a. Non-island (declarative CP)/no-scrambling

Roodookumiai-no riidaa-wa [CP kaisha-no juuyaku-ga
union-GEN leader-TOP company-GEN executives-NOM

oohabana uriage-no nobi-o drastic sales-GEN growth-ACC employee-GEN salary-to

han’ee saseteinai-to] hihanshi-ta.

reflect not.make-COMP criticize-PST

'The union leader criticized that the executives of the company were not making the drastic sales growth reflected in the employees’ salaries.'

b. Island (relative clause)/no-scrambling

Roodookumiai-no riidaa-wa [RC ec] oohabana uriage-no
union-GEN leader-TOP drastic sales-GEN

nobi-o] juugyooin-no kyuuyo-ni han’ee saseteinai] growth-ACC employee-GEN salary-to reflect not.make

kaisha-no juuyakui-o hihanshi-ta.

company-GEN executives-ACC criticize-PST

'The union leader criticized the company’s executives who were not making the drastic sales growth reflected in the employees’ salaries.'
In Experiment 1, eighty-nine self-identified native speakers judged 58 items using a 7-point scale, of which 12 were the experimental items (3 islands x 4 conditions x 1 item per condition). In Experiment 2, the number of conditions was reduced by using declarative CPs as the non-island condition for all three island types, but the number of items was increased to two per condition. This made the number of experimental items 16 (8 conditions x 2 items per condition), which were combined with 44 fillers. A total of sixty items was judged by ninety-three self-identified native speakers using a 7-point scale. In both experiments, the interaction between SCRAMBLING and STRUCTURE was significant with the relative clause items, indicating the presence of island effects with NP-scrambling out of relative clauses.

One issue in the materials we used, like (8a-b), is that they all had subject relative clauses, following the relevant examples discussed the theoretical literature such as (5a-b). The choice of subject relative clauses is a potential confounding factor for the following reason. When the direct object inside a subject relative clause is scrambled, as in the schematic example (9), the scrambled direct object and the matrix topic NP would be directly followed by the VP inside the relative clause, creating a sequence of words that is likely to cause a garden-path effect. The parser might process the direct object NP and the topic NP as arguments of the embedded verb, only to discover later that the verb is inside the relative clause when it encounters the head NP.

(9) [NP [...]-ACC, NP-TOP [[RC e1 t2 V EMBEDDED] head NP] V MATRIX]

Therefore, the observed island effect – the superadditive effect – could have been due to the potential garden-path effect in (9).

Two other observations from Fukuda et al. (2022) are in order. First, in Fukuda et al. (2022), we pointed out that NP-scrambling is an optional syntactic operation, unlike obligatory A-bar dependencies such as wh-movement. Because NP-scrambling is optional, if it is not perceived as well-motivated by participants, by-hypothesis grammatical NP-scrambling could be rated poorly. A related observation is that in all the studies on NP-scrambling discussed above, one of the factors is SCRAMBLING, the presence vs. absence of NP-scrambling, while previous studies with obligatory A-bar dependencies manipulated the distance of the dependency, or DEPENDENCY LENGTH (e.g., wh-movement that originated in the matrix versus embedded clause). Because of this difference, acceptability judgment experiments with NP-scrambling might show a larger main effect of SCRAMBLING than the main
effect of \textit{dependency length} in previous studies with obligatory A-bar dependencies.\textsuperscript{1} This point is important, as large main effects could make a floor effect more likely with superadditive interaction terms. If NP-scrambling incurs a large main effect, that could bring down the mean acceptability judgment of non-island items close to the lower bound of the scale, leaving no space for the mean of island structure items to go lower.

Second, the results of Fukuda et al. (2022) suggest that there are potentially significant individual differences in the size of the main effect of NP-scrambling in Japanese. Recall that the participants in Experiment 2 judged two items per condition. This allowed us to examine how consistent each participant’s judgments were with respect to the two items of the same condition. There, we found that, while the largest group of participants gave predictably high ratings (i.e., positive \(z\)-scores) to NP-scrambling out of declarative CPs, a non-negligible number of participants gave the same items surprisingly low ratings (i.e., negative \(z\)-scores). Thus, the rating of NP-scrambling itself, in the absence of islands, is relatively variable in Japanese.

\textbf{3.4 Section Summary}

Our brief review of the five previous experimental studies on NP-scrambling out of three potential island structures, subjects, \textit{because}-adjunct clauses, and relative clauses, identified two potential issues in these studies.

First, the \(z\)-score means of the non-island items in the scrambling condition were alarmingly low in Omaki et al. (2020) and Yano (2019). suggest that the effect of the mere presence of NP-scrambling was significant enough to considerably lower the acceptability of the non-island items in their experiments, the possibility discussed in Fukuda et al. (2022). This casts doubt on the conclusions in these studies, especially the claim in Omaki et al. (2020) that there is no subject-object asymmetry in NP-scrambling, as the non-significant interaction that the study found could have been due to a floor effect caused by a large main effect of NP-scrambling.

Second, the fact that the experiments in Fukuda et al. (2022) only examined subject relative clauses means that there is an alternative account for their findings: the possible garden-path effect in (9).

\textsuperscript{1} In fact, Kluender and Kutas (1993) have shown that the mere presence of a long-distance dependency may cause a significant decrease in acceptability even with obligatory A-bar dependencies such as \textit{wh}-movement.
4 Experiment 1: Reexamining Subject and Adjunct Islands

Experiment 1 was conducted to re-examine NP-scrambling out of subjects and because-adjunct clauses with the following goals. First, we wanted to test if an experiment with a larger sample size would still yield the same results that Omaki et al. (2020) and Yano (2019) obtained. To that end, we recruited ninety-three self-identified native speakers, which is a significantly larger sample than those of Omaki et al. (2020) \((n = 53)\) and Yano (2019) \((n = 42\) and 47). Second, we wanted to improve the overall acceptability of experimental items. While we did not see much room for improvement with Omaki et al.’s (2020) materials, whose materials already took into consideration the relative weight of the relevant constituents, we thought that Yano’s (2019) materials could be improved, as the scrambled constituents in Yano’s (2019) experiments were bare NPs (e.g., *okashi ‘snack’*). As such, we constructed our own materials for the because-adjunct clause subexperiment by controlling for the relative weight of the relevant constituents.

Experiment 1 had a 2 x 2 factorial design with SCRAMBLING (no-scrambling vs. scrambling) and STRUCTURE (non-island vs island). For each of the two potential island structures, eight lexicalizations were created with the four conditions \((2 \times 8 \times 4 = 64)\). These sixty-four experimental sentences were distributed into eight lists, so that each list contained only one condition from each lexicalization group. The resulting 8 lists of 8 experimental sentences were then combined with different sets of 44 fillers \((8 + 44 = 52)\). The experiment was administered online using IBEX (Drummond 2013), and participants were instructed to judge the naturalness of each sentence using a 7-point scale. Examples of the experimental items for the subject and adjunct subexperiments are shown as (10) and (11), respectively.

(10) Subject subexperiment

\[\begin{align*}
\text{Sono} & \quad \text{seeto-o} & \quad \text{membaa-wa} \\
\text{ar} & \quad \text{kookan-ga} & \quad \text{imin} & \quad \text{ni} & \quad \text{kansuru} \\
\text{jiuyoooshorui-o} & \quad \text{nakushita-koto}-\text{ni} & \quad \text{too-no} & \quad \text{riidaa-tachi-ga} & \quad \text{katatta} \\
surprised & \quad \text{C} & \quad \text{said} \\
\text{‘That political party’s member said that the party leaders were surprised that some high-ranking official lost important immigration documents.’}
\end{align*}\]
b. Island (complex NP subject)/no-scrambling

That political party’s member-top

Sono seetoo-no membaa-wa

[ SUBJ aru kookan-ga iminhoo.ni kansuru]

[ some high-ranking.official-NOM immigration concerning]

[juuyooshorui-o nakushita-koto]-ga too-no riida-tachi-o

important.document-ACC lost-koto]-NOM party-GEN leader-PL-ACC

odorokasetta-to katatta

surprised-A-C said

‘That political party’s member said that the fact that some high-ranking
official lost important immigration documents surprised the party leaders.’

(11) Because-adjunct subexperiment

a. Non-island (declarative CP)/no-scrambling

The neighboring residents got angry that the local gas stations raised the
prices of gasoline and diesel fuel at once.’

b. Island (because-adjunct clause)/no-scrambling

The neighboring residents got angry because the local gas stations raised
the prices of gasoline and diesel fuel at once.’

Ninety-three university students in Japan participated (two excluded). The
collected judgments were z-score transformed before analyzed with linear
mixed effects models using R (Bates et al. 2015) with SCRAMBLING and
STRUCTURE as fixed factors and participants and items as random factors. We
calculated p-values using the lmerTest package (Kuznetsova et al. 2017), and
also calculated Bayes factors for the interaction term for the fixed factors using
the BayesFactor package (Morey and Rouder 2018). The Bayes factors
reported here are of the BF\textsubscript{10} type: they report the ratio of the likelihood of
the data under the experimental hypothesis (H\textsubscript{1}) that an interaction is present
to the likelihood of the data under the null hypothesis (H\textsubscript{0}) that there is no
interaction present. Following Jeffreys (1939/1961), a BF\textsubscript{10} greater than 3 (rounded to a ceiling of 100) is interpreted as strong evidence that an interaction is present, and a BF\textsubscript{10} less than 0.33 as strong evidence that there is no interaction. Bayes factors between 0.33 and 3 are interpreted as inconclusive.

### 4.1 Results

The lefthand panel of Figure 2 shows the four condition means in $z$-scores for the subject subexperiment, and the righthand panel shows the four condition means for the because-adjunct clause subexperiment.

![Figure 2. The mean z-scores from Experiment 1](image)

Looking at the lefthand panel, the mean $z$-scores for the complex NP subject items and complex NP object items in the scrambling condition are virtually the same, with no indication of an interaction between SCRAMBLING and STRUCTURE. They are also located around −0.75, even lower than those of Omaki et al. (2020), which were around −0.25. The $z$-score means in the righthand panel for the because-adjunct clause subexperiment are higher than the $z$-score means in the lefthand panel for the subject subexperiment, suggesting that controlling for potential effects of the long-before-short preference might have improved their acceptability. However, the mean $z$-scores for the scrambling condition of the declarative CP items and the because-adjunct clause items are very close to each other, suggesting that there might not be an interaction between the two factors. Importantly, these $z$-score means are below zero, lower than the middle-of-the-scale rating. The statistical models show that the interaction between SCRAMBLING and STRUCTURE was not significant within the subject subexperiment ($\beta = 0.32, p = 0.73$) and it was marginally significant within the because-adjunct subexperiment ($\beta = -0.33, p = 0.05$). The Bayes factor for the subject subexperiments is 0.98, within the inconclusive range, while that of the because-adjunct clause subexperiment is 3.02, suggesting that the interaction is likely to be present.
4.2 Discussion

At first glance, the null results of Experiment 1 may appear to support Omaki et al.’s (2020) claim that there is no subject-object asymmetry in NP-scrambling in Japanese. However, the results of the subject subexperiment leave the major issue in Omaki et al. unresolved, as the mean z-scores for the non-island complex NP object items in the scrambling condition were even lower than the mean z-scores of the similar items in Omaki et al. Within the because-adjunct clause subexperiment, although there is evidence of an interaction between the two factors, the superadditive effect is barely visible in Figure 2. As such, our results failed to provide clear evidence for island effects with NP-scrambling out of because-adjunct clauses. Finally, despite the overall improvement, the z-score means for the non-island items in the scrambling condition are below zero, lower than the average rating.

Now recall one of the observations from Fukuda et al. (2022) that we discussed in Section 3.3: the rating of NP-scrambling itself, in the absence of islands, is relatively variable in Japanese. This led us to investigate the possibility that the results of Experiment 1 might reflect acceptability judgments provided by participants with significantly different effect sizes with NP-scrambling. With some participants, the main effect of NP-scrambling might have been significant enough to cause a flooring effect, whereas the main effect of NP-scrambling might have been negligible with other participants. If that was the case, island effects would only be observed with the latter group, since no floor effect is expected with them.

5 Reexamining the Data from Experiment 1

To pursue the “two-group hypothesis” outlined in Section 4.2, we first calculated the effect size of NP-scrambling for each participant by subtracting the mean z-score for the non-island/scrambling condition items from the mean z-score for the non-island/no-scrambling condition items. Figure 3 shows the distribution of the individual effect sizes.

![Figure 3. The distribution of the individual effect sizes in Experiment 1](image)
The distribution of the effect sizes provides initial support for the two-group hypothesis. Within the subject subexperiment, the distribution of the effect sizes shows a bimodal distribution with two peaks, one at around the effect size of 0.5 and the other around 2.0. With the because-adjunct clause subexperiment, the distribution pattern is more complex, yet the participants seem to be divided into two groups: ones that belong to the most prominent peak at the effect size of 0 and the rest whose effect sizes are distributed between 0.5 and 2.0. Given these observations, we calculated the overall mean effect size of the entire group and divided the participants between two groups using the mean effect sizes: ones whose effect size is greater than the mean effect size and ones whose effect size is less than the mean effect size. For the sake of discussion, we call the former “non-scramblers” and the latter “scramblers”. We then analyzed the data from each of the two subexperiments following the same procedure used to analyze the data in Experiment 1.

5.1 Subject Subexperiment

The lefthand panel in Figure 4 shows the z-score means for the four conditions for the non-scramblers, whose effect size of NP-scrambling is above average, and the righthand panel shows the z-score means for the scramblers, whose effect size of NP-scrambling is below average.

Looking at the lefthand panel with the non-scramblers, the effect of NP-scrambling is particularly pronounced with the complex NP object items. In a clear contrast, in the righthand panel with the scramblers, the effect of NP-scrambling is negligible within the complex NP object items, while it is more pronounced with the complex NP subject items, suggesting that there may be an interaction between STRUCTURE and SCRAMBLING.

The statistical models reveal that, within the scramblers ($n = 43$), the interaction between STRUCTURE and SCRAMBLING is marginally significant ($\beta = -0.59$, $p = 0.06$). The Bayes factor for the scramblers is 3.08, suggesting
that the interaction is likely to be present. Within the non-scramblers \((n = 46)\), the interaction turns out to be also significant \((\beta = 1.15, p < 0.01)\) and the Bayes factors is significantly above 3.0 \((BF > 100)\). However, the direction of the interaction is opposite, as the \(z\)-score mean for the non-island complex NP object item in the scrambling condition is lower than the \(z\)-score mean of the island complex NP subject item in the scrambling condition.

5.2 Because-adjunct Clause Subexperiment

Figure 5 shows the \(z\)-score means for the four conditions for the non-scramblers and the scramblers from the because-adjunct clause subexperiment.

![Figure 5. The mean z-scores from the because-adjunct clause subexperiment in Experiment 1 divided by GROUP](image)

The distribution of the four \(z\)-score means on the lefthand panel for the non-scramblers \((n = 48)\) indicates a large effect of NP-scrambling across the non-island and island conditions, with the mean for the non-island items in the scrambling condition numerically lower than that of the island items in the same condition. The mean \(z\)-scores on the righthand panel, ones from the scramblers \((n = 41)\), show a very different distribution. Similar to what we observed with the scramblers in the subject subexperiment, the main effect of NP-scrambling is negligible with the non-island items, while the \(z\)-score means sharply decrease between the no-scrambling condition and the scrambling condition with the because-adjunct clause items.

The statistical models confirm the above visual inspection: there is a significant interaction between STRUCTURE and SCRAMBLING within the scramblers \((\beta = -1.10, p < 0.01)\) but not within the non-scramblers \((\beta = 0.31, p = 0.11)\). The Bayes factor of the scramblers is significantly higher than 3.0 \((BF > 100)\), but that of the non-scramblers is 2.05, within the inconclusive range.

5.3 Interim Conclusion

When looking at the overall result, the results of Experiment 1 with both subject and because-adjunct clause subexperiments failed to show clear evidence of island effects, and they also suffered from the same issue that Omaki et al.
(2020) and Yano (2019) suffered - i.e., alarmingly low z-score means for the non-island items in the scrambling condition. However, once individual differences in the effect size of NP-scrambling were taken into consideration, the results of Experiment 1 turned out to reveal clear evidence for island effects with because-adjunct clauses and suggestive evidence for island effects with subjects, but only among the scramblers, or the participants whose judgments were less affected by the mere presence of NP-scrambling.

6 Experiment 2: Reexamining Relative Clause Islands

Experiment 2 was designed to address a potential confounding factor in the experiments in Fukuda et al. (2022). As discussed in Section 2.3, the fact that only subject relative clauses were examined in Fukuda et al. (2022) means that there is an alternative account for the superadditive effect found in the study: the possible garden-path effect (9). Addressing this confounding factor is particularly important, since the original observation that NP-scrambling out of relative clauses in Japanese incurs island effects was based on examples with subject relative clauses such as (5a-b).

Experiment 2 addresses the potential garden-path effect in (9) by examining NP-scrambling out of both subject and object relative clauses with ditransitive verbs. The following schematic examples in (12) show the assumed underlying structures of subject relative clause items.

(12) a. Non-island (declarative CP)/scrambling
\[
[\text{NP ....} - \text{DAT}] \quad \text{NP-TOP} \quad [\text{CP NP-NOM} \quad t_t \quad \text{NP-ACC} \quad V_{EMB}] - \text{c} \quad V_{MAT}
\]
b. Island (subject relative clauses)/scrambling
\[
[\text{NP ....} - \text{DAT}] \quad \text{NP-TOP} \quad [[\text{RC e}_2 \quad t_t \quad \text{NP-ACC} \quad V_{EMB}] \quad \text{head NP}_2] - \text{ACC} \quad V_{MAT}
\]

Example (12b) has the same issue that we discussed with (9): It is likely to incur a garden-path effect. However, the situation is different with object relative clause items, which are schematically represented in (13).

(13) a. Non-island (declarative CP)/scrambling
\[
[\text{NP ....} - \text{DAT}] \quad \text{NP-TOP} \quad [\text{CP NP-NOM} \quad t_t \quad \text{NP-ACC} \quad V_{EMB}] - \text{c} \quad V_{MAT}
\]
b. Island (object relative clauses)/scrambling
\[
[\text{NP ....} - \text{DAT}] \quad \text{NP-TOP} \quad [[\text{RC NP-NOM} \quad t_t \quad e_2 \quad V_{EMB}] \quad \text{head NP}_2] - \text{ACC} \quad V_{MAT}
\]

The crucial difference between (12) and (13) is that the object relative clause in (13) has an overt embedded subject. The presence of the overt subject reliably signals the presence of the embedded clause (e.g., Miyamoto 2002), making a garden-path effect unlikely. Thus, if the garden-path effect caused the superadditive effect observed in Fukuda et al. (2022), the effect would be
observed only with the subject relative clause items in (12) and should be
absent from the object relative clause items in (13). If a superadditive effect
is observed with both subject and object relative clauses, then it is unlikely to
be due to the garden-path effect and more likely to be an island effect.

Experiment 2 had two subexperiments: the subject relative clause subex-
periment and the object relative clause subexperiment. Each of the subexper-
iment had a 2 x 2 factorial design with SCRAMBLING (no scrambling vs.
scrambling) and STRUCTURE (declarative CPs vs. relative clauses). Eight lex-
cicalizations were created for each of the four conditions for the two types of
relative clauses (4 x 8 x 2 = 64). (14a-b) are examples of the subject relative
clause items, whereas (15a-b) are examples of the object relative clause
items. The scrambled constituents are outlined with a box.

(14) a. Non-island (declarative CP)/no-scrambling
   Sushiya-no shujin-wa [CP jooren-no okyakusan-ga
   Sushi.restaurant-GEN owner-TOP [ regular-GEN customer-NOM
   imoto-no shinbunkisha-ni] mise-no koto-o
   local-GEN newspaper.reporter-DAT restaurant-GEN thing-ACC
   sendenshitekureta]-to hometa
   advertised]-C praised
   ‘The owner of the sushi restaurant praised that the regular customer adver-
tised the restaurant to the local newspaper reporter.’

   b. Island (subject relative clauses)/no-scrambling
   Sushiya-no shujin-wa [ RC e i imoto-no
   Sushi.restaurant-GEN owner-TOP [ local-GEN
   shinbunkisha-ni] mise-no koto-o
   newspaper.reporter-DAT restaurant-GEN thing-ACC
   sendenshitekureta] jooren-no okyakusan-o hometa
   advertised] regular-GEN customer-ACC praised
   ‘The owner of the sushi restaurant praised the regular customer who adver-
tised the restaurant to the local newspaper reporter.’

(15) a. Non-island (declarative CP)/no-scrambling
   Kyuukyuubyootoo-no kangohu-wa [CP shinjin-no ishi-ga
   Emergency.room-GEN nurse-TOP [ new-GEN doctor-NOM
   isikihume-no kanja-ni nishurni-no kusuri-o
   unconcious-GEN patient-DAT two.kinds-GEN drug-ACC
   tooyoshita]-to tantooi-ni tsutaeta
   administered]-C attending.physician-to reported
   ‘The emergency room nurse reported to the attending physician that the
new doctor administered two types of drugs to the unconscious patient.’
b. Island (object relative clause)/no-scrambling
Kyuukyuubyoooto-no kangohu-wa[AP shinjin-no ishi-ga
Emergency.room-GEN nurse-TOP [ new-GEN doctor-NOM
ishikihumee-no kanja-ni e1 tooyoshita] nishurui-no kusuri1-o
unconscious-GEN patient-DAT administered] two.kinds-GEN drug-ACC
tantooi-ni miseta
attending.physician-to showed
‘The emergency room nurse showed to the attending physician two types
of drugs that the new doctor administered to the unconscious patient.’

The experimental items were distributed into four lists and combined with
forty-eight fillers and five practice sentences (16 + 48 + 5 = 69). A total of
100 self-identified Japanese native speakers were recruited via a Japanese
crowdsourcing website, CrowdWorks (https://crowdworks.co.jp/en/), and
participated in the experiment online using PCIbex (Zehr and Schwarz 2018).

The effect size of NP-scrambling for each participant was calculated us-
ing the same procedure used in Experiment 1. Figure 6 shows the distribution
of the individual effect sizes in Experiment 2 for the two subexperiments.

Within the object relative clause subexperiment on the righthand panel, the
distribution of the effect sizes shows a bimodal distribution with two peaks,
one around the effect size of 1.0 and the other around 2.5. In contrast, there
is no indication of a bimodal distribution in the effect sizes with the subject
relative clause subexperiment on the lefthand panel, with a single peak at the
effect size of 1.0. Although the visual inspection provides no evidence of a
bimodal distribution within the subject relative clause subexperiment, we di-
vided the participants in Experiment 2 into two groups, scramblers and non-
scramblers, using the same procedure described in Section 4, to be consistent.

6.1 Subject Relative Clauses
The lefthand panel in Figure 7 show the four condition means for the non-
scramblers with above-average effect size of NP-scrambling, and the
righthand panel shows the condition means for the scramblers with below-average effect size of NP-scrambling.

![Figure 7](image-url)  
*Figure 7. The mean z-scores from the subject relative clause subexperiment*

With the non-scramblers ($n = 52$), the $z$-score means for the non-island declarative CP items and the island subject relative clause items with the scrambling condition virtually overlap, showing that the significant main effect of NP-scrambling. With the scramblers ($n = 48$), the main effect of NP-scrambling with the non-island declarative CPs is negligible while the $z$-score mean for the subject relative clause items with the scrambling condition is lower than the $z$-score mean for the non-island declarative CP items with the same condition, indicating the presence of a superadditive effect. 

The statistical models support the observations above. There is a significant interaction between SCRAMBLING and STRUCTURE with the scramblers ($\beta = -0.65, p < 0.01$) but not with the non-scramblers ($\beta = 0.19, p = 0.10$). The Bayes factor for the scramblers is significantly above 3.0 ($BF > 100$), providing further support for the presence of the interaction, whereas the Bayes factor for the non-scramblers is 0.66, within the inconclusive range.

### 6.2 Object Relative Clauses

The lefthand panel in Figure 8 shows the four condition means for the non-scramblers and the righthand panel shows those for the scramblers.

![Figure 8](image-url)  
*Figure 8. The mean z-scores from the object relative clause subexperiment*
With the non-scramblers \((n = 51)\), the \(z\)-score means for the non-island CP items and the island object relative clauses items with the scrambling condition were very close to each other at closer to the bottom of the scale, showing the indiscriminating effect of NP-scrambling. With the scramblers \((n = 49)\), the effect of NP-scrambling is clearly larger with the island object relative clause items than with the non-island declarative CP items, creating a larger gap between the \(z\)-score means on the scrambling side compared to the gap on the no-scrambling side, where the two \(z\)-score means completely overlap.

The statistical model indicates a significant interaction between STRUCTURE and SCRAMBLING with the scramblers \((\beta = -0.54, p < 0.01)\) and the Bayes factor is significantly above 3.0 \((BF > 100)\). With the non-scramblers, there is no significant interaction \((\beta = 0.19, p = 0.09)\) and the Bayes factor for the scramblers is 1.62, within the inconclusive range.

### 6.3 Discussion

Just like Experiment 1, the participants in Experiment 2 were divided into scramblers, with whom the effect of scrambling is below the average, and non-scramblers, with whom the effect of scrambling is above the average. With the scramblers, robust island effects of NP-scrambling are observed with both subject and object relative clauses, suggesting that the effects of NP-scrambling out of relative clauses cannot be reduced to the potential garden-path effect or the effects of the overlapping dependencies.

### 7 Conclusions and Implications

The aim of this study was to reexamine island effects with NP-scrambling in Japanese with three potential island structures: subjects, because-adjunct clauses, and relative clauses. Previous studies disagree whether or not there is subject-object asymmetry in NP-scrambling (Jurka 2010; Jurka et al. 2011; Omaki et al. 2020). While Yano (2019) provides experimental evidence for island effects with NP-scrambling out of because-adjunct clauses in Japanese, the fact that NP-scrambling out of the non-island declarative CPs was rated surprisingly low in his experiments raises some concern, and the same issue is observed with the experiments in Omaki et al., where the items in the scrambling condition generally received low ratings. In Fukuda et al. (2022), we presented experimental evidence for island effects with NP-scrambling out of relative clauses, but the fact that only subject relative clauses were tested in our experiments leaves open the possibility that the observed effect receives an alternative account. Finally, the second experiment in Fukuda et al. revealed that acceptability judgments of Japanese speakers on by-hypothesis grammatical NP-scrambling out of declarative CPs may vary.
We conducted two acceptability judgment experiments to test island effects of NP-scrambling with subjects and *because*-adjunct clauses (Experiment 1) and subject and object relative clauses (Experiment 2) in Japanese. The results of these experiments show significant individual differences in the effect size of NP-scrambling. Once these individual differences are taken into consideration, our findings provide clear evidence of island effects with NP-scrambling out of *because*-adjunct clauses and relative clauses and suggestive evidence of island effects with NP-scrambling out of subjects.

Island effects with NP-scrambling out of relative clauses have been reliably replicated experimentally. Our contribution is that we have demonstrated the presence of island effects with both subject and object relative clauses. Given that the previous discussions focused only on NP-scrambling out of subject relative clauses, our findings provide novel empirical evidence from object relative clauses and strengthen the claim that Japanese relative clauses are islands with respect to NP-scrambling. It is interesting to note that relative clauses have also been found to incur (subliminal) island effects with *wh*-in-situ (Tanaka and Schwartz 2018; Tanaka this volume) and relativization (Takahashi and Goodall 2021) in Japanese.

Our findings also provide clearer evidence for island effects with NP-scrambling out of *because*-adjunct clauses and suggest that the lower-than-expected *z*-score means for the non-island declarative CP items with NP-scrambling in Yano (2019) could have been due to individual differences in the effect size of NP-scrambling. As the next step, it would be informative to examine island effects of NP-scrambling with different types of adjunct clauses in Japanese. For instance, conditional adjuncts with *moshi* ‘if’ have been claimed to be a non-island structure (Yoshida 2006). It would be interesting to compare NP-scrambling out of *because*-adjunct clauses and that out of the conditional adjunct clauses.

Finally, Japanese has been argued to lack subject-object asymmetry with subextraction (e.g., Ross 1967; Kuno 1973; Saito 1985, 1992; Nishigauchi 1990; Lasnik and Saito 1992; Watanabe 1992; Takahashi 1994; Ishii 1997; Richards 1997; Stepanov 2007). Given that, the fact that we obtained a superadditive effect with NP-scrambling out of subjects is noteworthy.

Another major empirical contribution of the current study is that we have shown that there are significant individual differences in the effect size of NP-scrambling. The obvious question that this finding raises is: Why is there so much individual variation in the effect size of NP-scrambling? Answering this question requires a careful investigation that identifies and systematically test multiple factors that may potentially affect speakers’ judgements of sentences with NP-scrambling. However, as discussed in Section 3.3, one notable characteristic of NP-scrambling that makes it different from the other A-bar dependencies is that it is an optional operation. Because it is optional, if
NP-scrambling in a given sentence is not perceived as well-motivated by participants, such sentence might be rated poorly. If this is a contributing factor to the observed individual differences in the effect size of NP-scrambling, providing contexts might reduce the effect size of NP-scrambling with some speakers. In fact, Koizumi and Imamura (2017) demonstrated that OSV sentences are processed faster when context sentences were provided so that the scrambled object represented old/given information.\(^2\)

We offer two comments about possible effects of contexts on the effect size of NP-scrambling. First, Yano (2019) provided contexts in one of his experiments with NP-scrambling out of because-adjunct clauses and noun complements, but the presence of these contexts failed to improve the acceptability of his experimental sentences. Second, while the findings from Koizumi and Imamura (2017) suggest that scrambled constituents typically represent old/given information, as briefly discussed in Section 3.1, previous studies have also shown that NP-scrambling tends to be judged as more acceptable if the scrambled constituent is relatively heavy/long in a given sentence, because of the long-before-short preference among Japanese speakers. These two observations conflict with each other. While heavier/longer constituents are preferred to be placed sentence initially, thus motivating scrambling, scrambled constituents also tend to represent given information, which tend to be shorter (e.g., Arnold et al. 2000). Given these considerations, it would not be a simple task to provide contexts to see if they can improve the acceptability of sentences with NP-scrambling.

While we must leave this question unanswered for now, our findings in this study demonstrate how large-scale acceptability judgment experiments can shed new light on previously unnoticed factors that affect acceptability judgments with different types of long-distance dependencies. We hope that our findings will help improve the future experimental investigations into island effects with NP-scrambling and other A-bar dependencies.

References


\(^2\) Otsu (1994) also demonstrated that Japanese children’s comprehension of scrambling sentences greatly improved when contexts that introduce relevant referents were provided. I would like to thank John Whitman and Kyoko Yamakoshi for directing our attention to this study.


1 Introduction: Spectrum of Emotive Terms in Korean

In this chapter, I offer an overview the Semantics and Pragmatics of various terms that reflect the speaker’s emotional attitudes in Korean, including emotive color terms, racial slurs, emotive taste terms, and temperature terms. At the interface of Pragmatics and Semantics, I show how the dynamic paradigm of multiple expressives, a target emotive term and other emotive expressions in the sentence, can be predicted by the Compatibility Condition Model and the Compatibility Condition Index (Yoon 2015, 2018, 2021a).
I first focus on the Semantics of various terms that reflect the speaker’s emotional attitudes in Korean, including emotive color terms, racial slurs, emotive taste terms, and temperature terms. In exploring extremely complex connotational nuances in 77 variants of emotive color terms (Yoon 2018), for example, I show the regularity of how such abundant derivations can be achieved by systematic phonetic and morphological alternations.

(1) 77 variants of kamah-ta ‘black’
   i. kama-nolukkeyha-ta ‘yellowish black’
   ii. kamah-ta ‘vivid deep black’
   iii. kama-kamah-ta ‘very vivid deep black’
   iv. kam-ta ‘vivid black’
   v. kamit-kam-ta ‘vivid black or blackish in places’
   vi. keme-kemeh-ta ‘very pale black’
   vii. kemeh-ta ‘pale black’
   viii. kamwu-akulum-ha-ta ‘slightly grayish deep blackish’
   ix. kamwu-taytay-ha-ta ‘un-refreshingly deep blackish.neg.att’
   x. kamwu-tayngtayng-ha-ta ‘unbecomingly deep blackish.neg.att’
   xi. kamwu-ley-ha-ta ‘pale deep blackish’
   xii. kamwu-suwukswuk-ha-ta ‘pleasently plain deep blackish.pos.att’
   xiii. kamwu-suley-ha-ta ‘deep blackish’
  xiv. kamwu-sulum-ha-ta ‘deep blackish’
   xv. kamwu-capcap-ha-ta ‘somber/(dull/cheerless) deep blackish.neg.att’
   xvi. kamwu-cocok-ha-ta ‘unevenly blackish.neg.att’
   xvii. kamwu-chikckik-ha-ta ‘somber/(dull/cheerless) deep black.neg.att’
   xviii. kamwu-thoythoy-ha-ta ‘messy murky deep blackish.neg.att’
   xix. kam-phalah-ta ‘bluish vivid black’
   xx. kemwu-akulum-ha-ta ‘slightly grayish light blackish’
   xxi. kemwu-teytyey-ha-ta ‘somewhat vulgar light blackish.neg.att’
   xii. kemwu-tyngteyng-ha-ta ‘unbecomingly light blackish.neg.att’
   xiii. kemwu-rey-ha-ta ‘pale light blackish’
   xiv. kemwu-swukswuk-ha-ta ‘pleasently plain light blackish.pos.att’
   xv. kemwu-suley-ha-ta ‘light blackish’
   xvi. kemwu-sulum-ha-ta ‘light blackish’
   xvii. kemwu-cepcep-ha-ta ‘somber/(dull/cheerless) light blackish.neg.att’
   xviii. kemwu-cwukcwuk-ha-ta ‘unevenly light blackish.neg.att’
   xix. kemwu-chwukchwuk-ha-ta ‘light blackish and damp’
   xx. kemwu-chwangchwang-ha-ta ‘gloomy light blackish.neg.att’
   xxxi. kemwu-chikchik-ha-ta ‘somber/(dull/cheerless) light blackish.neg.att’
   xxxii. kemwu-thwuythwuy-ha-ta ‘messy murky light blackish.neg.att’
   xxxiii. kemwu-akulum-ha-ta ‘grayish light blackish’
   xxxiv. kama-malswuk-ha-ta ‘black and neat (well-groomed).pos.att’
xxxv. kama-(mwu)thulum-ha-ta ‘black and chubby (face)’
xxxvi. kama-pancilu-ha-ta ‘black and glossily (sleekly)’
xxxvii. kemwus-kemwus-ha-ta ‘black or blackish in places’
xxxviii. kem-ta ‘black’
xxxix. kemti-kem-ta ‘extremely black’
xl. kem-pwulk-ta ‘blackish and red’
  xli. kem-chukchuk-ha-ta ‘unpure black’
  xlii. kem-phereh-ta ‘blackish and deep blue/green’
  xliii. kem-phwulu-ta ‘blackish and blue/green’
xliv. kem-phwulu-cepcpe-ha-ta ‘somber/(dull/cheerless) blackish and blue/greenish.neg.att’
xlv. kkamah-ta ‘vivid deep black’
  xlv. kkamwu-kkulum-ha-ta ‘grayish and somewhat vivid deep blackish’
xlvii. kemwu-taytay-ha-ta ‘somewhat vulgar vivid deep blackish.neg.att’
xlviii. kkamwu-tayntayng-ha-ha-ta ‘unbecomingly somewhat vivid deep blackish.neg.att’
  1. kemwu-swukswuk-ha-ta ‘pleasantly plain somewhat vivid deep blackish.pos.att’
    1i. kkamwu-sulum-ha-ta ‘somewhat vivid deep blackish’
    1ii. kkamwu-capcap-ha-ta ‘somber/(dull/cheerless) somewhat vivid deep blackish.neg.att’
    1iii. kkamwu-cokcok-ha-ta ‘unevenly somewhat vivid deep blackish’
    1iv. kkamwu-chikckik-ha-ta ‘somber/(dull/cheerless) strong black.neg.att’
    1v. kkamwu-thoythoy-ha-ta ‘murky somewhat vivid deep blackish’
    1vi. kkamwus-kkamwus-ha-ta ‘vivid deep black or blackish in places’
    1vii. kkamwus-ha-ta ‘somewhat seemingly vivid deep blackish’
    1viii. kka-ta ‘strong vivid black’
    1ix. kkeleh-ta ‘strong deep black’
    1x. kkamwu-klulum-ha-ha-ta ‘slightly grayish and slightly strong deep blackish’
  1xi. kkemwu-teytyey-ha-ta ‘somewhat vulgar slightly strong deep blackish.neg.att’
  1xii. kkemwu-teyntayng-ha-ta ‘unbecomingly slightly strong deep blackish.neg.att’
  1xiii. kkemwu-ley-ha-ta ‘pale yet slightly strong deep blackish’
  1xiv. kkemwu-sulum-ha-ha-ta ‘slightly strong deep blackish’
  1xv. kkemwu-swukswuk-ha-ta ‘pleasantly plain slightly strong deep blackish.pos.att’
  1xvi. kkemwu-cepcpe-ha-ta ‘somber/(dull/cheerless) slightly strong deep blackish.neg.att’
  1xvii. kkemwu-cwukcwuk-ha-ta ‘unevenly slightly strong deep blackish’
I further show how these emotive variants systematically convey the speaker’s positive or negative emotional attitude that is reflected in a particular derivation of the base term, in addition to its base meaning. To capture the precise meaning differences, I propose a hybrid analysis of these emotive terms at the interface of Pragmatics and Semantics. Further, I show how the dynamic paradigm of multiple expressives, a target emotive term and other emotive expressions in the sentence, can be predicted by the Compatibility Condition Model and the Compatibility Condition Index (Yoon 2015, 2018, 2021a). The rigorous investigation of numerous possible variants for a single base term reveals the systematicity of expressives, as part of our grammar, while the identification of another case of expressive element in language further supports the notion of multidimensionality (Potts 2005 et seq.).

In examining the Compatibility Condition on the polarity/degree of emotional attitude for the emotive elements in Korean (Yae and Yoon 2017, Yoon 2021b, 2022a,b), I show the results obtained from a big data-based trend analysis including usages in Twitter, news articles, and blogs. Two main issues are reexamined here: one concerns constraints on the Compatibility Condition and how to measure the degree of compatibility; and the second concerns how strict the compatibility condition of expressives is, and what happens if the condition is flouted. One implication of the current study is that, by specifying an Emotional Index for expressive items in the sentiment lexicon, the Compatibility Condition, as a grammatical constraint, predicts how multiple occurrences of compatible expressives can be used to strengthen a speaker’s positive or negative emotion. Finally, I suggest a condition for rescuing by pragmatic effects as a secondary mode of pragmatic sanctioning in exceptional cases of co-occurrences of conflicting attitudinal components, which is predicted by the sarcasm/irony regions in the Compatibility Condition Model.
2 Semantic-Pragmatic Analysis

2.1 The Expressive Dimension of Racial Slurs

In Yoon 2015, I explore the semantic properties of racial slurs in Korean, as in (2), and shows that slurs are expressive items in the sense of Potts (2005 et seq.). The expressive dimension of racial slurs is shown by the main characteristics of expressions suggested by Potts.

(2) That bastard Frederic is famous.

(3) Kupppalagni nom-un yumyenghay.

that commie.neg.att jerk.neg.att-Top famous

‘That commie jerk is famous.’

2.2 Compatibility Condition Model

Based on the observation of empirical data with regard to the compatibility between slurs and other expressives, I propose the following equation of Compatibility Condition Index (CCI) to calculate the compatibility between two expressive items (Yoon 2015:(25)).

(4) \[
\text{Compatibility Condition Index (CCI)} = \left( \frac{\text{length of overlapped range of narrow Expressive Index (EI)}}{\text{length of broad Expressive Index (EI)}} \right) \times 100(\%)
\]

Further, to show how the CCI correctly predicts the distributional pattern of expressives, I propose the following Compatibility Condition Model (CCM) for multiple expressives:
This CCM is supported by the following four pieces of evidence. First, the cooccurrence patterns between slurs and other expressive nouns is predicted to follow the patterns suggested in CCM, as shown in the following Table 1.
Second, a similar pattern is expected between slurs and case markers with different emotional attitudes, as given in Table 2.

Table 2. Compatibility of slurs and case markers

Third, another way to test the compatibility condition is testing the distribution of slurs against (anti-)honorific markers, as shown in Table 3.

Table 3. Compatibility of slurs and (anti-)honorific markers

Finally, the compatibility model can be also tested by the naturalness of cooccurrence between slurs and negative or positive verbal markers, as shown in Table 4. In all these tables, we expect the high compatibility (dark gray regions) between two emotive terms sharing their emotive stance (e.g. two strong negative terms, two positive terms).
This prediction is borne out as shown in the co-occurrence patterns of slurs and expressive nouns in Korean National Corpus *The Sejong Corpus*, as in Table 5.

<table>
<thead>
<tr>
<th>Table 4. Compatibility of slurs and various verbal markers</th>
</tr>
</thead>
</table>

2.3 Nonconformity Cases

In 2.1-2.2, I have shown how to predict the compatibility between emotionally charged items. In 2.3, however, I show that there are several exceptional cases to CCM, and suggest another condition for rescuing by pragmatic effects as a secondary mode of pragmatic sanctioning in exceptional cases of co-occurrences of conflicting attitudinal components, as shown in the following four cases.
First, when we see the case of juxtaposition of opposite attitudes, pragmatic effects such as sarcasm, irony, or hyperbole arise. In (5) below (Yoon 2015:(42)), the juxtaposition of strong negative slur ‘commie’ and high honorific form ‘sir/ma’am’ exhibits high frequency in Google search to convey a sarcastic flavor toward the North Korean.

(5) a. Ppalkayngi-pwun: 6,490 hits on Google search (June 27, 2014) commie._neg.att-sir._hon

b. Ppalkayngi-nim: 32,700 hits on Google search (June 27, 2014) commie._neg.att-sir._hon
   ‘The (c)dishonorable commie, the (c)honorable being.’

Second, we frequently observe the case of flip-flop of bipolar emotional index to convey strengthened emotion by flipping the otherwise negative emotive stance to positive one, as in (6b), or to convey intimacy, as in (7) in English (Yoon 2015:(44-46)), as well as in Korean.

(6) a. That fucking bastard Burns got promoted again!
   b. That’s really fucking brilliant!

(7) Hiya, bitches! (to extremely close friends)

Third, code-switching across different levels in honorific dimension is another universally observed strategy to modulate social distance, as shown in (8) (Yoon 2015:(48)).

(8) Sakwa-ka. o-ass-eyo. sakwa-ka. oa-ss-e!
   apple-Nom come-Pst-Decl.hon apple-Nom come-Pst-Decl.anti.hon
   ‘Here come the apples. Here are the apples!’ (by an apple vendor)

Finally, the autonomy of emotion- and honorific-dimensions, shown in the following English and Korean examples (Yoon 2015:(50-51)), further supports the notion of multidimensionality.

(9) a. “Sir, You Bastard”
   b. “How dare you, sir!”
   (spoken by the waiter, Jack, to a rude patron at an upscale restaurant, “Will & Grace” NBC TV series)
(10)  Hoycangnim-**kkeyse**  cwusik-ul  maykakhay-**peli**-si-ess-e.
  president-Nom.hon  stock-Acc  sell-neg.att-subj.hon-Pst-Decl
  ‘The (c1honorable)1 (c1honorable)1 president has (c1regrettably)2
  sold his stocks.’

This is predicted by the *sarcasm/irony regions* in the Compatibility Con-
dition Model.

![Figure 2. Sarcasm and Irony areas in CCM](image)

3 Big Data Analysis

Although the empirical study with Sejong corpus above (table 5) supports
CCM, I reexamine the Compatibility Condition on the polarity/degree of
emotional attitude for the emotive elements in Korean (Yae and Yoon 2017,
Yoon 2021b, 2022a,b). I discuss results obtained from *a big data-based trend
analysis* including usages in Twitter, news articles, and blogs. Two main
issues are reexamined in these studies: one concerns constraints on the Com-
patibility Condition and how to measure the degree of compatibility; and the
second concerns how strict the compatibility condition of expressives is, and
what happens if the condition is flouted. The results from the big data-based
trend analysis reveal which part of the prior theoretical analysis is valid in
reality and which part requires revision.

First, data source of the study on the racial slur *kkamtwungi* ‘blackie, nigger’ is as follows.

<table>
<thead>
<tr>
<th>Data source</th>
<th>Total number of collected items</th>
<th>Number of entries (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twitter</td>
<td>16,948,327</td>
<td>750 (0.0044%)</td>
</tr>
<tr>
<td>News</td>
<td>1,057,758</td>
<td>62 (0.0069%)</td>
</tr>
<tr>
<td>Blog (weblogs)</td>
<td>171,719</td>
<td>9 (0.0052%)</td>
</tr>
</tbody>
</table>

Table 6. Data source of *kkamtwungi* ‘blackie, nigger’

Second, distribution across different text categories of the collected data in Table 7 reveals that ethnic slurs like *kkamtwungi* ‘blackie, nigger’ are frequently used in informal contexts.

<table>
<thead>
<tr>
<th>Formality of text categories</th>
<th>Categories of texts</th>
<th>2015-07-04-2016-07-05</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-formal</td>
<td>Current events</td>
<td>13</td>
<td>1.58%</td>
</tr>
<tr>
<td></td>
<td>Life/Culture</td>
<td>22</td>
<td>2.68%</td>
</tr>
<tr>
<td></td>
<td>Entertainment</td>
<td>7</td>
<td>0.85%</td>
</tr>
<tr>
<td></td>
<td>Sports</td>
<td>3</td>
<td>0.37%</td>
</tr>
<tr>
<td>Formal</td>
<td>Economy</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Tech</td>
<td>3</td>
<td>0.37%</td>
</tr>
<tr>
<td></td>
<td>World</td>
<td>23</td>
<td>2.80%</td>
</tr>
<tr>
<td></td>
<td>Politics</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Informal</td>
<td>Personal posting at Twitter/blogs</td>
<td>750</td>
<td>91.35%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>821</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 7. Categories of texts containing *kkamtwungi* ‘blackie, nigger’ in 2015, 2016

Third, the following word cloud for *kkamdwungi* ‘blackie, nigger’ clearly exhibits that it typically accompanies negative emotive words.
4 Other Emotive Terms in Korean (vs. English)

The following Word cloud shows different sentiment between two variants of taste terms like ‘bitter.’ See Yoon (2018, 2021a, b, 2022a, b) for sentiment in color terms and temperature terms in Korean.
Finally, ideophones (e.g. onomatopoeia and mimetic words) in Korean also show rich emotive variants, as in (11).

(11) Onomatopoeia and mimetic words in Korean: Positive vs. Negative variants

a. *Alloktallok* vs. *Ellwuktellwuk* ‘colorful’
b. Pokulpokul vs. pwukulpwukul ‘(boiling sound)’

c. Photongphotong vs. phitwungphitwung ‘chubby’

d. Pancacakpanccak vs. penccekpenccak ‘flashing’

e. Chokchok vs. cwukchuk ‘moist’

f. Saleccak vs. sulccak ‘gently vs. sneakily’

g. Colcol vs. cwulcwul ‘(flowing water sound)’

One implication of the current study is that, by specifying an Emotional Index for expressive items in the sentiment lexicon, the Compatibility Condition, as a grammatical constraint, predicts how multiple occurrences of compatible expressives can be used to strengthen a speaker’s positive or negative emotion.

6 Conclusion

In exploring extremely complex connotational nuances in 77 variants of emotive color terms, for example, I show the regularity of how such abundant derivations can be achieved by systematic phonetic and morphological alternations. I further show how these emotive variants systematically convey the speaker’s positive or negative emotional attitude that is reflected in a particular derivation of the base term, in addition to its base meaning. The rigorous investigation of numerous possible variants for a single base term reveals the systematicity of expressives, as part of our grammar, while the identification of another case of expressive element in language further supports the notion of multidimensionality (Potts 2005 et seq.).

I reevaluate the Compatibility Condition on the polarity/degree of emotional attitude for the emotive elements in Korean (Yae and Yoon 2017, Yoon 2021b, 2022a,b). In discussing the results obtained from a big data-based trend analysis including usages in Twitter, news articles, and blogs, two main issues are reexamined: one concerns constraints on the Compatibility Condition and how to measure the degree of compatibility; and the second concerns how strict the compatibility condition of expressives is, and what happens if the condition is flouted. The new results from the big data-based trend analysis reveal which part of the prior theoretical analysis is valid in reality and which part requires revision. One implication of the current study is that, by specifying an Emotional Index for expressive items in the sentiment lexicon, the Compatibility Condition, as a grammatical constraint, predicts how
multiple occurrences of compatible expressives can be used to strengthen a speaker’s positive or negative emotion. Furthermore, I suggest a condition for rescuing by pragmatic effects as a secondary mode of pragmatic sanctioning in exceptional cases of co-occurrences of conflicting attitudinal components, which is predicted by the sarcasm/irony regions in the Compatibility Condition Model. More analysis of ideophones and honorific systems are in my future agenda.

References


Wh-intonation in Korean

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Stony Brook University

1 Introduction

This article provides an overview of the intonation patterns observed in Korean sentences involving so-called wh-words, based on recent experimental findings. In Korean, sentences incorporating wh-words exhibit a notable degree of ambiguity. To illustrate this point, consider sentence (1), which can be interpreted in three distinct ways: as a wh-question ‘Who did Mina meet?’; as a yes-no question ‘Did Mina meet anyone?’; or as a statement ‘Mina met someone.’

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Copyright © 2023, CSLI Publications.
The phenomenon of three-way ambiguity is highly prevalent in Korean sentences involving *wh*-words due to multiple factors: the lexical ambiguity inherent in *wh*-words, the absence of explicit *wh*-movement, and the utilization of a neutral sentence ending that can be used for both statements and questions. Given the presence of these factors contributing to sentence ambiguity, the question arises: how can we accurately determine the intended meaning of the speaker? While contextual information certainly aids in disambiguation, even in the absence of context, native Korean speakers can effortlessly discern between the various readings (Jun and Oh 1996; Yun and Lee 2022). This ability is facilitated by the distinct intonation patterns associated with each interpretation. However, the question remains: what are the specific prosodic factors that differentiate these readings and allow for their identification?

There are three notable prosodic factors that have been discussed in previous studies as being relevant to disambiguation of sentences involving *wh*-words. The first two factors are known to directly contribute to distinguishing *wh*-questions from other sentence types. First, in *wh*-questions, the *wh*-word exhibits greater prosodic prominence than other elements in the sentence (Chang 1973; Cho 1990; Choe 1985; Kang 1988; Suh 1989). Second, in *wh*-questions, the *wh*-word and the subsequent words constitute a single prosodic unit, thereby eliminating prosodic boundaries after the *wh*-word (Cho 1990; Jun 1993; Yun 2019). Additionally, sentence-final intonation is also known to interact with the sentence type. Many studies have reported that statements and *wh*-questions have falling terminal intonation, while yes/no-questions have rising terminal intonation in Korean (Hur 1965; Kwon 2002; I. Lee and Ramsey 2000; Martin 1951; Nam and Ko 1985; S. Park 1997; Suh 1989). According to this prevalent view, sentence-final intonation is not directly relevant to the disambiguation of the indeterminate *wh*-words, because the same final falling intonation can be used for both [-WH] and [+WH], but rather provides an indirect clue that at least yes-no questions can be singled out.

This article aims to examine both “direct” and “indirect” clues to the meaning of *wh*-words. First, I will compare the two “direct” factors, namely prominence and phrasing, with regards to their respective significance in the intonation of *wh*-questions. This analysis is primarily a comprehensive overview of my earlier study (Yun 2019). Then, I will discuss the role of sentence-final intonation as an “indirect” factor in *wh*-intonation and its interaction with sentence-final morphology. The implication of these findings on Korean
**wh-intonation will also be discussed, including their relevance to crosslinguistic and theoretical perspectives.**

Before delving into the discussion, it is worth noting that intonation patterns can vary across different dialects of Korean. This article, however, will primarily focus on Seoul Korean, which is commonly regarded as the standard dialect. Nevertheless, the semantic and phonological principles underlying the analysis presented herein are expected to be applicable to other dialects as well.

### 2 Phrasing and Prominence

Prominence and phrasing are two critical prosodic factors extensively discussed in the literature concerning *wh*-intonation. It has been widely observed that a *wh*-phrase acquires heightened prosodic prominence when it conveys an interrogative interpretation (Chang 1973; Cho 1990; Choe 1985; Kang 1988; Suh 1989). This is evident in the comparative analysis of the indefinite and interrogative readings of the *wh*-word in sentence (1): with an interrogative reading, the *wh*-phrase 복구를 nwukwu-lul ‘who-ACC’ exhibits a discernible increase in prominence, typically manifested through higher pitch or an expanded pitch range on the *wh*-word.

It has also been observed that in *wh*-questions, the *wh*-word forms a unified prosodic phrase with the subsequent words in the sentence (Cho 1990; Jun 1993; Yun 2019). For example, in the sentence (1), the *wh*-phrase 복구를 nwukwu-lul ‘who-ACC’ and the verb 만났어 mannasse ‘met’ constitute separate prosodic phrases in a statement reading. However, in a *wh*-question reading, the *wh*-phrase and the verb merge into a single prosodic phrase. Since the prosodic phrase boundaries after the *wh*-word are deleted, this phenomenon is commonly termed as “post-*wh*-dephrasing” in the context of *wh*-questions.

To determine the presence or absence of a prosodic boundary, one needs to acquire a foundational understanding of the intonation system in Korean. For this purpose, I adopt the intonation model for Seoul Korean proposed by Jun (1993). This model conceptualizes Korean utterances as comprising Intonational Phrases (IPs), which are further composed of Accentual Phrases (APs), adhering to a prosodic hierarchy (cf. Selkirk 1986). Of particular relevance to the investigation of *wh*-intonation is the notion of the “Accentual Phrase.”

To establish a framework for defining Accentual Phrases, it is essential to familiarize ourselves with the fundamental premise of the Autosegmental-Metrical Theory (Pierrehumbert 1980): intonation contours are described as combinations of two abstract pitch levels, namely the high tone (H) and the low tone (L). In Seoul Korean, the fundamental tonal pattern in an Accentual
Phrase (AP) is T H L H, where the initial tone T can be either L or H, depending on the property of the first syllable in the AP. If the first syllable starts with a tense or aspirated obstruent, the initial tone is realized as H; otherwise it is L. For the sake of simplicity, the rest of the discussion will focus on the LHLH pattern, as it is more commonly encountered compared to the HHLH pattern. This foundational LHLH pattern is fully manifested when the AP consists of four or more syllables. In such cases, the initial L and H tones occur on the first two syllables, while the final L and H tones appear on the last two syllables. If the AP consists of fewer than four syllables, only the initial L and the final H tones are fully realized.

Returning to the discussion of wh-questions, post-wh dephrasing can be defined in terms of APs. Specifically, the wh-word and the subsequent words combine to form a single AP. In sentence (1), a statement reading involves three APs, each comprising three syllables, resulting in an intonation pattern as shown in Figure 1a. In a wh-question reading, by contrast, the wh-phrase and the following word constitutes a larger AP with six syllables, leading to an intonation pattern as illustrated in Figure 1b.

As illustrated in this example, post-wh dephrasing is commonly observed through the tonal patterns of APs in most cases. A recent experimental study (Yun and Lee 2022) provides evidence that speakers tend to utilize the differences in AP tonal patterns to distinguish wh-questions, even when the expected tonal pattern is the same for interrogative and indefinite interpretations (e.g., a disyllabic wh-word followed by a disyllabic word at the end of the sentence).

a. [-wh] ‘Did Mina meet someone?’

Intonation

<table>
<thead>
<tr>
<th>AP tones</th>
<th>L</th>
<th>H</th>
<th>L</th>
<th>H</th>
<th>L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syllables</td>
<td>민</td>
<td>아</td>
<td>가</td>
<td>누</td>
<td>구</td>
<td>을</td>
</tr>
</tbody>
</table>

b. [+wh] ‘Who did Mina meet?’

Intonation

<table>
<thead>
<tr>
<th>AP tones</th>
<th>L</th>
<th>H</th>
<th>L</th>
<th>H</th>
<th>L</th>
<th>H</th>
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<td>Syllables</td>
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<td>아</td>
<td>가</td>
<td>누</td>
<td>구</td>
<td>을</td>
</tr>
</tbody>
</table>

*Figure 1. Schematic intonation patterns of (1).*
Now that we have acquired an understanding of prominence and phrasing in the intonation of wh-questions in Korean, a pertinent question arises: which factor plays a more pivotal role in deciphering the meaning of wh-words? Is it prominence or phrasing? In order to address this query, it is necessary to draw attention to additional phenomena that bear relevance to the interpretation of wh-words in Korean.

In the literature of syntax and semantics, it has been noted that syntactic islands often align with semantic islands (May 1977). This phenomenon is exemplified by if-clauses in English, which impose constraints on both overt movement and the interpretation of scope-bearing elements. For example, consider the sentence: *If everyone comes to the party, May will be happy.* The sentence is restricted to a narrow scope reading of *everyone* within the *if*-clause, implying that ‘May will be happy in case everyone comes to the party.’ It cannot convey the interpretation ‘For everyone, May will be happy if that person comes to the party.’ Consequently, expressions such as *everyone* are unable to extend their semantic scope beyond if-clauses in which they are syntactically located.

However, it has been observed in semantics literature that indefinite expressions, such as *some*, exhibit the phenomenon of free scope (Fodor and Sag 1982), enabling them to extend their scope beyond syntactic islands. This contrasts with the aforementioned restrictions placed on other scope-bearing elements. To illustrate this point, consider the sentence: *If someone comes to the party, May will be happy.* In this case, the sentence can convey either a narrow scope reading of *someone* as ‘If anyone comes to the party, May will be happy,’ or a wide scope reading as ‘There is a certain someone such that if that person comes to the party, May will be happy.’ Here, the indefinite expression *someone* demonstrates the ability to take scope beyond the syntactic boundaries typically imposed by islands, underscoring its distinctive semantic behavior.

The previous discussion primarily pertains to regular indefinites that lack morphological association with wh-words, such as *someone* or *something* in English. However, what about indefinites that share a morphological form with question words? It has been argued that when it comes to indefinites that have the same form as question words, they are restricted to narrow scope interpretations, unlike regular indefinites that can exhibit free scope (Bruening 2007; Ha 2004). However, this restriction does not always seem to hold, at least in the case of Korean.

In Korean, indefinite expressions derived from wh-words possess the capability to take wide scope, even extending beyond if-clauses. For example, sentence (2) allows for both a narrow scope reading of the indefinite and a wide scope reading. Notably, based on my informal investigation involving native Korean speakers, it was found that many speakers in fact prefer the
wide scope interpretation (Yun 2019: 633). This observation highlights the significance of incorporating scope considerations into the comprehensive analysis of sentences involving wh-words in Korean.

(2) 누가 파티에 오면 연아가 좋아할 거야

\textit{nwuka phathi-ey o-myen Yuna-ka cohahakkeya}

who.NOM party-DAT come-if Yuna-NOM will.be.happy

(lit.) ‘If who/someone comes to the party, Yuna will be happy’

Returning to the discussion on wh-intonation, my proposition unfolds as follows. First, it is the phonological phrasing that plays a pivotal role in discerning the intended meaning of wh-words, thereby determining whether they carry a [+WH] or [-WH] interpretation. Second, wh-words with an indefinite reading in Korean can take wide scope, and the presence of phonetic prominence enhances the likelihood of a wide scope interpretation.

To verify these claims, I conducted a perception experiment utilizing a 2 \times 2 design. The experiment involved two prosodic factors, namely wh-pitch raising and post-wh dephrasing, each with two levels (i.e., existence or absence). The target stimuli in the experiment were all like (2), consisting of sentences containing a wh-word that was embedded within an if-clause to allow for different scope readings (i.e. wide or narrow scope). The sentences were deliberately structured to end in a neutral form, thereby creating ambiguity between a statement and a question. Consequently, the stimuli presented in the experiment allowed for three potential interpretations of the wh-word: as an interrogative, a narrow-scope indefinite, or a wide-scope indefinite.

The audio stimuli for the experiment were prepared using speech synthesis because analyzing naturally occurring speech poses challenges in isolating the specific impact of phrasing and prominence, as they occur at the same time in wh-questions. Initially, a native speaker of Korean recorded the stimuli as neutral statements without any particular focus or prominence. These recordings served as the foundation for the audio stimuli.

Four sets of stimuli were created by manipulating the base recordings as illustrated in Figure 2. The first set of stimuli (Figure 2a) was created by simply transforming the base pitch track into a series of dots that indicate tonal targets to facilitate further manipulation in a consistent manner. The second group of stimuli (Figure 2b) involved raising the pitch target on the wh-phrase, positioning it as the highest pitch in the sentence. This represented a hypothetical prosody where the wh-phrase is emphasized, while maintaining the original pitch contour for the rest of the sentence. In the third group (Figure 2c), the pitch contour following the wh-word was smoothed to
simulate the effect of dephrasing. This hypothetical prosody reflected a scenario where the *wh*-phrase is not prominently emphasized, but post-*wh* dephrasing occurs. The final group of stimuli (Figure 2d) incorporated both *wh*-pitch raising and post-*wh* pitch smoothing, representing the typical intonation pattern observed in *wh*-questions. A set of 48 stimuli was generated by manipulating 12 sentences across 4 different types of intonation.

In all stimuli, the pitch points linked to the final syllable of the sentence were consistent and not altered. As a result, the sentence-final intonation remained unchanged throughout, eliminating the possibility of a yes-no question interpretation.

![Pitch tracks of synthesized speech stimuli (Yun 2019: 637).](image)

The participants were presented with the stimuli and tasked with determining the intended meaning of each sentence. Specifically, they were required to identify whether the sentence conveyed a yes-no question, a *wh*-question, a statement with a wide scope indefinite, or a statement with a narrow scope indefinite. Given the complexity of this judgment, the task was structured as a sequence of two binary choices. Initially, participants were asked to indicate whether the sentence sounded like a question or a statement. If they selected “question,” they were then prompted to choose between two paraphrases that represented interpretations of the sentence as either a yes-no question or a *wh*-question. Similarly, if participants initially chose “statement,” they were presented with paraphrase options that indicated whether the sentence was interpreted as having wide scope or narrow scope indefinites. This two-step process allowed for a more nuanced assessment of participants’ understanding and interpretation of the stimuli.

The analysis was conducted using the response data gathered from a total of 53 participants. The distribution of *wh*-question interpretations across different prosodic types is displayed in Figure 3. Notably, the first prosody type, characterized by the absence of *wh*-prominence and post-*wh* dephrasing, was
rarely perceived as a *wh*-question, aligning with the typical prosodic pattern associated with indefinites. Conversely, the final prosody type, incorporating both *wh*-pitch raising and post-*wh* dephrasing, elicited a high proportion of *wh*-question interpretations. Of particular interest are the intermediate columns. The second column reveals that when the *wh*-pitch was raised without subsequent dephrasing, the intonation pattern was seldom perceived as a *wh*-question. In contrast, the third column demonstrates that even in cases where the *wh*-word lacked prominence but was accompanied by post-*wh* dephrasing, it elicited *wh*-question interpretations as frequently as the final prosody type. This finding highlights the significance of post-*wh* dephrasing in determining the perceived *wh*-question structure, independent of *wh*-word prominence.

![Figure 3. Proportion of *wh*-question responses (Yun 2019: 641).](image)

The proportion of wide-scope responses relative to all statement responses is demonstrated in Figure 4. A notable observation emerges from the comparison of the first and second columns, as well as the third and fourth columns, indicating a significantly higher rate of wide-scope interpretations when the pitch of the *wh*-word was raised, as expected from my hypothesis. In addition, the presence of post-*wh* dephrasing also exerted a significant effect on scope configuration. Although the effect of dephrasing was not originally hypothesized, it can be readily explained within the proposed hypotheses. Post-*wh* dephrasing has the potential to enhance the prominence of the *wh*-word because when all post-*wh* words lose their AP tones due to dephrasing, the *wh*-word becomes perceptually more prominent, even without receiving a higher pitch. Consequently, the elevated response rate observed for
stimuli featuring dephrasing can be attributed to the enhanced prominence of the *wh*-word.

![Figure 4. Proportion of wide scope responses (Yun 2019: 643).](image)

In summary, the findings indicate that the meaning of *wh*-indeterminates is primarily influenced by post-*wh* dephrasing rather than *wh*-prominence. *Wh*-prominence does not significantly enhance the likelihood of *wh*-question interpretation, but it does contribute to an increased probability of wide scope interpretation.

The findings of this study have broader implications across languages. First, the observed significance of phrasing in *wh*-intonation supports a unified theory of *wh*-question formation, wherein the *wh*-word and its corresponding complementizer are integrated within the same prosodic phrase, regardless of whether the language employs *wh*-movement or dephrasing (Richards 2010).

Second, the correlation between prosodic prominence and wide scope interpretation of *wh*-indefinites aligns with the observation that prominence also influences the scope configuration of regular indefinites (Milsark 1974). If a language lacks the possibility of wide scope interpretation for *wh*-indefinites, it could be attributed to a prosodic constraint where *wh*-indefinites are inherently devoid of prominence. This is evident in various languages such as Classical Greek (Haspelmath 1997) and Mandarin Chinese (Dong 2009) where *wh*-indefinites exhibit prosodic unmarkedness or reduction. In the case of Korean, while a default pattern exists wherein *wh*-interrogatives
receive prominence while \textit{wh}-indefinites do not, it does not prohibit \textit{wh}-indefinites from acquiring prosodic prominence.

3 Sentence-final Intonation

The sentence-final intonation in Korean has been extensively discussed in previous studies, which typically state that statements and \textit{wh}-questions exhibit a falling intonation pattern, while yes-no questions display rising intonation (Hur 1965; Kwon 2002; I. Lee and Ramsey 2000; Martin 1951; Nam and Ko 1985; S. Park 1997; Suh 1989). This conventional understanding, which I will refer to as the “traditional description,” suggests that sentence-final intonation does not offer sufficient cues for distinguishing between the three sentence types or discerning the meaning of \textit{wh}-words.

Nevertheless, Jun and Oh (1996) conducted a production experiment that yielded different results. In their study, statements predominantly ended with a low boundary tone (L%), yes-no questions with a high boundary tone (H%), and \textit{wh}-questions with a rising-falling boundary tone (LH%). These findings suggest that sentence types can indeed be differentiated based on sentence-final intonation. However, it should be noted that the rising-falling tone (LH%) of \textit{wh}-questions contradicts the aforementioned traditional description, which posits that \textit{wh}-questions exhibit falling intonation. By contrast, another production study conducted by (Hwang 2007) supported the traditional description. In that study, yes-no questions exhibited a high-falling tone (H%), while \textit{wh}-questions displayed a falling-rising tone (HL%), aligning with the falling intonation pattern.

A summary of the previous discussions is provided in Table 1. It demonstrates that the descriptions of statements and yes-no questions are consistent across studies. However, there is inconsistency and even conflicting observations regarding the intonation patterns of \textit{wh}-questions, particularly concerning the presence of falling or rising contours.

<table>
<thead>
<tr>
<th></th>
<th>Traditional Description</th>
<th>Experiment by Jun and Oh 1996</th>
<th>Experiment by Hwang 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements</td>
<td>Fall</td>
<td>L% (Fall)</td>
<td></td>
</tr>
<tr>
<td>Yes-no questions</td>
<td>Rise</td>
<td>H% (Rise)</td>
<td>H% (Rise)</td>
</tr>
<tr>
<td>\textit{Wh}-questions</td>
<td>Fall</td>
<td>LH% (Rise)</td>
<td>HL% (Fall)</td>
</tr>
</tbody>
</table>

\textit{Table 1. Previous observations on sentence-final intonation.}

Why do these conflicting observations exist? One possibility is that there is no one-to-one correspondence between sentence types and sentence-final
intonation. Instead, multiple intonation patterns may be possible for the same sentence type. For example, H.-Y. Lee (1997) proposes a one-to-many correspondence, suggesting that the choice of sentence-final intonation depends on the speaker’s attitude or mental state. This analysis offers the advantage of accommodating all the observed variations. However, it is important to note that there appears to be a discernible tendency in the choice of sentence-final intonation observed in each experiment in previous studies, which cannot be solely attributed to the speaker’s attitude or mental state.

My proposal aligns with H.-Y. Lee (1997)’s proposal of allowing multiple sentence-final tones for the same sentence type. However, I argue that the assignment of sentence-final intonation is not always subjective but rather systematic in most cases. The central idea of my proposal is that sentence-final morphology plays a critical role in determining sentence-final intonation in Korean. First, I suggest categorizing sentence endings into three groups based on their prosodic patterns. The first group consists of typical neutral endings that can be used for both statements and questions, such as -어요/야요 eyo/ayo or their polite variants, -어요/야요 eyo/ayo. The second group comprises explicit question endings, such as -니/니까 ni/ni supnikka, or the polite ending -니까 kka supnikka. The third type of ending is -지 ci, which technically falls under the neutral category since it can be used with any sentence type. However, I have singled it out due to its distinct prosodic pattern compared to other neutral endings. Additionally, -치 carries a specific pragmatic meaning that emphasizes the speaker’s commitment to the conveyed message. Hence, I refer to this ending as the “committal ending,” following the terminology proposed by H. S. Lee (1999).

<table>
<thead>
<tr>
<th>Neutral Ending</th>
<th>Interrogative Ending</th>
<th>Committal Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements</td>
<td>L%</td>
<td>L%</td>
</tr>
<tr>
<td>Yes-no questions</td>
<td>H%</td>
<td>H%</td>
</tr>
<tr>
<td>Wh-questions</td>
<td>LH%</td>
<td>HL%</td>
</tr>
</tbody>
</table>

Table 2. Proposal: The default boundary tones.

My proposal for the default sentence-final intonation for each combination of sentence type and sentence ending is provided in Table 2. It demonstrates that sentences of the same type can be expressed with different boundary tones depending on the specific sentence-ending morphology. It should be noted that I am not the first to observe this pattern: M. J. Park (2003) also acknowledges a similar observation regarding how different endings interact with interrogative morphology. However, M. J. Park (2003) primarily
describes the difference between the endings in terms of politeness levels, e.g., 
-a is considered more polite than -ni. In contrast, I argue that what is crucial in this context is not the politeness of the ending but rather its functional aspect, specifically whether it indicates a question and whether it carries additional pragmatic meaning.

To verify the hypothesis about the default sentence-final tones, I conducted a production experiment. Materials consisted of all possible combinations of three sentence types (statement, yes-no question, wh-question) and three sentence endings (neutral, interrogative, committal), with the exception of the combination of a statement and an interrogative ending due to their inherent incompatibility. A total of 40 native speakers of Seoul Korean, consisting of 20 females and 20 males, participated in the experiment. Each participant was presented with target sentences accompanied by appropriate contexts to elicit a specific sentence type and was instructed to read the target sentence as if conversing with their friends.

In total, 480 utterances (12 sentences × 40 participants) were recorded for each combination of sentence type and sentence ending. The results with the most frequent tone for each combination of sentence type and sentence ending are given in Table 3, which coincides with the proposed default tones in Table 2. It further provides an explanation for the conflicting observations reported in previous studies. A thorough examination of the data from each study reveals the influence of sentence endings on the observed intonation patterns. Specifically, Jun and Oh (1996) employed neutral endings in their stimuli, while Hwang (2007) utilized interrogative endings, aligning with the identified effects of sentence endings on the resulting tones.

<table>
<thead>
<tr>
<th></th>
<th>Neutral</th>
<th>Interrogative</th>
<th>Committal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-a</td>
<td>-ni</td>
<td>-ci</td>
</tr>
<tr>
<td>Statements</td>
<td>L%</td>
<td>L%</td>
<td>(93.5%)</td>
</tr>
<tr>
<td></td>
<td>(91.3%)</td>
<td>(90.8%)</td>
<td>(45.2%)</td>
</tr>
<tr>
<td>Yes-no questions</td>
<td>H%</td>
<td>H%</td>
<td>(52.1%)</td>
</tr>
<tr>
<td></td>
<td>(90.4%)</td>
<td>(52.1%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Experimental results: Most frequent boundary tones.

Let us now look beyond the default tones and examine the distribution of boundary tones across different sentence types and endings, which helps us gain further insights into the interplay between sentence-final intonation and morphology. In the case of neutral endings, the distribution of boundary tones
was highly concentrated on the default tone, indicating a nearly one-to-one correspondence between sentence type and boundary tone, namely, L% for statements, H% for yes-no questions, and LH% for wh-questions Figure 5. However, for interrogative endings, the distribution of boundary tones for wh-questions was not limited to a single tone but instead spanned across two tones: LH% and HL% as shown in Figure 6. This suggests that the association between sentence type and sentence-final intonation is stronger for neutral endings compared to interrogative endings. This disparity can be attributed to the fact that neutral endings introduce greater ambiguity regarding sentence types compared to interrogative endings. Consequently, the utilization of intonation as an additional disambiguating cue becomes more crucial in the context of neutral endings. This observation aligns with the increased prevalence of neutral endings in contemporary Korean, where they are more commonly employed than explicit question endings for forming questions (Kwon 2002). Thus, it is reasonable to assume that speakers employ distinct sentence-final intonation patterns to mitigate heightened ambiguity.

![Figure 5. Distribution of IP boundary tones with the neutral ending -a.](image)

![Figure 6. Distribution of IP boundary tones with the interrogative ending -ni.](image)
In contrast to typical neutral endings, the committal ending -ci (Figure 7) deviates from the expected pattern. Despite being syntactically a neutral ending, -ci exhibits distinctive default tones, as previously observed. Moreover, the distribution of boundary tones associated with -ci is far from a one-to-one correspondence and displays a scattered pattern. The deviation and variation in the intonation of the committal ending -ci can be attributed to its strong association with the pragmatic meaning, which potentially overshadows the grammatical function of intonation.

Let us now examine the crosslinguistic implications of the findings in Korean sentence-final intonation. Across languages, low or falling intonation is typically associated with statements, while high or rising intonation is associated with questions. For example, *She’s going to Vancouver* is a statement with falling intonation, while the same string of words is a question with rising intonation. However, *wh*-questions in many languages including English (e.g. *Where is she going?*) exhibit the same falling intonation pattern as statements, despite being questions. This poses an intriguing puzzle, as the expected rising intonation for questions is not consistently observed. Lieberman (1967) proposed an explanation for this phenomenon, suggesting that questions only exhibit distinctive intonation when they are not sufficiently distinguished from statements by other linguistic elements, such as question words (e.g. *where*). In such cases, speakers do not rely on intonation because the form of the sentence provides enough information. In the case of Korean, the experimental results support this trading relation between form and intonation. Since Korean *wh*-words are not exclusively used for *wh*-questions, intonation does serve as an additional cue to convey meaning. It highlights the role of intonation in disambiguating sentence types in Korean by providing supplementary information beyond the linguistic form.
4 Conclusion

In this article, we have examined three main prosodic factors in wh-intonation. The first part of the article discusses two prosodic factors that previous studies have proposed to be directly related to clarifying the meaning of wh-words: i) the prosodic prominence of the wh-word, and ii) the prosodic dephrasing that occurs after the wh-word. While anecdotal observations have often emphasized the significance of wh-prominence in the intonation of wh-questions, experimental findings suggest that the crucial factor is rather the post-wh dephrasing than the prominence of the wh-word itself. These results support the theory that prosodic phrasing plays a crucial role in the formation of wh-questions (Richards 2010).

The second part of the article focuses on sentence-final intonation, which has been a topic of debate in the literature regarding its relevance to the disambiguation of the meaning of wh-words. While previous studies have commonly reported that both wh-questions and statements exhibit a final falling intonation, experimental results demonstrate that wh-questions in Korean display a distinct sentence-final intonation, and this specific pattern is determined by the interaction with sentence-final morphology. These findings provide support for the hypothesis that a systematic interaction between form and intonation exists (Lieberman 1967).

References


SECTION II
Oral Papers

Part 1
Phonetics, Phonology, and Morphology
Foot-Level and Boundary-Durational Effect Driven by Morphological Complexity in Japanese

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1 Introduction

The morphological structures of words are known to influence their phonological representations. In languages where pitch accent is distinctive, such as Japanese, compounds often have a different prosodic pattern than simple words, such as Japanese (Haraguchi 1999, Kubozono 2008, Vance 2008). The semantic or morpho-syntactic structures of a compound may also affect its supra-segmental or segmental realization. Some of these changes are observable in the writing system, such as sequential voicing in Japanese.
(henceforth, rendaku), but others, such as subtle changes in acoustic features, may not be easily perceived by listeners. For instance, the presence of a morphological boundary may subdivide a complex word into different morphophonological categories and cause different acoustic durations in languages. Previous studies have shown that the same segment in English may have different durations depending on the word structure in which it occurs (Bell et al. 2021, Hay 2003, Hedia and Plag 2017, Lee-Kim et al. 2013). Even the same segment appearing in the same prefix may have different durations depending on the word’s degree of segmentability (Ben Hedia 2019, Hay 2007). In an experiment by Kunter and Plag (2016), it was observed that the duration of the third constituent (e.g., ‘center’ in ‘day care center’) was longer when the complex constituent (e.g., ‘day care’) had a higher frequency of occurrence. Additionally, the duration of the embedded constituent adjacent to the third constituent (e.g., ‘care’) was found to be acoustically shorter. This effect suggests that morphological structure is reflected in acoustic features such as duration.

Similarly, the realization of the English phoneme /l/ has been found to be contingent on the strength of the morphological boundary. Sproat and Fumimura (1993) and Lee-Kim et al (2013) conducted experiments that demonstrated a relationship between stronger morphological boundaries and longer durations of the /l/ sound. Bell et al. (2021) also provide a comprehensive review on this subject, highlighting that consonants positioned at morphological boundaries tend to exhibit longer durations.

While such experimental findings may not strongly support the segmentability hypothesis, they do suggest a relationship between the presence of morphological boundaries and the increased duration of consonants. These findings in terms of morphological structure pose a vital question in the language processing theory—namely, how the compound structure of a language is processed and whether compounds are decomposed or not. Some studies (e.g., Fernández-Domínguez 2010, Plag 2012) suggest that complex words are lexicalized and processed as a unit to some extent depending on the frequency or other factors, while others studies (e.g., Pinker and Ullman 2002) suggest that all compounds are decomposed into smaller units and then processed by human speakers.

If the difference in acoustic properties between complex and simple words also differ in Japanese, it may provide evidence that compounds are processed with their constituents in this language. Such a finding could confirm that the morphological inner structure of words affects phonetic realization. The focus of the present discussion revolves around the concept of duration, particularly in relation to the processing and acoustic realization of compounds.
2 Phonetic Realization of Japanese

Japanese is a mora-timed language with a relatively simple syllable structure (Warner and Arai 2001), where each mora has a similar duration. Duration of mora may differ depending on its phonological structure. Den (2015) shows that Japanese phrase-end is lengthening like many other languages, but less research has been done to compare the duration of mora of compound words and simple words. Regarding the length of mora potentially affected by foot, Ota et al. (2003) also conducted an experimental test on foot final lengthening and found Japanese to be a bimoraic foot language, while many languages in the rhythmic unit had lengthening at the end. However, they did not find statistically significant differences, and only found evidence of compensated lengthening.

Another important factor that may influence segmental duration is the morpho-syntactic boundary. Studies targeting English (e.g., Bell et al. 2021) often adopt the assumption that “compounds are more likely to be written spaced when their constituents are more frequent or orthographically longer” and utilize the spelling as an indirect measure of segmentability. Meanwhile, studies on the morphological structure of Japanese are still rare. Some studies found that boundary may influence duration. Preboundary lengthening refers to the lengthening of the segment immediately preceding a morpheme boundary. Seo et al. (2019) found that preboundary lengthening can extend beyond the immediate segment and exhibit a distance effect. Specifically, in words with multiple elements, such as four segments, the second and third segments, which are closer to the final segment, also demonstrate slightly longer durations. This lengthening effect spreads in a leftward direction.

Three empirical problems in the related research, however, should be addressed. First, although it has been pointed out that segments in the compound boundary may have a longer duration in words with a higher segmentability compared to those with lower segmentability, many studies have failed to replicate this durational effect, thus not supporting the segmentability hypothesis (Bell et al. 2021, Bürki et al. 2011). Second, many studies have focused on English and other European languages. Whether this durational effect is universal or language-specific remains unclear. For example, Hay (2007) observed that not all English and Dutch speakers lengthened the duration of the segment in the morphological boundary. The effect may also occur with large individual variance among the individual speakers of a language. Third, many studies have used corpora, in which the recorded speakers did not have a consistent sociolinguistic background, and in which the materials were limited by the nature of the corpus. Therefore, it would be challenging to conduct a precise analysis of specific words produced by the same group of speakers. To solve these problems, I conducted a production experiment to verify
whether the duration changes in acoustic properties because of the morphological structure of Japanese. In the experiment, the length of mora in four-mora compound words and simple words was compared to investigate whether morphological boundary and foot structure have any effect on duration. Through these two experiments, the question of whether the Japanese language can duplicate the boundary effect of compounding and the durational effect occurring at the foot-level is empirically authentic.

3 Production Experiment

To investigate the impact of morphological complexity and foot structure on duration realization in Japanese, a production experiment was conducted. The experiment involved two factors, each with two levels: morphological complexity (complex/simple) and foot position (foot-initial/foot-final). The first factor pertained to morphological complexity, encompassing four complex words comprising two morphological units, along with four simple words that cannot be separated into smaller units. The second factor focused on foot structure, whereby each four-mora word was divided into two feet. The two levels within this factor were distinguished as foot-initial and foot-final. Eight target words, each consisting of four morae, were selected. They are presented in Table 1.

The current study employed an online experiment conducted using jsPsych (De Leeuw 2015) on Cognition.run (https://cognition.run), an online platform for conducting web-based experiments. Seventeen participants participated in the experiment via CrowdWorks (https://crowdworks.jp) with their own device (restricted to Google Chrome to avoid potential technical problems). They were all from the Tokyo metropolitan area, where speakers share a highly similar dialect; the area encompasses Tokyo, Saitama, Chiba, and Kanagawa. This experiment was conducted together with another experiment that focused on investigating head-dependent structure in the Japanese language, and that consisted of two experimental blocks, with stimuli being randomly presented to participants.

Eight unaccented words were selected as the target items, since the syllables that are stressed or possess an accentual fall might cause a longer duration, as previous studies suggest—for English, the study of Rakerd et al. (1987), and for Japanese, the study by Hoequist (1983). Each item appeared twice in the experiment. Eight words that were four-mora long with other combinations of consonants and vowels were used as fillers.
<table>
<thead>
<tr>
<th>Word Type</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex</td>
<td>yorukafe</td>
</tr>
<tr>
<td></td>
<td>‘night café’</td>
</tr>
<tr>
<td></td>
<td>serubia</td>
</tr>
<tr>
<td></td>
<td>‘Serbia’</td>
</tr>
<tr>
<td></td>
<td>komebitsu</td>
</tr>
<tr>
<td></td>
<td>‘rice bin’</td>
</tr>
<tr>
<td></td>
<td>amerika</td>
</tr>
<tr>
<td></td>
<td>‘America’</td>
</tr>
<tr>
<td>Simple</td>
<td>dorubako</td>
</tr>
<tr>
<td></td>
<td>‘money box’</td>
</tr>
<tr>
<td></td>
<td>arukari</td>
</tr>
<tr>
<td></td>
<td>‘Alkali’</td>
</tr>
<tr>
<td></td>
<td>harusame</td>
</tr>
<tr>
<td></td>
<td>‘vermicelli’</td>
</tr>
<tr>
<td></td>
<td>berurin</td>
</tr>
<tr>
<td></td>
<td>‘Berlin’</td>
</tr>
</tbody>
</table>

Table 1. Items used in the experiment.

All items and fillers appeared with the same carrier sentence, with the structure ‘これは____です’(korewa____desu; ‘this is ____’) in Japanese. The subject of the sentence contained five variations—namely kore (‘これ’), sore (‘それ’), are (‘あれ’), koko (‘ここ’), and soko (‘そこ’), since certain target words were place names. The variation asoko (‘あそこ’; “there”) was excluded because of its different mora count. Regarding the stimuli, each one comprised four morae, with the second mora serving as the target. The second mora in all stimuli consisted of a voiced consonant followed by a vowel. The vowel of the target syllable was either /e/ or /u/, and the consonant of the target syllable was either /r/ or /m/.

We formulated two hypotheses. First, we hypothesized that there would be a difference in mora duration between complex words and simple words. Specifically, we anticipated that complex words would exhibit longer mora durations compared to simple words. Second, we predicted that there would be a distinction between foot-initial morae and foot-final morae in terms of their characteristics. We expected that these two types of morae within the foot structure would not be equivalent in terms of their phonetic properties.

4 Results

4.1 Data Analysis

The recording of the participants pronouncing the items was retrieved using Python and converted from base64 format to wav files. Following this, all segments were automatically annotated using Julius (Kawahara 2005), and the acoustic duration of each mora was computed automatically using Praat (Boersma and Weenink 2021). The duration values were later verified by the author. In cases where annotations were identified as targeting a different segment, potentially resulting from recording issues, human corrections were made. A total of six trials were manipulated by the author because of misprocessing caused by the auto-segmentation.

The statistical analysis was conducted using R and RStudio, using linear-mixed effects models (LMEs) with the lme4 (Bates et al. 2014) and lmerTest
(Kuznetsova et al. 2015) packages. The fixed factors included in the analysis were foot structure, morphological complexity, age, and gender. These factors were investigated to examine their effects on the dependent variable, mora duration. Additionally, random factors included the intercepts of the vowel type of the target mora and of the final mora of the word, consonant type of the target mora and of the final mora of the word, item, and participants, to account for variability associated with these factors. To account for individual differences in speech rate, mora duration was evaluated and standardized for each participant. The optimal model was selected based on backward selection. Regarding the coding details, morphological complexity was coded as follows: complex words = 0; simple words = 1. The mora’s position was coded as either foot initial (0) or foot final (1). Gender was also included as a factor (female = 0; male = 1).

### 4.2 Durational Differences

The result of the duration of the second mora from the left of each condition is shown in Figure 1.

![Figure 1. Duration(ms) of the target segment in each condition.](image)

The statistical analysis revealed significant effects on the duration of morae in both factors and their interactions as shown in Table 2. The results indicated that foot-initial morae exhibited longer durations compared to foot-
final morae. This finding suggests that the position of morae within the foot structure influences the duration of those morae. A significant difference in duration between complex words and simple words was observed. Complex words exhibited longer durations compared to simple words, indicating that morphological complexity plays a role in the duration of morae. Furthermore, an interaction between the foot position and morphological complexity was observed, showing that the effects of these two factors are not simply additive.

An ad hoc analysis using *emmeans* showed a significant difference after Bonferroni correction in the duration of the target morae between the foot-initial position and the foot-final position in complex words, with an estimated difference of 0.591 ($\beta = 0.591, S.E = 0.102, t.ratio = 5.773, p < 0.001$). This difference implies a longer duration for the foot-initial position in complex words. The comparison between the foot-initial position in complex words and the same position in simple words, however, did not reach statistical significance ($\beta = 0.415, S.E = 0.134, t.ratio = 2.948, p = 0.181$). The comparison between the foot-final position in both word types showed no difference ($\beta = 0.150, S.E = 0.138, t.ratio = 1.084, p = 1.000$).

Next, we conducted a statistical model comparing the duration of each moraic order (i.e., region). The results showed that complex words triggered longer durations in both the initial and final syllables compared to simple words (the first and the fourth mora were longer than the second and the third mora). This finding suggests that morphologically complex words tend to have a greater temporal duration in their syllabic structure, specifically in the first and final syllables. Figure 2 illustrates the duration of morae in four-mora words across various regions. The x-axis represents the order of morae, with a focus on morae numbered 4 to 7. The orange bars on the left show the duration of complex words, while the green bars represent the duration of simple words.

The statistical analysis in Table 3 revealed significant differences in duration between complex and simple words. Specifically, complex words

|                | Estimate | Std. Error | t value | Pr(>|t|) |
|----------------|----------|------------|---------|----------|
| (Intercept)    | .462     | .094       | 4.891   | .005     |
| Foot           | -.644    | .079       | -8.184  | < .001   |
| Morph          | -.412    | .134       | -3.080  | .030     |
| Foot:Morph     | .256     | .112       | 2.282   | .023     |

Table 2. The LME results of the experiment evaluating the effects and the interaction of foot and morphological complexity.
exhibited longer durations in the first and final syllables compared to simple words. Moreover, the durations of morae in Region 4 and Region 7 were significantly longer than those in Region 5 and Region 6.

![Figure 2. Duration depending on morphological complexity. Mora order indicates the order of mora in the target sentence (= region). Regions 4-7 are the target items.](image)

|                | Estimate | S.E. | t value | Pr(>|t|) |
|----------------|----------|------|---------|----------|
| (Intercept)    | .311     | .135 | 2.310   | .060     |
| Mora_order5    | -.607    | .272 | -2.228  | .092     |
| Mora_order6    | .253     | .108 | 2.353   | .019     |
| Mora_order7    | -.235    | .273 | -.861   | .439     |
| Morph          | -.708    | .448 | -1.580  | .195     |
| Mora_order5:Morph | .952   | .744 | 1.280   | .270     |
| Mora_order6:Morph | .485   | .152 | 3.194   | .001     |
| Mora_order7:Morph | .089   | .744 | .120    | .910     |

Table 3. The LME results of the regional comparison. The baseline of the order is the fourth region, which is the initial mora of the target words.
4.3 Other Predictors

We further investigated the potential effects of vowel type and consonant type on duration realization, considering their potential influence. The durational distribution is shown in Figure 3 and Figure 4. The results of additional statistical models indicated no significant effects of vowel type and consonant type on duration.

5 Discussions

5.1 Theoretical Implications

Our analysis did not find foot-final lengthening effects in either simple or complex words, which is consistent with the results in Ota et al. (2003). As mentioned in the results chapter, our post hoc analysis showed that foot-final morae exhibited shorter durations compared to foot-initial morae. This observation raises the question of why a ‘shortening’ phenomenon at the foot-level occurred in the second mora, which was also the boundary mora in the complex words. An intriguing possibility is rooted in the underlying rhythmic structure of Japanese, which follows a bimoraic and trochaic foot pattern (Inaba 1998, Itô and Mester 1992, Poser 1990). This rhythmic structure may account for the distinct findings in our investigation, where the duration patterns associated with foot position diverged from those reported in prior studies (Gordon 2011). The trochaic foot structure in Japanese, characterized by a strong-weak pattern, may lead to differences in realization of duration in different positions within the foot. The head of the trochaic foot, which is the first mora in each foot, is pronounced in a longer manner compared to the other mora.
The findings in the present study support the dual-route model of morphological production in the Japanese language. The results provide compelling evidence indicating that complex words are pronounced with phonetic cues, leading to a longer duration than in simple words. This finding contributes to the growing body of evidence supporting the psychological reality of morphological boundaries in Japanese.

5.2 Potential Issues of Selected Items

The results reveal an intriguing aspect that the observed durational differences were not limited to simple compounds but rather extended to complex words undergoing additional morphological processes in Japanese, such as rendaku (e.g., *kome + hitsu > komebitsu*) and consonantal insertion (e.g., *haru + ame > harusame*). This finding suggests the psychological reality underlying the processing of morphological complexity in Japanese. The presence of durational distinctions in complex words undergoing various morphological processes indicates that speakers perceive and process the inner morphological structures of these words. These findings contribute to the understanding of the cognitive mechanisms involved in morphological processing and highlight the significance of morphological complexity in language production and comprehension.

The items used in the study had another potential problem that may affect the result: Two of the items were ended with a syllabized nasal (*serubia*) and a single syllable without a consonant (*berurin*). Despite previous studies showing that Japanese has approximately equal moraic length, it is possible that these two simple words have a shorter length and caused the length difference between the complex words and simple words. Thus, another model was conducted to test whether the result would change without those two words (Table 4). The results show that the group difference between complex words and simple words is still observed even if those two words are removed. The main effects and the interaction were observed, as the previous model showed.
Table 4. The LME results evaluating foot and morphological complexity, in which berurin and serubia were excluded.

|          | Estimate | S.E. | t value | Pr(>|t|) |
|----------|----------|------|---------|----------|
| (Intercept) | .458     | .071 | 6.405   | < .001   |
| Foot      | -.591    | .100 | -5.933  | < .001   |
| Morph     | -.415    | .109 | -3.798  | .002     |
| Foot:Morph | .265     | .127 | 2.081   | .042     |

6 Remaining Issues

This study contributes to understanding the duration of morphological units in Japanese words and provides direction for further research. One crucial aspect that demands attention in future research is the effect of pitch accent on duration. This paper focused solely on unaccented words, leaving the influence of pitch accent patterns on duration largely unexplored. Investigating how pitch and accent interact with duration would provide a more comprehensive understanding of the phonetic realization of words in Japanese.

Furthermore, an investigation of different types of morphemes, such as bound and free morphemes, is necessary. This study primarily considered morphological complexity, but a deeper investigation into the specific contributions of different morpheme types would enhance the understanding of duration in relation to morphological structure. Additionally, investigating the interactions between morphemes, including phenomena like rendaku and other morphophonological processes, would further elucidate the factors influencing duration.

The influence of word frequency on mora duration is another important avenue for future research. Although not controlled for in the current study, word frequency has the potential to impact duration patterns. Exploring the relationship between word frequency and duration could provide valuable insights into the interplay of linguistic factors and frequency in language production.

7 Conclusion

This paper addressed two main questions regarding the phonetic realization of Japanese words. First, we examined the presence of morphological boundary lengthening and observed a nuanced pattern with compensatory effects. Specifically, compared to simple words, compounds exhibited longer...
durations in the first and final morae. This finding suggests that morphological complexity influences the phonetic realization of Japanese words. Second, we explored foot-level durational effects and found that foot-initial morae triggered significantly longer durations. This phenomenon may be attributed to the trochaic structure of Japanese, where emphasis is placed on the initial mora of each foot. These results provide insights into the interaction between phonological structure and duration in Japanese. The overall findings of this paper highlight the significant impact of both morphological complexity and phonological structure on the phonetic realization of Japanese, implying that the morphological effect on acoustic duration is universal. This study also contributes to the broader understanding of language production and the intricate interplay between morphological and phonological factors.

Acknowledgments

This work was supported by JSPS KAKENHI Grant Number 21K20027.

References


Vowel Coalescence in Colloquial Japanese: Phonological and Non-phonological Factors

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1 Introduction

Japanese has a group of adjectives that are formed with the suffix -i (e.g., ama-i 'sweet'; hosoi-i 'thin'). In colloquial usage, these so-called i-adjectives may undergo vowel coalescence (see Hasegawa 1979; Tsujimura 1996:102; Kubozono 1999:96–104, 2015; Kawahara 2002; Kawai 2006; Inada 2008; Vance 2008:90–91; Ono 2009; Ota and Ujihira 2014; Tanaka 2022, among others), as shown in (1).

(1) Vowel coalescence in i-adjectives in casual speech
    jaba-i → jabe: やべえ 'awful; awesome'
    sugo-i → suge: すげえ 'terrific'
    daru-i → dark: だりい 'weary'

The vowel sequences /...a-i/, /...o-i/, and /...u-i/, which are faithfully realized in normal speech, are each coalesced into a single long vowel in casual speech. In principle, /a-i/ and /o-i/ become [ɛː], whereas /u-i/ becomes [iː] based on a simple rule format, as described in (2) (see, e.g., Kubozono 1999:96–104, 2015; Inada 2008; Tanaka 2022 for more formal analyses).
Basic patterns of vowel coalescence
\[
\begin{align*}
\{...a-i\} & \rightarrow \ldots e: \quad \ldots u-i \rightarrow \ldots i:
\end{align*}
\]

Though the phenomenon itself has long been studied in Japanese linguistics (see the references cited above), its variability has yet to be thoroughly investigated. The alternation does not happen across the board, with some items resisting coalescence, as illustrated in (3).

Lexical variation in vowel coalescence

\[
\begin{align*}
taka-i & \rightarrow \text{take: たけえ 'expensive'} \quad \text{cf.} \quad jasu-i & \rightarrow \text{jači: やしい 'cheap'}
\end{align*}
\]

\[
\begin{align*}
akā-i & \rightarrow \text{ake: あけえ 'red'} \quad \text{cf.} \quad ao-i & \rightarrow \text{ae: めええ 'blue'}
\end{align*}
\]

It is also reported that coalesced forms are somewhat stigmatized and not equally acceptable to all speakers. Some researchers associate the occurrence of vowel coalescence to young male or “tough guy” speech (see, e.g., Hasegawa 1979; Tsujimura 1996:102; Vance 2008:90–91).

This study addresses the issue of word- and speaker-based variability in the vowel coalescence phenomenon in colloquial Japanese. More specifically, a large-scale judgment experiment was conducted to examine whether and how phonological (grammatical) factors, such as input vowel quality (/...a-i/, /...o-i/, or /...u-i/) and the avoidance of consonant change (e.g., /s/ → [C] caused by following [i:], as in /jasu-i/ → [jači:] ‘cheap’), as well as non-phonological (socio-linguistic) factors, such as speech context and the speaker's age and gender, affect the acceptability of vowel coalescence.

2 Methods

I designed and ran a web-based judgement experiment, where Japanese speakers from various age and gender groups rated the naturalness of coalesced forms. The details of the experiment are as follows.

2.1 Participants

721 native Japanese speakers (371 females, 335 males, 15 others or no answers; mean age: 40.31, SD: 10.01) took part and completed the experiment. They were recruited through a crowd sourcing service CrowdWorks. They received 220 Japanese yen as a reward for their participation.

When analyzing the results, I excluded the data of one participant who had not answered any of the questions on demographics, as well as those of three participants whose completion ID did not match what had been reported on CrowdWorks. The data of 717 participants were thus entered into the final analysis. To analyze the gender factor discussed in the literature (male vs.
female speakers), the 15 participants who had responded “others” or provided no response to the gender question were considered “NA (Not Applicable);” their data were considered valid with respect to other factors (see Section 2.4 for more details).

2.2 Materials
The experimental stimuli consisted of 342 common "-adjectives (e.g., ama-i ‘sweet’; karu-i ‘light’) taken from an on-line dictionary (OJAD; Hirose and Minematsu Lab 2016), three speech corpora (CSJ, NUCC, CEJC; NINJAL 2012a,b, 2022; Fujimura et al. 2012), and a web article listing slang expressions often used by young speakers (e.g., uza-i ‘pesky; vexing’; emo-i ‘emo-y; emotional’; Coto World 2021). From the base adjectives, forms that have undergone vowel coalescence (e.g., ame: ‘sweet ⟨casual⟩’; kari: ‘light ⟨casual⟩’) were created. Each participant was presented with randomly selected 57 adjectives and their casual (coalesced) forms. A full list of the base adjectives is given in the Appendix.

For orthographic presentation, the base adjectives were primarily written in the phonographic hiragana script (e.g., あまい amai ‘sweet’; えろい eroi ‘erotic’); however, for the ease of understanding, they were additionally written in the script commonly used for each adjective (e.g., kanji-hiragana combination: 相い AMAi ‘sweet’; katakana-hiragana combination: エロイ EROi ‘erotic’), except for those usually written in hiragana alone (e.g., でかい dekai ‘huge’). The casual forms were always written in hiragana (e.g., えれえ eree; でけえ dekee).

In addition, two kinds of speech context were created to be provided along with the main stimulus items: one context informed participants that “they themselves” would utter the coalesced adjective form before a close friend half-jokingly (“Self Context”), and the other informed them that “a close friend of theirs” would use the coalesced adjective form before them half-jokingly (“Friend Context”). Each participant was assigned either one of the contexts. The original instructions in Japanese are given in the Appendix.

2.3 Procedure
The study was implemented on the web-based experiment platform lab.js (Henninger et al. 2022). The participants were directed to a website hosting the experiment system through a link posted on CrowdWorkers. After agreeing to a consent form, they were provided with some basic instructions. They were informed that they would be presented with a word and its pronunciation (a particular way of saying the word), and were asked to rate its naturalness of use in a given context. They were instructed to put in their ratings on a scale of 0 to 100 using a continuous slider. As a sample task, they were presented with the noun omae (oMAE) お前（おまえ）‘you ⟨impolite⟩’ and its casual
Suppose that a close friend of yours half-jokingly said this word in the following way. How natural would this sound?

FIGURE 1 An image of the judgment task

form with a coalesced vowel おめえ ‘you (impolite; casual)’, and were asked to rate its naturalness.

Once they were ready, they proceeded to the main session, where they rated the naturalness of adjective forms in the same manner. Figure 1 is an image of the main task, which is reproduced with the original instructions translated into English and stimulus items annotated in the Roman alphabet. As stated above, each participant received 57 randomly selected adjective items, with the order of presentation shuffled. They were also assigned to one of the two contexts (Self or Friend); the context for an individual participant remained the same for the entire experiment.

2.4 Statistical Analysis

A linear mixed-effects model was constructed using the lmer() function (Bates et al. 2015; Kuznetsova et al. 2017) on R (R Core Team 2022) and fitted to the naturalness rating data. The main predictors of the model to be examined as fixed effects included the grammatical (phonological and morphological) factors and non-grammatical (socio-linguistic) factors listed in (4) below.
Mixed-effects model predictors

VowelType The vowel sequence type: /ai/, /oi/, or /ui/

ConsAlternation Coalescence involves a consonant alternation (e.g., usu-i → uci: ‘thin; light (of color)’)

ConsDeletion Coalescence involves a consonant deletion (e.g., kijo-i → ki e: ‘pure’)

Denominal The adjective is formed from a noun (e.g., maru-i ‘round’ ← maru+i ‘circle-y’)

Loan The adjective is formed from a loanword (e.g., guro-i ‘grotesque’)

Mimetic The adjective is formed from a mimetic word (e.g., boro-i ‘worn-out’)

Hiatus The output continues to have a vowel sequence (e.g., ao-i → ae: ‘blue’)

Gender The participant’s gender: Female or Male

Age The participant’s age (in numeral; e.g., 25, 43)

Context The context of utterance: Self or Friend

Based on previous studies, it could be predicted that younger male speakers (i.e., Gender: Male and lower Age) will have higher ratings. The details of the other predictors, including predictions and theoretical implications, are discussed in the results and discussion sections (Sections 3 and 4).

The mixed-effects model also included random intercepts for participants and items, which was confirmed to be the best random structure without the issues of convergence and overfitting. (Models with random slopes did converge with an optimizer but gave warning of potential overfitting.)

3 Results

Let us first examine one of the main phonological factors, namely, vowel quality. Figure 2 shows a violin plot of item-based mean rating scores by vowel type. Lines (—) and dots (●) represent quartiles and grand means, respectively, and width indicates the sample size (i.e., the number of adjective items in each condition).

It can be seen that adjectives with /ai/ have higher ratings than those with /oi/ and /ui/. The mixed-effects model fitted to the data indicates that, with /oi/ as its baseline ($\beta = 47.63, t = 14.70$), /ai/ significantly raises the rating ($\beta = 11.74, t = 4.66, p < 0.001$), whereas /ui/ has no effect ($\beta = -1.78, t = -0.54, p = 0.593$). This suggests that in casual speech, /ai/-adjectives in general are more likely to show vowel coalescence (i.e., ai → e:) than /oi/-adjectives (oi → i:) or /ui/-adjectives (ui → i:).

Other grammatical (phonological as well as morphological) factors that significantly affect the rating scores include the following. ConsAlternation
lowers the rating ($\beta = -10.85, t = -2.34, p = 0.020$), and so does ConsDeletion ($\beta = -9.78, t = -2.89, p = 0.004$). This suggests that vowel coalescence tends to be avoided when it affects the preceding consonant (e.g., $\text{usu-i} \rightarrow \text{uisi}: \text{‘thin; light’ with palatalization driven by *si(i)}$; $\text{kijo-i} \rightarrow \text{ki e}: \text{‘pure’ with [j]}$-deletion driven by *je). The ratings are also lowered by Denominational ($\beta = -20.42, t = -5.61, p < 0.001$), Loan ($\beta = -14.21, t = -2.14, p = 0.033$), and Mimetic ($\beta = -13.14, t = -2.07, p = 0.040$), indicating that a change in a noun, loanword, or mimetic base is disfavored (e.g., maru+i ‘circle-y’ $\rightarrow$ maru-i $\rightarrow$ mar i: ‘round’; ero-i $\rightarrow$ er e: ‘erotic’; tça-ara-i $\rightarrow$ tače: ‘flirty’). The negative effect of Hiatus ($\beta = -33.80, t = -5.73, p < 0.001$) further shows that vowel coalescence is unlikely to occur in an onsetless syllable, nonetheless resulting in a vowel sequence in the output (e.g., ao-i $\rightarrow$ ae: ‘blue’; ajau-i $\rightarrow$ ajai: ‘dangerous’). Section 4 provides the theoretical interpretations of these results.

Turning to non-grammatical factors, I present in Figure 3 a violin plot of participant-based mean rating scores, broken down by age (grouped by generation) as well as gender (F: Female or M: Male). The gender differences look small but consistent across generations. The mixed-effects model’s prediction indicates that Male significantly raises the rating ($\beta = 7.53, t = 6.68, p < 0.001$). In contrast, there was no effect of Age ($\beta = 0.01, t = 0.25, p = 0.799$; note that Age is a continuous variable in the analysis). This indicates that male speakers, but not particularly young speakers, are associated with vowel coalescence. The effect of Context (Self or Friend) was also tested; although Self lowers the rating numerically, the effect is not significant at the 0.05 level ($\beta = -1.90, t = -1.68, p = 0.094$). Thus, the ratings were unaffected, irrespective of whether the coalesced form was used by participants themselves or someone else (but see Section 4 for further discussion).
The effects of Age and Context were further examined through model comparisons using the `anova()` function. The results of likelihood ratio tests as well as AIC scores indicate that the fit to the rating data is actually not significantly different between the full model discussed here (AIC: 363290) and a model without Age ($\chi^2(1) = 0.065$, $p = 0.799$; AIC: 363288) or Context ($\chi^2(1) = 2.813$, $p = 0.093$; AIC: 363291). In other words, these factors do not play important roles in capturing the data of vowel coalescence in Japanese (but see issues discussed at the end of this section and in Section 4).

There are also other grammatical factors that have been tested and proven ineffective. It was hypothesized that vowel coalescence would be less acceptable when the stem of the adjective was a truncated word (e.g., mendo-i ‘tedious’) or a one-mora morpheme (e.g., ko-i ‘strong (of tea)’). However, the goodness of fit did not improve significantly by further including them as predictors: Truncated ($\chi^2(1) = 1.546$, $p = 0.214$; AIC: 363291) or OneMora ($\chi^2(1) = 1.105$, $p = 0.293$; AIC: 363291). They were thus dropped from the model.

The results of the final model are summarized in Table 1. Note that the model presented here is a hypothesis-based model originally proposed in (4) and not the best-fitting model with the fewest predictors. For example, some factors such as Age and Context did not contribute to the model’s better fit to the data (see above), but they were nonetheless included. This was intended to examine and show the effects (or lack thereof) of the factors especially relevant for the purpose of this study using a single model. It should also be noted that although these factors (and even those that are not shown here such as OneMora) may not have significant effects on vowel coalescence, they do play important roles in other linguistic phenomena, and are thus relevant for a Japanese language model.
The results presented above give rise to several theoretical implications and issues. First, the effect of vowel quality, specifically the high rating of /ai/-coalescence, may be a general tendency in Japanese or even across languages. In some dialects of Japanese, /ai/ undergoes coalescence even stem-internally (e.g., [daikon]→[de:kon] ‘radish’; see Kindaichi 1976:161; Kubozono 2015). Such an alternation is rare, if any, with /oi/ and /ui/. Similar vowel coalescence phenomena have been attested across languages both synchronically and diachronically (e.g., French, Indonesian, Korean, and Sanskrit, to name but a few). It is worth examining whether the preference for /ai/-coalescence is a cross-linguistic pattern. If true, it would further show that the phenomenon discussed here is driven not by factors specifically at work in colloquial Japanese, but by general phonological principles.

Second, other grammatical factors are also relevant to the theoretical proposals made by previous studies. Research shows that loanwords, mimetic words, and nouns are especially resistant to alternations due to stronger faithfulness effects associated with them (see, e.g., Ito and Mester 1995, 1999; Smith 2011). It has also been shown that an alternation with a perceptually less salient change (e.g., no consonantal change) is preferred (see Steriade 2008). The results shown here are compatible with these proposals.

This research has also addressed several non-phonological factors. Vowel coalescence has been considered to be the characteristic of vulgar, young male speech (see Hasegawa 1979; Tsujimura 1996:102; Vance 2008:90–91). Indeed, there is a tendency among male speakers to accept coalesced forms...
more than female speakers. However, no effect of age was found in the current experiment. Given that the phenomenon has been around for a long time across different dialects, it may be that speakers do not associate it with a particular generation (any longer). That said, further investigation is needed to settle the issue, as discussed below.

This study also has a few limitations. Due to the design of the experiment, the effects of Age and Gender discussed above are all about the age and gender of the participants. Thus, they do not properly reflect the characteristics of the “speakers” in the case of Friend Context; what age and gender the participants assumed with respect to their close friends is actually unknown. This may not be a big issue given that Context was not a significant factor anyway. (That is, the results did not differ from those of Self Context, in which Age and Gender reflected the properties of the speakers, namely, the participants themselves). However, it is still unclear how this experimental flaw has affected the results. For future research, one can possibly use pictures of persons from various age and gender groups and have participants perform rating tasks, assuming that coalesced forms are used by them.

The experimental stimuli (as well as the original data of adjectives) contain distributional skews, and it is unclear how much this has affected the results. For example, the high acceptance of /ai/-coalescence may have been partially affected by the high frequency of /ai/-ending adjectives in the stimuli (or even in the original data). Other factors were difficult to address due to a small sample size. The effects of Truncated and OneMora discussed above could not be fully assessed because there were relatively few adjectives with a truncated or one-mora stem, and moreover, they were also correlated with other factors. Conducting a nonce-word experiment with a better-balanced stimulus set could solve some (though not all) of these issues.

One can also use audio stimuli instead of orthographic stimuli. Although it is not uncommon to see coalesced adjectives in writing (e.g., すげえ sugee ‘terrific’), it may still be more natural to hear them. Furthermore, the actual pronunciation of a coalesced form may even affect its acceptability. In casual speech, some speakers retain a consonant as is in an environment where it should change or delete (e.g., kowa-i → kowec; ˈko eː ‘scary’ despite ˈwe; see Vance 2008:90–92), although it is not necessarily reflected in the orthography.

Finally, there may be other factors affecting the acceptability of vowel coalescence. One such factor is the meaning of the base adjective. Impressionistically, adjectives that describe feelings and sensations are more likely to undergo coalescence. For example, the homophonous adjectives /atsu-i/ ‘hot’ and /atsu-i/ ‘thick’ could both be /atsui/ in theory; however, it seems to occur more often in the former. Though this study does not address this effect, it can nonetheless be done even with the current results, once the base adjectives are classified in terms of their semantic properties.
5 Conclusion

This study reexamines the phenomenon of vowel coalescence in adjectives observed in colloquial Japanese. The results of a large-scale judgement experiment and their statistical analysis demonstrate the effects of several grammatical and non-grammatical factors in a quantitative manner. The findings not only contribute to a better description of the long-studied phenomenon, but also provide theoretical implications and point toward novel issues for further research.

Acknowledgments

I am grateful to four anonymous abstract reviewers and the audience at the 30th Conference on Japanese/Korean Linguistics at Simon Fraser University, especially John Alderete, Makiko Aoyagi, Sylvia Cho, Ivan Fong, Chung-hye Han, Chuyu Huang, Yusuhe Kubota, David Y. Oshima, Ayaka Sugawara, Shin-ichi Tanaka, Timothy Vance, and Jiwon Yun, for questions, comments, and discussion. I also thank my former student Rena Kano for conducting a pilot study, and the members of Shin-ichi Tanaka Lab at the University of Tokyo back in 2010 for giving me the inspiration to work on this project. This study was supported in part by JSPS Kakenhi Grants (20K13019 and 22K13106) and a JSPS Core-to-Core Program Grant (JPJSCCAJ221702004: “International Research Network for the Human Language Faculty”).

References


Appendix

Contexts

Self:
あなたご自身が、仲の良いお友だちとの会話の中で、この単語を冗談っぽく次のように言うと想定してください。

Suppose that in a conversation with a close friend of yours, you yourself say this word half-jokingly in the following way.

Friend:
仲の良いお友だちが、あなたとの会話の中で、この単語を冗談っぽく次のように言ったと想定してください。

Suppose that in a conversation with a close friend of yours, your friend said this word half-jokingly in the following way.

Question:
このような言い方は、どれくらい自然だと思いますか。

How natural do you think this would sound?

List of Base Adjectives

<table>
<thead>
<tr>
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<th>Japanese</th>
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SECTION II
Oral Papers

Part 2
Syntax, Semantics, and Pragmatics
Predicates of Personal Taste with Epistemic Modals/Evidentials in Japanese*

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1 Introduction

This paper analyzes a semantic difference between epistemic modals and indirect evidentials in Japanese in terms of their interaction with Predicates of Personal Taste (PPTs) such as tasty in English. Specifically, the Japanese epistemic modal nitigainai ‘must’ can co-occur with a PPT whose experiencer is overtly specified as the speaker, but the indirect evidential yooda ‘seem’ cannot. I propose that this difference is reduced to the fact that epistemic modals allow their inference bases to be modified by a co-occurring conditional, while evidentials do not.

The remainder of this paper is organized as follows. Section 2 reviews observations in the literature and provides new data. Section 3 illustrates

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*This paper benefited from valuable comments by Kenta Mizutani, Shun Ihara, Kensuke Takita and other members of Handai-Shindai Benkyoo-kai ‘the study circle of Osaka Univ. and Kobe Univ.’ I also would like to thank the participants of JK30 including Yusuke Kubota, Yusuke Yagi, and Akitaka Yamada for their questions and comments. All remaining errors are my own. This work has been supported by JSPS Grants-in-Aid for Scientific Research, Grants Numbers JP21K12991, JP23K12181.
how to represent PPTs’ semantics. Section 4 provides a denotations of epistemic modals and evidentials, introduces an indirectness requirement associated with these items (von Fintel and Gillies 2010), and crucially presents a hitherto-unaddressed contrast between epistemic modals and evidentials. Section 5 demonstrates how the new data presented in Section 2 are captured by proposing a rescue rule that applies when the presupposition of PPTs cannot be met. Section 6 discusses the implications of this study.

2 Facts from Previous Work and New Observations

This paper deals with the Japanese epistemic modal nitigainai and indirect evidential yooda:

(1) Ame-ga hutteiru nitigainai/yooda.
    rain-NOM falling EPIS/EVID
    ‘It [must / seems to] be raining.’

As Lasersohn (2005) mentions, which lexical items count as PPTs is a difficult to determine. Therefore, throughout this paper, I only address the PPT oisii ‘tasty’, which is treated as the most prototypical PPT in previous studies:

(2) Sono-karee-wa oisii.
    that-curry-TOP tasty
    ‘That curry is tasty.’

Let us see the basic facts and observations from the literature on PPTs, epistemic modals, and evidentials. First, in both English and Japanese, PPTs can be accompanied by an overt experiencer:

(3) a. This curry is tasty for me.
    b. Sono-karee-wa watasi-nitotte-wa oisii.
        that-curry-TOP 1ST-for-TOP tasty
        ‘That curry is tasty for me.’

As shown below, PPTs with an overt experiencer can co-occur with epistemic modals and evidentials in both English and Japanese.

(4) a. The puerh must be delicious to Mo.
   (Anand and Korotkova 2018: (45))

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1 Bylinina (2017) reports that ni ‘to’ can play the same role as nitotte:

(i) John-ni-wa kono-keeki-wa oisii nitigainai.
    John-to-TOP this-cake-TOP tasty EPIS
    ‘This cake must be tasty to John’
    (Bylinina 2017:301)

However, I personally find this sentence less acceptable than (3b). Hence, throughout this paper, I use nitotte as the postposition that introduces experiencer arguments.
b. Sono-karee-wa John-nitotte-wa oisii [nitigainai / yooda].
that-curry-TOP John-for-TOP tasty [EPIS / EVID]
‘That curry [must be / seems] tasty for John.’

However, it has been reported that, in English, PPTs are incompatible with epistemic modals or evidentials if the overt experiencer is the speaker:

(5) a. #Shortbread must be tasty to me! (Pearson 2013: 123)
b. #The puerh apparently was delicious to me...
   (Anand and Korotkova 2018: (12))

Unlike the English must, the Japanese epistemic modal nitigainai can co-occur with PPTs whose experiencer is overtly specified as the speaker, whereas the indirect evidential yooda cannot:2

(6) (John is complaining about the curry that his wife often makes. He says that the curry is disgusting because it contains a lot of cilantro. You love cilantro, so you think you will like the curry. John also says to you ‘You like cilantro, so I think you will like my wife’s curry. What do you think?’ You reply:)
   a. Sono-karee-wa watasi-nitotte-wa oisii nitigainai.
      that-curry-TOP 1st-for-TOP tasty EPIS
      ‘That curry must be tasty to me.’
   b. #Sono-karee-wa watasi-nitotte-wa oisii yooda.
      that-curry-TOP 1st-for-TOP tasty EVID
      ‘That curry must be tasty to me.’

This contrast has never been addressed in the literature. I provide an account of it and propose several cross-linguistic implications.

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2 Akitaka Yamada (p.c.) points out that the sentence like (6b) improves in contexts such as the following:

(ii) (You and your colleagues are at a party. Everyone but you tried the curry that is served there, and all of them say that it is disgusting. You give it a try, and, to your surprise, find it tasty. You say to yourself:)

   ‘Kono-karee-wa watasi-nitotte-wa oisii yooda.
      this-curry-TOP 1st-for-TOP tasty EVID
   ‘This curry seems tasty to me.’

In this case, the speaker actually tasted the curry, which means that yooda in 2 does not signal indirect evidentiality; instead, it is used as a mirative marker (a marker that expresses the speaker’s surprise). I acknowledge that there is a deep connection between indirect evidentiality and mirativity (Rett and Murray 2013, among others), but I maintain that PPTs with the speaker as the overt experiencer is incompatible with yooda as the marker of indirect evidentiality.
3 PPTs with an Overt Experiencer

This section presents the lexical entries of PPTs with and without an overt experiencer. As has been pointed out in the literature (Ninan 2014, 2020; Anand and Korotkova 2018, among others), PPTs presuppose that the experiencer has a certain type of direct experience of the subject:³

(7) That curry is tasty. \(\Rightarrow\) The speaker has actually tasted the curry.

To formalize this requirement, I adopt the same assumption as Anand and Korotkova (2018): the computation of PPTs’ semantics involves the following three parameters:

(8) a. \(w\): the possible world (the evaluation world)
    b. \(j\): the judge (Lasersohn 2005, Stepehenson 2007)
    c. \(K_{j,w}\) the set of propositions that the judge \(j\) knows in \(w\) through direct experience.

The following is the denotation of oisii ‘tasty’ without an overt experiencer:

(9) \[\text{oisii}^{w,j,K_{j,w}} = \lambda x. \text{tasty}(x)(j) \in K_{j,w} \lor \neg \text{tasty}(x)(j) \in K_{j,w}.\]

[x-wa-oisii] ‘\(x\) is tasty’ is defined only if the contextually salient judge \(j\) (typically the speaker) directly knows in \(w\) whether \(x\) is tasty or not, and becomes true iff \(x\) is tasty to \(j\) in \(w\).

For the cases where the experiencer is overtly specified (e.g., y-nitotte-oisii ‘tasty for \(y\’\)), I assume, following Anand and Korotkova (2018), that the judge is lexically fixed regardless of the contextual parameters:

(10) \[\text{y-nitotte-oisii}^{w,j,K_{j,w}} = \lambda x. \text{tasty}(x)(y) \in K_{y,w} \lor \neg \text{tasty}(x)(y) \in K_{y,w}.\]

In this formula, the experiencer is specified as \(y\), not as \(j\). Appendix B presents the compositional process used to derive the results.

4 Epistemic Modals/Evidentials

4.1 Epistemic Modals/Evidentials with PPTs

For expository purposes, I assume the following possible-world semantics for both the epistemic modal nitigainai and the indirect evidential yooda (hence-
forth, the contextual parameters \(j\) and \(K_{j,w}\) are omitted because they are not relevant to the following discussion).\(^5\)

\[
\left[ \text{EPIS/EVID} \right]^{w} = \lambda p. \forall w'. w' \in \bigcap f(w) \rightarrow \left[ p \right]^{w'}, \text{where } f(w) \text{ is the set of propositions known to be true in } w \text{ (the ordering source is omitted for the sake of simplicity).}
\]

Following Anand and Korotkova (2018), I assume that the presupposition of PPTs with an overt experiencer projects out of the scope of \text{EPIS/EVID}:\(^6\)

\[
\left[ x\text{-wa-y-nitotte oisii EPIS/EVID} \right]^{w} = \left[ \text{EPIS/EVID} \right]^{w} \left( \left[ x\text{-wa-y-nitotte-oisii} \right]^{w} \right) = \forall w' \{ w' \in f(w) \rightarrow x \text{ is tasty to in } w' \}, \text{defined only if } \text{tasty}(x)(y) \in K_{y,w} \lor \neg \text{tasty}(x)(y) \in K_{y,w}.
\]

### 4.2 Indirectness Requirement

As observed in von Fintel and Gillies (2010) and Matthewson (2020), among others, when one uses epistemic modals such as \textit{must}, one must not know directly whether the prejacent is true:

\[
(13) \quad \text{(Seeing the pouring rain)}
\]

a. It’s raining.

b. ??It must be raining. \quad \text{(von Fintel and Gillies 2010: 353)}

I assume that the same requirement is imposed on \textit{nitigainai} and \textit{yooda} given the infelicity of the following example:

\[
(14) \quad \text{(After you saw falling raindrops from the window, you tell this to someone else:)}
\]

#Ame-ga futtei-ta nitigainai/yooda.

\textbf{rain-NOM falling-PAST EPIS/EVID}

‘It must have been raining. / It seems that it was raining.’

This requirement can be represented as below:

\[
(15) \quad \text{The indirectness requirement}\(^7\)
\]

The utterance of \( [p\text{-EPIS/EVID} ] \) by the speaker \( j \) in the world \( w \) requires \( \left[ p \notin K_{j,w} \land \neg p \notin K_{j,w} \right] \).

---

\(^5\)The modal semantics of \textit{yooda} is assumed only for the sake of exposition. The insights of this paper can be implemented with non-modal analyses of \textit{yooda}, such as Davis and Hara (2014).

\(^6\)See Appendix B for the compositional derivation.

\(^7\)In von Fintel and Gillies (2010), this requirement is incorporated into the presuppositional content of \textit{must}. In this paper, I do not commit myself to whether (15) should be analyzed as a presupposition, an implicature, or a semantic/pragmatic norm that comes from elsewhere.
4.3 The (Im)possibility of Modifying the Inference Base

The following contrast, which has never been addressed in the literature, is crucial to the current purpose:

(16) (John is one of the murder suspects. A police officer detects a fingerprint at the crime scene. Before identifying whether it is John’s, she says to herself:)

Kore-ga John-no simon nara yatu-ga han’nin
this-NOM John-GEN fingerprint if he-NOM criminal
nitigainai/#no-yooda.
EPIS/COP-EVID
‘If this is John’s fingerprint, he [must /#seems to] be the murderer.’

In this context, the speaker’s conclusion of her inference (i.e., that John is the murderer) is derived by adding the supposition that the fingerprint she detected is John’s, to the best of her knowledge that John is a suspect. Based on the general and traditional assumption that the conditional of form if \( p \) adds the proposition \( p \) to the modal base \( f(w) \) of the co-occurring modal (von Fintel and Heim 2011), the truth-conditions in (16) are represented as follows:

(17) \[ \llbracket (16) \rrbracket^w = \forall w'[w' \in \{ f(w') + \text{this fingerprint is John’s} \} \rightarrow \text{John is the criminal in } w']. \]

In this formula, the inference base —that is, the body of information from which the prejacent of the modal is derived (the modal base, in this case) —is modified by the co-occurring conditional. The fact that \( yooda \) cannot be used in (16) allows us to posit the following generalization.

(18) The inference base of EVID cannot be modified by a co-occurring conditional.\(^8\)

As pointed out by Yusuke Kubota (p.c.), it remains to be explained why evidentials demonstrate this effect while epistemic modals do not. This is an important issue that should be addressed in the future research.

---

\(^8\) This does not mean that evidentials can never co-occur with conditionals. When an evidential co-occurs with a conditional, the conditional is not interpreted as modifying the inference base of the evidentials, but as part of the prejacent. That is, the LF of the \( yooda\) version of the sentence in (16) cannot be as in (a) but as in (b).

(iii) a. [Kore-ga John-no simon nara] [John-ga han’nin no] yooda.

What the speaker infers in (b) is not that \textit{John is the murderer}, but that \textit{if this is John’s fingerprint, John is the murderer}. This interpretation is incompatible with the context of (16).
5 Capturing the Contrast

The sentences in (6), repeated here as (19a), are interpreted as in (19b), where \( sp \) = the speaker and \( c = \text{sono-karee} \) ‘that curry’:

    that-curry-TOP 1st-for-TOP tasty EPIS/EVID
    ‘That curry [must be/#seems] tasty to me.’

b. \([\text{EPIS/EVID}]^{2}(\text{sono-karee-wa watasi-nitotte oisii})^{w}\)
    = \(\forall w'[w' \in \bigcap f(w) \rightarrow c \text{ is tasty to } sp \text{ in } w']\), defined only if
tasty(c)(sp) \(\in K_{sp,w} \lor \neg \text{tasty(c)(sp)} \in K_{sp,w} \).

These propositions are defined only if the speaker knows directly whether the curry is tasty or not in the actual world \( w \), and they become true if the curry is tasty to the speaker in all the accessible worlds \( w' \).

However, the use of EPIS/EVID by the speaker induces the indirectness requirement in (15): \([\text{Sono-karee-wa watasi-nitotte oisii}]^{w}\) \(\not\in K_{sp,w} \land [\text{Sono-karee-wa watashi-nitotte oisii-NEG}]^{w} \not\in K_{sp,w} \), i.e., \( c \text{ is tasty to } sp \) \(\not\in K_{sp,w} \land \neg \text{tasty(c)(sp)} \in K_{sp,w} \). In other words, the speaker must be ignorant of whether the curry is tasty. This contradicts the presupposition of (19b), indicating that it cannot be satisfied in the actual world \( w \).

I claim that at least in Japanese, the following rule applies in order to rescue sentences such as (19a):

(20) Let \( CG \) be the Common Ground (the set of propositions shared by discourse participants).

If a sentence carries the presupposition \( q \) offered by a PPT in the scope of EPIS/EVID but \( \neg q \not\in CG \), the sentence is interpreted by inserting a counterfactual in order to satisfy the presupposition.

The PPT’s presupposition in (19a) (that the speaker directly knows whether the curry is tasty) is satisfied if she has tasted it. Therefore, after (20) is applied, (19a) is interpreted as follows:

(21) [If I tasted it, sono-karee-wa watasi-nitotte oisii EPIS/EVID]

I adopt the naïve assumption that the counterfactual \( if q \) excludes \( \neg q \) from the modal base of the co-occurring modal and adds \( q \) to it. Then, (21) yields the following truth-conditions and presupposition, where \( q = I \text{ tasted c} \):

(22) \( \forall w'[w' \in \bigcap f(w) \rightarrow \neg q + q \rightarrow c \text{ is tasty to } sp \text{ in } w'] \), defined only if
tasty(c)(sp) \(\in K_{sp,w} \lor \neg \text{tasty(c)(sp)} \in K_{sp,w} \).

As Yusuke Yagi (p.c.) pointed out, it remains unclear how we can formalize the rule (20) in order to arrive at the interpretation here. I leave this issue to future research.
Note that the presupposition is relativized not to $K_{sp,w}$ but to $K_{sp,w'}$, which represents what the speaker knows in the counterfactual worlds $w'$ where the counterfactual condition *I tasted the curry* holds. This means that the speaker is required to have direct experience with the curry in the counterfactual worlds, but not in the actual world. This does not contradict the indirectness requirement of EPIS/EVID, which requires the speaker’s lack of direct experience in the actual world. Hence, by resorting to the rescue rule (20), both the presupposition of the PPT and the indirectness requirement of EPIS/EVID are satisfied.

Why, then, is the indirect evidential *yooda* infelicitous in (19a)? In (22), the modal base of EPIS/EVID is modified by the co-occurring counterfactual conditional, as in $\bigcap (f(w) - \neg q + q)$. Here, (18) comes into play. Unlike EPIS, the inference base (the modal base, in this paper) of EVID must not be modified by a co-occurring conditional. Thus, *yooda* cannot tolerate the configuration in (22). The contrast between EPIS and EVID in (19a) is attributed to the (im)possibility of their inference bases being modified.

In (19a), *yooda* is infelicitous because the inserted counterfactual cannot modify the modal base of *yooda*. Therefore, it is predicted that (19a) will improve if another modal in the same clause provides a modal base that the counterfactual modifies:

(23) Sono-karee-wa watasi-nitotte-wa zettaini/matigainaku oisii *yooda.*
that-curry-TOP 1ST-for-TOP definitely/certainly tasty EVID
It seems that that curry is definitely/certainly tasty to me.

In this case, the inserted counterfactual *If I tasted it* modifies the modal base of the epistemic adverbs *zettaini/matigainaku* ‘definitely/certainly’, but not of *yooda*, which does not violate (18).

6 Implications
The first issue to be addressed is the generality of rule (20). In Section 5, I propose (20) as a rule solely for PPTs’ presupposition, which may sound ad hoc because it is inconceivable that a language possesses a rescuing rule with such a narrow range of applicability. However, the same rule as (20) seems applicable to other presupposition triggers.

To see this, let us turn to the historical facts of Nobunaga Oda, who was a Japanese warlord during the Sengoku Period (from the mid-14th century to the early 16th century). He could not reign Japan because he was betrayed and killed by one of his subordinates. Given this, consider the following contrast:
(24) Nobunaga-no tenka-wa suguni owatta nitigainai/#yooda.  
Nobunaga-GEN reign-TOP immediately ended EPIS/EVID  
‘Nobunaga’s reign [must/#seems to] have ended immediately.’

The aspectual verb *owatta* ‘ended’ in this sentence presupposes that Nobunaga Oda had ruled Japan in the actual world. If the same rule as (20) applies to (24) (i.e., if a counterfactual that satisfies *owatta*’s presupposition is inserted), it is interpreted as follows:

(25) [If Nobunaga ruled Japan, Nobunaga-no tenka-wa suguni owatta EPIS/EVID]  

We can then derive the unavailability of *yooda* in (24) in the same manner as in Section 5. This means that the insertion of a counterfactual satisfying the presupposition is not particularized for PPTs, but is applicable to other presupposition triggers.

However, the conditions enabling the application of this rule should be explored in the future research. Normally, epistemic modals such as *must* are said to be presupposition hole: presupposition projects over the scope of modals:

(26) John must have stopped smoking. \(\rightarrow\) He actually had been smoking.

The same goes for Japanese. (27) sounds unnatural if it is not established that John actually had been smoking before. This is unexpected if the rescue rule is applied whenever the presupposition does not hold in the actual world.\(^{10}\)

(27) John-wa tabako-o yameta nitigainai.  
John-TOP tobacco-ACC quit EPIS  
‘John must have stopped smoking.’

What distinguishes (24) from (27)? Note that (20) applies if the *negation* of the presupposition is contained in the Common Ground (rather than *if the truth of the presupposition is not contained in CG*). (24) is uttered given a widely-known historical fact that Nobunaga Oda actually could not reigned Japan, so the negation of the presupposition is taken for granted by participants. This may be the factor that makes the rescue rule ready for application in (24). For (27), if there is rich contextual support and it is firmly established that the presupposition is false, the sentence improves:\(^{11}\)

\(^{10}\) I thank Yusuke Yagi (p.c.) for bringing up this point.

\(^{11}\) (28) sounds even better if the subject John is marked with a conditional marker *nara*. I leave this topic for future research.
(28) (John and Tom are brothers who passed away a long ago. John was health-conscious and never smoked for his entire life while Tom was a heavy smoker. Tom did not stop smoking, even with the doctors’ advice, and passed away when he was young. The speaker, who is familiar with both, is talking about John:)

John-wa Tom-to-tigatte isya-ga-tometa-toki,
John-TOP Tom-with-different doctor-NOM-stopped-when
tabako-o yameta nitigainai.
tobacco-ACC quit EPIS
‘Unlike Tom, John must have stopped smoking when the doctors stopped him.’

Thus, the conclusion at the moment is that the application of the rescue rule requires a firm contextual establishment that the presupposition is false in the actual world.

The second implication concerns differences between Japanese and English. As seen in Section 1, the English epistemic modal must is reported to be incompatible with PPTs with the overt experiencer as the speaker:

(29) #Shortbread must be tasty to me! (Pearson 2013: 123)

However, the same configuration is felicitous in Japanese as in (6). This can be explained if we assume that rescue rule (20) is unavailable in English. If this is on the right track, it raises the possibility that there is a cross-linguistic variation as to whether rescue rules such as (20) are operative.

Finally, there has been much debate regarding the categorical relationship between epistemic modals and evidentials. Some authors (de Haan 1999, Aikhenvald 2004, among others) argue that the two categories are completely distinct, while others (Matthewson et al. 2007, von Fintel and Gillies, among others) claim that there is an inclusion relation between them. Given the observations in this paper (e.g., (16)), we can say that the two categories differ from each other, at least in their interactions with conditionals.

References


12 A morpho-syntactic difference between Japanese and English may have something to do with this variation. It is generally assumed that, unlike English, Japanese lacks verbal morphology specialized for the subjunctive mood. The epistemic modals in Japanese can co-occur with conditionals, regardless of whether they are counterfactual or not, which is possibly why insertion of a counterfactual works well for Japanese epistemic modals.


Appendix A On the Causal Analysis

Davis and Hara (2014) argue that yooda lexically encodes a causal relation between its prejacent and the proposition serving as the evidence, as represented in (30). Their analysis is based on the contrast in (31).

(30) When \([p\text{-}yooda]\) is uttered based on the evidence \(q\), \(p\) must be the cause of \(q\).

(31) a. (Looking at a wet street)
   \[
   \text{Ame-} \text{g} \text{a} \text{ futta yooda.} \\
   \text{rain-NOM fell EVID} \\
   \text{‘It seems that it rained.’}
   \]

b. (Looking at falling raindrops)
   \[
   \text{#Miti-} \text{g} \text{a nureteiru yooda.} \\
   \text{streets-NOM wet EVID} \\
   \text{‘It seems that the streets are wet.’} \quad \text{(Davis and Hara 2014: 187)}
   \]

In (31a), the prejacent event (i.e., raining) causes the street to be wet, while the one in (31b) (i.e., the streets being wet) cannot be the cause of raining.

One might argue that Davis and Hara’s (2014) causal analysis explains the contrast addressed in this paper, so my analysis can be abandoned altogether. In (6), the speaker utters \([\text{That curry is tasty for me} + \text{EVID}]\), based on the evidence that John said that the curry contains a lot of cilantro and that the speaker will like the curry. It is intuitively strange that the prejacent event (i.e., the curry being tasty for me) causes John to say that it contains a lot of cilantro and that the speaker will like the curry. Therefore, yooda in (6) may well violate Davis and Hara’s causal requirement.

I claim that even if Davis and Hara’s causal analysis is correct, it does not immediately follow that my analysis should be jettisoned. The most prominent reason is that their analysis cannot differentiate cases where the experiencer is the speaker from those where the experiencer is someone else. Consider the following:

\[\text{13 Takubo (2009) and Krawczyk (2012) propose the same line of analysis for yooda and other indirect evidentials although they use the term explanation instead of causation.}\)

\[\text{14 Empirical problems of this claim are discussed in Hirayama (2020) and Hirayama and Matthewson (2022).}\)
In this case, the speaker’s utterance [That curry is tasty to John + EVID] is based on the evidence that John said he likes the curry. The situation is almost the same as (6), except whose taste is addressed in John’s statement (i.e., in (6), John said the speaker will like the curry, while in (32), he said he likes the curry). It is unclear how Davis and Hara distinguish these cases.  

On the other hand, my analysis clearly differentiate the first person and others. The indirectness requirement of EPIS/EVID in (15) contradicts the utterance of [x is tasty for y + EPIS/EVID] when y is the speaker, but it does not when y is someone else. Thus, the insertion of the counterfactual occurs only when y is the speaker. Note that the current analysis is not incompatible with Davis and Hara (2014); it is ideal if my analysis is integrated into theirs and all the data including (31) are explained in a unified manner. I leave this issue for future research.

Appendix B The Detailed Composition

In Section 3, I assumed that PPTs such as oisii ‘tasty’ is relativized to the three parameters: w, j, and Kj,w, as in (33a). The lexical entry of nitotte, the postposition that introduces the experiencer argument, is represented in (33b), where nitotte takes a PPT P and the experiencer y, relativizes P’s truth to y by overwriting the parameter j with y, nullifies P’s presupposition by overwriting the parameter Kj,w with the set of all propositions ℘, and introduces a new presupposition that equals P’s presupposition except the second and third parameters are rendered y and Kj,w, respectively. (33c) presents the result of nitotte takes a PPT oisii and the overt experiencer watasi ‘1ST’.

\[(33) \quad \begin{align*}
\text{a.} & \quad \lambda x. x \text{ is tasty to } j \text{ in } w, \text{ defined only if } \text{tasty}(x)(j) \\
& \quad \in K_{j,w} \cup \neg \text{tasty}(x)(j) \in K_{j,w}. \\
\text{b.} & \quad \lambda y. \lambda x. \text{P}^{w,y,\psi}(x), \text{ defined only if } \text{P}^{w,y,\psi}(x) \text{ is defined.} \\
\text{c.} & \quad \lambda x. \text{oisii}^{w,sp,\psi}(x), \text{ defined only if } \text{P}^{w,sp,\psi}(x) \text{ is defined.}
\end{align*}\]

Note that the speaker’s evidence in (6) and (32) is reportative: the speaker’s inference that p is true is based on someone else’s statement that p is true. How the causal analysis deals with this case is not discussed in Davis and Hara (2014). Intuitively, the truth of some proposition does not necessarily cause someone else to state that it is true.

\[15\] Note that the speaker’s evidence in (6) and (32) is reportative: the speaker’s inference that p is true is based on someone else’s statement that p is true. How the causal analysis deals with this case is not discussed in Davis and Hara (2014). Intuitively, the truth of some proposition does not necessarily cause someone else to state that it is true.
\[ = \lambda x \ x \text{ is tasty to } sp \text{ in } w, \text{ defined only if } \text{tasty}(x)(sp) \in \varnothing \lor \neg \text{tasty}(x)(sp) \in \varnothing, \text{ and defined only if } \text{tasty}(x)(sp) \in K_{sp, w} \lor \neg \text{tasty}(x)(sp) \in K_{sp, w}. \]

In (33c), the underlined part (i.e., what \( \text{oisii} \) \( w, sp, \varnothing(x) \) presupposes) is nullified because it holds trivially. Therefore, (33c) is defined only if the speaker knows whether \( x \) is tasty or not, and becomes true if \( x \) is tasty to the speaker, which is the desired result.

Let us turn to the treatment of EPIS/EVID. As is observed by Pearson (2013), Ninan (2014, 2020), and Anand and Korotkova (2018), PPT’s requirement of direct experience disappears when PPTs are in the scope of modals/evidentials (so-called the obviation effect). When uttering (34), the speaker need not have the direct experience of the curry.

(34) Sono-karee-wa oisii [nitigainai/yoooda].
that-curry-TOP tasty [EPIS/EVID]
‘That curry [must be/seems] tasty.’

To achieve this, I assume, following Anand and Korotkova (2018) and Ninan (2020), that EPIS/EVID operate on the parameters of their prejacent:

(35) a. \[ \text{EPIS}^{w,j,K_{j,w}} = \lambda p. \forall w'[w' \in \bigcap f(w) \rightarrow [p]^{w',j,\varnothing}. \]

b. \[ \text{EVID}^{w,j,K_{j,w}} = \forall w'[w' \in \bigcap f(w) \rightarrow [p]^{w',i,K_{i,w}}, \text{ where } i \text{ is a contextually salient individual that can be different from } j. \]

EPIS overwrites the prejacent’s third parameter \( K_{j,w} \) with the set of all propositions \( \varnothing \). EVID overwrites the second parameter \( i \) and the third parameter \( K_{j,w} \) with \( i \) and \( K_{i,w} \), respectively. When combined with the prejacent x-wa oisii ‘\( x \) is tasty’, they provide the following results:

(36) a. \[ \text{x-wa oisii nitigainai}^{w,j,K_{j,w}} = \text{EPIS}^{w,j,K_{j,w}}([\text{x-wa oisii}]^{w,j,K_{j,w}}) \]
\[ = \forall w'[w' \in \bigcap f(w) \rightarrow [\text{x-wa oisii}]^{w',j,\varnothing}. \]
\[ = \forall w'[w' \in \bigcap f(w) \rightarrow x \text{ is tasty to } j \text{ in } w'], \text{ defined only if } \text{tasty}(x)(j) \in \varnothing \lor \neg \text{tasty}(x)(j) \in \varnothing. \]
\[ = \forall w'[w' \in \bigcap f(w) \rightarrow x \text{ is tasty to } j \text{ in } w']. \]

b. \[ \text{x-wa oisii yoooda}^{w,j,K_{j,w}} = \text{EVID}^{w,j,K_{j,w}}([\text{x-wa oisii}]^{w,j,K_{j,w}}) \]
\[ = \forall w'[w' \in \bigcap f(w) \rightarrow [\text{x-wa oisii}]^{w',i,K_{i,w}}. \]
\[ = \forall w'[w' \in \bigcap f(w) \rightarrow x \text{ is tasty to } i \text{ in } w'], \text{ defined only if } \text{tasty}(x)(i) \in K_{i,w} \lor \neg \text{tasty}(x)(i) \in K_{i,w}. \]

The presupposition of the PPT oisii in (36a) is nullified because its triviality,
in the same manner as in (33c). In (36b), the presupposition is associated with what \(i\), rather than \(j\), knows through her direct experience. In either case, the PPT’s direct requirement is not attributed to the speaker.

The directness requirement of a PPT simply disappears when it is combined with EPIS, while EVID associates this requirement with another judge \(i\), which means that EVID+PPTs requires that there be some individual that has direct experience. Then, it is predicted that the combination cannot be used to describe objects of which no one has direct experience. This is borne out:

(37) (You are watching a famous sushi chef making a Chinese food for the first time. You say):

\[
\text{Kono-hito-no chuuka-ryoori-wa oisii [nitigainai/#yooda] this-person-GEN Chinese-cuisine-TOP tasty EPIS/EVID 'This person’s Chinese food [must be/#seems] tasty.'}
\]

In this case, no one has tasted the Chinese food that the chef is making. The semantics proposed in (35) captures the contrast between EPIS and EVID here.

Finally, let us see the composition of the sentence \(x\)-wa watasi-nitotte-oisii nitigainai/yooda ‘\(x\) is tasty to me + EPIS/EVID’, where the experiencer is overtly specified as the speaker:

(38) \[
\left[\text{\(x\)-wa watasi-nitotte-oisii nitigainai} \right]_{w',j,K_j,w}^{w',j,K_j,w} = \left[\text{EPIS} \right]_{w',j,K_j,w} \left(\left[\text{\(x\)-wa watasi-nitotte-oisii} \right]_{w',j,K_j,w}^{w',j,K_j,w}\right).
\]

\[
= \forall w'[w' \in \mathcal{f}(w) \rightarrow \left[\text{\(x\)-wa watasi-nitotte-oisii} \right]_{w',j,K_j,w}^{w',j,K_j,w}(sp)).
\]

\[
= \forall w'[w' \in \mathcal{f}(w) \rightarrow \left[\text{oisii} \right]_{w',j,K_j,w}^{w',j,K_j,w}(\text{tasty}(x))], \text{defined only if} \left[\text{oisii} \right]_{w',j,K_j,w}^{w',j,K_j,w} \text{is defined.}
\]

\[
= \forall w'[w' \in \mathcal{f}(w) \rightarrow x \text{ is tasty to } sp \text{ in } w'], \text{defined only if} \text{tasty}(x)(sp) \in \wp \lor \neg\text{tasty}(x)(sp) \in \wp \text{ and defined only if} \text{tasty}(x)(sp) \in K_{sp,w} \lor \neg\text{tasty}(x)(sp) \in K_{sp,w}.
\]

\[
= \forall w'[w' \in \mathcal{f}(w) \rightarrow \text{tasty}(x)(sp) \in K_{sp,w} \lor \neg\text{tasty}(x)(sp) \in K_{sp,w}.
\]

(38) is defined only if the speaker directly knows in \(w\) (the actual world) whether \(x\) is tasty or not, and becomes true if \(x\) is tasty to her in all the accessible worlds \(w'\), which is what we assumed in Section 4. EPIS overwrites \(K_{j,w}^{w',j,K_j,w}\) with \(\wp\), but it does not affect the final result; nitotte in (38) lexically imposes \(K_{sp,w}^{sp,w}\) on the PPT’s presupposition regardless of the contextual parameter settings. This means that the same result obtains even if EPIS is replaced with EVID, because the difference between the two items lies in how they affect the contextual parameters of the prejacent.
On the Interpretation of Verb-Modifying Measure Phrases in Japanese*

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1 Introduction

This paper focuses on hitherto-unaddressed expressions: a measure phrase (MP) in Japanese that modifies the co-occurring verb but does not accompany postpositions. The MP 5-kiro ‘five kilometers’ in the following example is a case in point:

(1) Taroo-ga 5-kiro hasitta.
    Taroo-NOM 5-kilometer ran
    ‘Taroo ran 5km.’

*This paper has benefited from many valuable comments from Eri Tanaka, Osamu Sawada, Yusuke Kabota, and the members of Handai-Shindai Benkyoo-kai ‘the study circle of Osaka Univ. and Kobe Univ.’ including Kensuke Takita, Shun Ihara, and Katsumasa Ito. We also appreciate the participants’ questions and comments on JK 30. All remaining errors are our own. This work has been supported by the JSPS Grants-in-Aid for Scientific Research, Grants Numbers JP21K12991, JP22K13117.

Japanese/Korean Linguistics 30.  
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We call this type of MP a Verb-modifying Bare Measure Phrases (VBMP). The purpose of this paper is to illustrate the two semantic properties of VBMPs and to give a formal analysis of their semantics.

Previous literature on Japanese MPs has concentrated on their combination with gradable adjectives (Kubota 2011, Sawada and Grano 2011, among others). These studies address the interpretive effects that depend on the type of gradable adjective combined with the MP. The observations and generalizations in these previous studies are closely related to the proposal that we present, as will be discussed below. However, it is unclear how to deal with MPs when there is no co-occurring gradable expression. We will spell out the detailed steps of how VBMPs enter the composition of a sentence and interact with other elements to obtain their semantic properties.

The remainder of this paper is organized as follows. In Section 2, we reveal that VBMPs involve a covert measure function \( \mu \) that is subject to the monotonicity requirement, and that this measure function exhibits the same behavior as lower-closed scale adjectives (see Kennedy and McNally 2005). In Section 3, we propose a formal analysis of VBMPs based on two covert morphemes: MON and MEAS. In Section 4, we extend the proposed analysis to verbal comparatives (i.e., comparatives of the verbal domain without overt adverbs), and discuss a new parametric variation in degree domains. Section 5 concludes this paper and identifies a remaining issue.

2 Semantic Properties of Verb-Modifying Bare Measure Phrases

2.1 Monotonicity Requirement

MPs are associated with various dimensions: 5-\( \text{kiro} \) ‘5 km’ (DISTANCE), 5-\( \text{jikan} \) ‘5 hours’ (DURATION), and Jisoku 5-\( \text{kiro} \) ‘at 5km per hour’ (SPEED). However, not all the MPs can be used as a VBMP. For instance, the MP of speed jisoku-5-\( \text{kiro} \), unlike the other two MPs above, cannot be used as a VBMP when it modifies the verb hasitta ‘ran’, as shown in the following examples:

(2) a. Taroo-ga 5-\( \text{kiro} \) hasitta. [DISTANCE]
Taroo-NOM 5-kilometer ran
‘Taroo ran 5km.’

b. Taroo-ga 5-\( \text{jikan} \) hasitta. [DURATION]
Taroo-NOM 5-hour ran
‘Taroo for 5 hours.’

c. #Taroo-ga jisoku-5-\( \text{kiro} \) hasitta. [SPEED]
Taroo-NOM per.hour-5-kilometer ran
‘Taroo ran at 5km per hour.’
We claim that the MP \textit{jisoku-5-kiro} in (2) is unavailable because VBMPs involve a measure function \( \mu \) of type \( \langle v, d \rangle \) (i.e. a function from an event to a degree in some dimension), and this measure function obeys the monotonicity requirement.

(3) Claim 1: Monotonicity Requirement

a. The measure function \( \mu \) resolves only to monotonic dimensions with respect to a part-of structure of events.

b. A dimension \( \delta \) is monotonic iff for any two events \( e_1, e_2 \) such that \( e_1 \sqsubset e_2 \) (\( e_1 \) is a proper subpart of \( e_2 \)), \( \delta(e_1) < \delta(e_2) \).

(cf. Schwarzschild 2002)

According to (3b), the dimensions \textsc{distance} and \textsc{duration} are monotonic with respect to a part-of structure of running events. Suppose that \( e_1 \) is an event in which Taroo ran. If \( e_1 \) is a part of another running event \( e_2 \), that is, Taroo’s running in \( e_1 \) is a part of running in \( e_2 \), the running distance in \( e_2 \) and the temporal duration of \( e_2 \) are greater than those in \( e_1 \). That is, if \( e_1 \sqsubset e_2 \), then \( \text{DISTANCE}(e_1) < \text{DISTANCE}(e_2) \) and \( \text{DURATION}(e_1) < \text{DURATION}(e_2) \). Hence, the measure function \( \mu \) can resolve to these monotonic dimensions and the VBMPs \textit{5-kiro} and \textit{5-jikan} are acceptable in (2).

The dimension \textsc{speed}, on the other hand, is non-monotonic with respect to a part-of structure of running events. Suppose again that \( e_1 \) is an event in which Taroo ran. If \( e_1 \) is a part of another running event \( e_2 \), that is, Taroo’s running in \( e_1 \) is a part of running in \( e_2 \), it is not guaranteed that Taroo ran faster in \( e_2 \) than in \( e_1 \). Thus, the measure function \( \mu \) involved in (2) cannot resolve to the non-monotonic dimension \textsc{speed}, and the VBMP \textit{jisoku-5-kiro} is unacceptable in (2).

This claim is supported by the example below, which indicates that the VBMP \textit{jisoku-5-kiro} becomes acceptable if we change the verb modified:

(4) \textit{Kuruma-no hasiru supiido-ga jisoku-5-kiro otita.}  
\textit{car-GEN run speed-NOM per.hour-5-kilometer dropped}  

‘The running speed of the car decreased by 5km per hour.’

The relevant event in (4) is not a running event but a \textit{speed-decreasing} event. If this event continues, Taroo’s running speed will decrease more, which means that for two \textit{speed-decreasing} events \( e_1 \) and \( e_2 \), if \( e_1 \sqsubset e_2 \), then the degree of decrease in speed in \( e_1 \) is smaller than that in \( e_2 \), satisfying (3b). Hence, the VBMP \textit{jisoku-5-kiro} in (4), unlike that in (2), is acceptable.
2.2 The Scale Structure of the Measure Function $\mu$

Let us proceed to the second semantic property of VBMPs: the scale structure of the measure function $\mu$ involved in them. According to Rotstein and Winter (2004), Kennedy and McNally (2005) and Kennedy (2007), gradable adjectives have different scale structures. They are classified into four types based on whether their associated scales are closed or not (i.e. the scales have a minimum or maximal endpoint):

(5) A Typology of Scale Structures (based on Kennedy 2007)

a. Open Scale Adjectives:
   - Example: tall, hot
b. Lower-closed Scale Adjectives
   - Example: bent, wet
c. Upper-closed Scale Adjectives
   - Example: straight, dry
d. Totally Closed Scale Adjectives
   - Example: open, closed

The distinction between the open and lower-closed scales is important for the current discussion. Sawada and Grano (2011), among others, point out that the interpretation of Japanese MPs depends on the scale structures of gradable adjectives with which they combine. In particular, Japanese MPs combined with open-scale adjectives lead to the comparative interpretation:

(6) a. Tue-ga 5-senti nagai.
    stick-NOM 5-cm long
    ‘Lit. The stick is 5cm long.’
    [Open-Scale]

   b. *The length of the stick is 5cm. (Absolute)

   c. ✓ The length of the stick is 5cm longer than a contextually salient individual. (Comparative)

In (6a), the MP 5-senti ‘5 cm’ is combined with the open scale adjective nagai ‘long,’ and the only available interpretation is the comparative one where the MP specifies not the absolute length but the comparative length of the stick. Conversely, Japanese MPs combined with lower-closed scale adjectives lead to the absolute interpretation:
(7) a. Tue-ga 5-do magatteiru. [Lower-Closed Scale]
   stick-NOM 5-degree bent
   ‘Lit. The stick is 5 degrees bent.’
   b. ✓ 'The bentness of the stick is 5 degrees.' (Absolute)
   c. * 'The bentness of the stick is 5 degrees longer than a contextually salient individual.' (Comparative)

Unlike the previous case, the only available interpretation is the absolute one where the MP 5-do ‘5-degree,’ which is combined with the lower-closed scale adjective magatteiru ‘bent’, specifies the absolute bentness of the stick.

VBMPs exhibit the same behavior as MPs combined with lower-closed scale adjectives. In (2), the VBMPs 5-kiro and 5-jikan have the absolute interpretation just as the MP 5-do used with the lower-closed scale adjective magatteiru:

(2) a. Taroo-ga 5-kiro hasitta. [DISTANCE]
   Taroo-NOM 5-kilometer ran
   ‘Taroo ran 5km.’
   b. ✓ 'The distance of Taroo’s running is 5km.' (Absolute)
   c. * 'The distance of Taroo’s running is 5km longer than that of a contextually salient individual.' (Comparative)
   d. Taroo-ga 5-jikan hasitta. [Duration]
   Taroo-NOM 5-hour ran
   ‘Taroo ran for 5 hours.’
   e. ✓ 'The duration of Taroo’s running is 5 hours.' (Absolute)
   f. * 'The duration of Taroo’s running is 5 hours longer than that of a contextually salient individual.' (Comparative)

Based on this fact, we claim that the measure function \( \mu \) involved in VBMPs possesses the same scale structure as lower-closed scale adjectives:

(8) Claim 2: The Scale Structure of the Measure Function \( \mu \)
The measure function \( \mu \) involved in VBMPs has a lower-closed scale structure.

This claim is supported by the fact that the measure function \( \mu \) and lower-closed scale adjectives behave in the same way when they are not used with (VB)MPs. As shown below, the truth conditions of the positive form of open-scale adjectives refer to a contextually determined standard, whereas those of
the positive form of lower-closed scale adjectives refer to the minimum point of the scale (see Kennedy 2007):

(9) a. The stick is long. [Open-Scale]
    b. (9a) is true iff the length of the stick is longer than a contextually determined standard (e.g. the average length of sticks).
    c. The stick is bent. [Lower-Closed]
    d. (9c) is true iff the length of the stick is longer than the minimum point of the scale (i.e. the zero).

Let us assume that (10a) involves the measure function $\mu$ although no overt MPs exist. In this case, the truth conditions of (10a) refer to the minimum endpoint just like lower-closed scale adjectives:

(10) a. Taroo-ga hasitta.
    b. (10a) is true if and only if Taroo’s running distance or duration exceeds the minimum point (i.e. the zero).

Thus, the above fact supports our claim that the measure function $\mu$ has the same scalar structure as lower-closed scale adjectives.

Another similarity is the compatibility with the degree modifier wazukani ‘slightly.’ Kubota (2011) observes that lower-closed scale adjectives, but not open scale adjectives, are compatible with this modifier, as in (11a) and (11b).

(11) a. #Tue-ga wazukani nagai. [Open Scale]
    b. Tue-ga wazukani magatteiru. [Lower-Closed Scale]

What is crucial here is the fact that wazukani can be compatible with the measure function $\mu$ as in (12):

1 Note that (11a) is acceptable under the comparative interpretation of nagai (i.e. the stick is slightly longer than a contextually relevant stick). The point here is that this adjective is incompatible with the degree modifier under the absolute interpretation.
(12) Taroo-ga wazukani hasitta. [DISTANCE / DURATION /*SPEED]
Taroo-NOM slightly ran
‘Taroo ran just a little bit.’

Notably, the available interpretation of (12) is that Taroo ran a very short distance (DISTANCE) or ran for a very short time (DURATION), but not that Taroo ran very slowly (SPEED). This shows that the measure function \( \mu \) is involved in (12), and the compatibility of \( \mu \) and wazukani indicates that \( \mu \) behaves as a lower-closed scale adjective. Hence, VBMPs in (2) are assigned absolute interpretation.

3 Implementation

To capture the semantic properties of VBMPs observed thus far, we assume two covert morphemes, MON and MEAS, the latter of which is based on Sawada and Grano (2011), as in (13), where \( \partial(p) \) means that \( p \) is the presupposition (Beaver 2008):

(13) a. \( [\text{MON}] = \lambda e_v. \mu(e) \land \partial(\forall e', e'' [e' \sqsubseteq e \sqsubseteq e'' \rightarrow \mu(e') < \mu(e) < \mu(e'')] \).  

b. \( [\text{MEAS}] = \lambda g(v, d) \lambda d_v. \lambda e_v. g(e) \geq d \land \partial(g \text{ has a minimum point}) \).

MON introduces a measure function \( \mu \) that takes an event \( e \) and returns a degree of \( e \) in some dimension that satisfies the monotonicity requirement (cf. Nakanishi 2007).\(^2\) MEAS requires the measure function \( g \) with a minimum point, and relates the degree measured by \( g \) and another degree \( d \).

Based on the simplified LF in (14a), the truth conditions of (2) are derived as follows:\(^3\)

\(^2\)Nakanishi (2007) employs the same kind of monotonicity restriction for Japanese floating quantifiers. The current analysis, which claims that lexical items other than floating quantifiers are susceptible to the same constraint, leads to the view that the applicability of the monotonicity constraint is broader than thought in the previous literature.

\(^3\)For the sake of simplicity, we adopt Neo-Davidsonian event semantics (e.g., Parsons 1990), but nothing hinges on this choice.
(14) Taroo-ga 5-kiro/5-jikan/#jisoku-5-kiro hasitta.

a. 1
   2
   3
   Taroo AGT 4 ran

5km/5hours/#5km per hour 5

MEAS MON

[5] = λdJλeJ. μ(e) ≥ d ∧ ∂(∀e′,e′′[e′ ⊏ e ⊏ e′′ → μ(e′) < μ(e) < μ(e′′)]) ∧ ∂(μ has a minimum point).

[4] = λeJ. μ(e) ≥ 5km/5hours ∧ ∂(∀e′,e′′[e′ ⊏ e ⊏ e′′ → μ(e′) < μ(e) < μ(e′′)]) ∧ ∂(μ has a minimum point).

[3] = λe. run(e) ∧ μ(e) ≥ 5km/5hours ∧ ∂(∀e′,e′′[e′ ⊏ e ⊏ e′′ → μ(e′) < μ(e) < μ(e′′)]) ∧ ∂(μ has a minimum point).

[AGT] = λxJλeJ. Agent(e) = x.


[1] = λe. run(e) ∧ Agent(e) = T ∧ μ(e) ≥ 5km/5hours ∧ ∂(∀e′,e′′[e′ ⊏ e ⊏ e′′ → μ(e′) < μ(e) < μ(e′′)]) ∧ ∂(μ has a minimum point).

b. Existential Closure applies:
   ∃e[run(e) ∧ Agent(e) = T ∧ μ(e) ≥ 5km/5hours ∧ ∂(∀e′,e′′[e′ ⊏ e ⊏ e′′ → μ(e′) < μ(e) < μ(e′′)]) ∧ ∂(μ has a minimum point)].

(14) is defined only if μ is monotonic relative to running events e and has a minimum point. The former presupposition ensures that μ cannot resolve to SPEED (i.e., jisoku-5-kiro is unavailable in (14)). (14) becomes true if there is a running event e whose agent is Taroo and the measure of e is greater than or equal to 5km/5hours (the exactly 5km/5hours interpretation is obtained via scalar implicature).

We assume that if there is no MP as in Taroo-ga hasitta ‘Taroo ran’, MON is combined with the covert morpheme pos:

(15) [ pos] = λg(,d)λeJ.g(e) > dJ.g(c)

(based on Svenonius and Kennedy 2006)
The covert morpheme *pos* takes a measure function *g* and returns a set of events *e* such that *g*(e), the measure of *e*, is greater than *d*(g)(c), the contextually determined standard for *g*.

Following Kennedy (2007), we assume that the contextual standard introduced by *pos* is determined by the principle of Interpretive Economy:

(16) **Interpretive Economy**

Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

(Kennedy 2007:35)

This principle dictates that in the selection of a standard of comparison, an adjective’s scale structure, which is part of its conventional meaning, takes precedence over contextual properties. Given this principle, the standard function *d*(g)(c) returns different standard values depending on the scale structure of the adjective:

(17) **Standards for Each Type of Adjectives**

a. \[ d_s(g)(c) = \begin{cases} 
\text{min}(g) \text{ if } \text{min}(g) \text{ is defined} \\
\text{max}(g) \text{ if } \text{max}(g) \text{ is defined} \\
d_s(g)(c) \text{ otherwise}
\end{cases} \]

b. Open Scale: a context-dependent point on the scale
c. Lower Closed Scale: the scale’s minimum endpoint
d. Upper Closed Scale: the scale’s maximum endpoint
e. Totally Closed Scale: the scale’s minimum or maximum endpoint

Based on the covert morpheme *pos* and Interpretive Economy, we can capture the intuitive truth conditions of *Taro-ga hasitta*. ‘Taro ran’ as in (18). (18) is defined only if *µ* is monotonic relative to running events, and becomes true if there is a running event *e* whose agent is Taroo and the measure of *e* (e.g. the distance or duration of *e*) is greater than the minimum point (i.e. the zero). This is what we observed in (10a).
(18) Taroo-ga hasitta. ‘Taroo ran.’

a. 1

\[
\begin{array}{ccc}
\text{Taroo} & \text{AGT} & 4 \\
\text{ran} & \\
\text{pos} & \text{MON} \\
\end{array}
\]

\[
[4] = \lambda e. \mu(e) > d_s(\mu)(e) \wedge \partial(\forall e', e''[e' \sqsubseteq e'' \rightarrow \mu(e') < \mu(e) < \mu(e'')]).
\]

\[
[3] = \lambda e. \text{run}(e) \wedge \mu(e) > d_s(\mu)(e) \wedge \partial(\forall e', e''[e' \sqsubseteq e'' \rightarrow \mu(e') < \mu(e) < \mu(e'')]).
\]

\[
= \lambda e. \text{run}(e) \wedge \mu(e) > \min(\mu) \wedge \partial(\forall e', e''[e' \sqsubseteq e'' \rightarrow \mu(e') < \mu(e) < \mu(e'')]).
\]

[Because \( \mu \) has a lower-closed scale]

\[
[2] = \lambda e. \text{Agent}(e) = \text{T}
\]

\[
[1] = \lambda e. \text{run}(e) \wedge \text{Agent}(e) = \text{T} \wedge \mu(e) > \min(\mu)
\]

b. Existential Closure applies:

\[
\exists e [\text{run}(e) \wedge \text{Agent}(e) = \text{T} \wedge \mu(e) > \min(\mu) \wedge \partial(\forall e', e''[e' \sqsubseteq e'' \rightarrow \mu(e') < \mu(e) < \mu(e'')])].
\]

Thus, we have demonstrated that the monotonicity requirement imposed by \text{MON} and the lower-closedness of \( \mu \)'s scale derive the desired results. However, one might claim that it is ad hoc to posit a covert morpheme for one particular construction (i.e., VBMPs). The next section shows that \text{MON} is applicable to the derivation of the semantic property of another construction.

4 Implications

4.1 Verbal Comparatives

The current proposal can be extended to verbal comparatives, i.e., comparatives of the verbal domain without overt adverbials, which have not been studied extensively in the literature. As in the VBMP construction, the possible dimension of comparison in verbal comparatives must be monotonic:

(19) Taroo-wa Hanako-yori hasitta. [DISTANCE / DURATION / *SPEED] Taroo-TOP Hanako-than ran

‘Taroo ran [a longer distance / for a longer time / *faster] than Hanako.’
This property can be captured by incorporating MON into the composition. We assume that the lexical entry of yori ‘than’ for adverbial comparatives is (20):^4

\[
\llbracket \text{yori} \rrbracket = \lambda Q_{(v, t)} \lambda g_{(v, d)} \lambda P_{(v, t)} \lambda e. \exists e'[P(e) \land Q(e') \land g(e) > g(e')].
\]

We further assume that the complement of yori is a reduced clause that denotes objects of type \((v, t)\). Then, the truth-conditions of (19) can be derived as in (21). According to (21b), (19) is defined only if \(\mu\) is monotonic relative to running events \(e\), and becomes true if there are events \(e\) and \(e'\) such that \(e\) is a running event whose agent is Taroo and \(e'\) is a running event whose agent is Hanako and \(\mu(e)\) is greater than \(\mu(e')\). Because DISTANCE and DURATION are monotonic to running while SPEED is not, \(\mu\) in (21b) can resolve to DISTANCE and DURATION, but not to SPEED, which is what we observe in (19).

---

^4 Note that the lexical entry of yori in (20a) is not designed solely for verbal comparatives; it can be applied to adverbial comparatives in general. Consider (i-a) below. In the composition of this sentence, the overt adverb hayaku ‘fast’ saturates the slot of \(g\) in (20a). Assuming that the semantics of hayaku is as in (i-b), we arrive at (i-c), which is the correct meaning of (i-a).

(i) a. Taroo-wa Hanako-yori hayaku hasitta.
    Taroo-TOP Hanako-than fast ran.
    ‘Taroo ran faster than Hanako.’

b. \(\llbracket \text{hayaku} \rrbracket = \lambda e. \text{SPEED}(e)\).

c. \(\llbracket \text{(i-a)} \rrbracket = \exists e, e' [\text{run}(e) \land \text{Agent}(e) = T \land \text{run}(e') \land \text{Agent}(e') = H \land \text{SPEED}(e) > \text{SPEED}(e')]\).
We have illustrated that the semantic properties of verbal comparatives can be captured by postulating the covert morpheme MON. This implies that the morpheme is not designed solely to account for the properties of VBMPs.
4.2 Parametric Variation in Degree Domains

The current analysis suggests that there is a parametric variation in degree domains other than the degree abstraction parameter (Beck et al. 2004).\(^5\) Wellwood (2019) claims that in English, *much* shows the monotonicity requirement as shown in (22), where *more* is analyzed as *much* + *-er*:

(22) a. Al ran more than Bill did. \([\text{DISTANCE} / \text{DURATION} / \ast \text{SPEED}]\)
   b. Al ran as much as Bill did. \([\text{DISTANCE} / \text{DURATION} / \ast \text{SPEED}]\)
   (Wellwood 2019: 42)

These examples pattern with the Japanese verbal comparatives observed in the previous subsection, which means that *much* has the same properties as MON.\(^6\) This implies that in Japanese, *much* is always covert while it is not in English, and that there is possibly a cross-linguistic parameter as to whether *much* appears overtly (as in English) or covertly (as in Japanese).

5 Conclusion

In this paper, we illustrated the semantic properties of VBMPs. We argued that VBMPs involve the measure function \(\mu\) in their semantics and that \(\mu\) possesses the following two properties. First, VBMPs must comply with the monotonicity requirement (Schwarzchild 2002): the value in the dimension measured by VBMPs must be correlated with the size of the event described by the predicate. Second, \(\mu\) patterns with lower-closed scale adjectives such as *magatteiru* ‘bent’, which provide the absolute interpretation when combined with MPs. We offered a formal analysis of VBMPs by employing two

\(^5\) Based on the syntactic and semantic difference between *than*-clauses and *yori*-clauses, Beck et al. (2004) propose the following parameter:

(ii) Degree Abstraction Parameter (DAP):
A language \{ does / does not \} have binding of degree variables in the syntax.

\(^6\) While the Japanese verbal comparatives and sentences in (22) show parallelism, VBMPs and their English counterparts do not. In English, MPs of *DISTANCE* can appear without a preposition, as in Japanese; however, those of *DURATION* require the preposition *for*, just as those of *SPEED* require *at*:

(iii) John ran [5 km / *(for) 5 hours / *(at) 5km per hour].

If monotonicity plays a crucial role in the presence or absence of prepositions in English, the English *DURATION* MPs should be used without *for*, which is not the case. This suggests that the cross-linguistic variation regarding whether MPs need prepositions/postpositions might not be a purely semantic matter but has something to do with language-specific morphosyntactic reasons.
covert morphemes MON and MEAS, the latter of which is based on Sawada and Grano (2011). We also demonstrated that our analysis can be extended to verbal comparatives, and that there may be a parametric variation as to whether a morpheme that requires monotonicity is overtly expressed.

However, the optima combination of MPs and verbal comparatives is a remaining issue. MPs can be attached to adjectival and adverbial comparatives:

\[(23)\] a. Taroo-wa Hanako-yori 2cm se-ga takai.
\[
\begin{array}{cc}
\text{Taroo-TOP} & \text{Hanako-than} \\
\text{height-NOM} & \text{high}
\end{array}
\]
‘Taroo is 2cm taller than Hanako.’ [Adjectival Comparatives]

b. Taroo-wa Hanako-yori 2-kiro nagaku hasitta.
\[
\begin{array}{cc}
\text{Taroo-TOP} & \text{Hanako-than} \\
\text{long} & \text{ran}
\end{array}
\]
‘Taroo ran 2km longer than Hanako.’ [Adverbial Comparatives]

c. Taroo-wa Hanako-yori hon-o 2-satu ooku yonda.
\[
\begin{array}{cc}
\text{Taroo-TOP} & \text{Hanako-than} \\
\text{book-ACC} & \text{many}
\end{array}
\]
‘Taroo read two more books than Hanako.’ [Adverbial Comparatives]

However, the verbal comparatives in the following examples cannot tolerate MP attachment:

\[(24)\] a. ??Taroo-wa Hanako-yori 5-kiro hasitta.
\[
\begin{array}{cc}
\text{Taroo-TOP} & \text{Hanako-than} \\
\text{5km} & \text{ran}
\end{array}
\]
‘Lit. Taroo ran 5km more than Hanako.’ [DISTANCE]

b. ??Taroo-wa Hanako-yori 5-satu yonda.
\[
\begin{array}{cc}
\text{Taroo-TOP} & \text{Hanako-than} \\
\text{5-CL} & \text{read}
\end{array}
\]
‘Lit. Taroo read 5-book more than Hanako.’ [NUMBER]

Note that the dimensions of the comparison (DISTANCE and NUMBER) satisfy the monotonicity constraint: the more Taroo runs, the longer the running distance should be, and the more Taroo reads books, the larger the number of books that he reads. Nevertheless, these sentences sound weird. The contrast between (23b) and (23c), in which adverbs are overtly expressed, and (24a) and (24b), in which there are no overt adverbs, should be explored in the future studies.

References


Bare vs. Demonstrative Anaphoric Definites in Korean and Their Cross-linguistic Implications

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1 Introduction

This paper aims to provide a new perspective on the typology of anaphoric definiteness marking—an actively debated topic in recent semantics literature—by presenting data from Korean.
English collapses *unique/weak* definites and *anaphoric/familiar/strong* definites by using the same definite article *the*, as exemplified in (1).

(1) a. The moon has risen. (unique)  
   b. John bought a book. The book was expensive. (anaphoric)

In other languages, the two types of definites may be morphosyntactically distinguished by using strong definite articles or demonstratives (Dems) (e.g., German, Lakhota, Hausa, Icelandic) (Schwarz 2013 and references there).

Recent work on article-less languages has expanded the study of anaphoric definiteness marking across languages (e.g., Jenks 2018; Ahn 2019; Kang 2021; Moroney 2021; Park 2022; Simpson and Wu 2022; Dayal and Jiang 2023). The prevailing view is that, apart from occurring as *unique/weak* definites, bare nouns can occur in all *anaphoric/familiar/strong* definite environments. However, consensus is yet to be reached as to exactly when anaphoric bare nouns may be used, as opposed to Dem-modified NPs (Dem-NPs for short).

In this paper, we discuss the source of debate surrounding anaphoric definiteness marking in bare noun languages, identifying an outstanding problem. After this, we present a new analysis based on Mandarin Chinese (Mandarin) and Korean facts, showing that the choice between an anaphoric bare noun and a Dem-NP in article-less languages is not a matter of optionality or preference, contra authors like Ahn (2019), Park (2022), Simpson and Wu (2022), and Dayal and Jiang (2023). We suggest that, typically, bare nouns indicate what Kim (2021b) calls *situation-internal viewpoint* and Dem-NPs indicate what she calls *situation-external viewpoint*, but we propose more refined licensing conditions for anaphoric bare nouns and Dem-NPs than Kim does. In addition, we offer formal semantic treatments of anaphoric bare nouns and Dem-NPs in Korean, with implications for other (bare noun) languages (compare Kim to appear).

2 Source of the Debate and an Outstanding Problem


To illustrate, according to Jenks, in (2), a two-sentence narrative in Mandarin taken from his (15a,b), the Dem plus classifier sequence cannot be omitted from the second sentence because the definite individual at issue is an anaphoric definite.

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To capture the distribution of the two types of definites, Jenks (2018: (22)) offers what is given in (3) as the semantics of the iota operators that contribute definite meanings to bare nouns in M/J/K-type languages. Here and below, \( s \) represents a resource situation that serves as the domain restriction on the (null) definite article (Schwarz 2009; Jenks 2018).

(3) a. Unique definite article: 
\[
(\iota) = \lambda s.\lambda P. \exists! x [P(x)(s)]\]

b. Anaphoric definite article: 
\[
(\iota^*) = \lambda s.\lambda P.\lambda Q. \exists! x [P(x)(s) \& Q(x)].
\]

Additionally, to explain why \( \iota \) does not occur in anaphoric environments, Jenks (2018: 524) proposes a principle called \( \text{Index!} \), which says ‘Represent and bind all possible indices’.

\( \text{Index!} \) predicts that even in bare noun languages, only Dem-NPs will be able to mark anaphoric definiteness. However, the Mandarin data in (4) show that anaphoric bare nouns can occur in subject positions, posting a challenge to \( \text{Index!} \).

(4) a. Jiaoshi li zuo zhe yi ge nansheng he classroom inside sit PROG one CLF boy and yi ge nüsheng. one CLF girl

‘There are a boy and a girl sitting in the classroom.’

b. (Na ge) nansheng kanqilai you er-shi sui zuoyou. that CLF boy look have two-ten year or.so

‘The boy looks twenty-years old or so.’

(Jenks 2018: (15a,d))

To explain such ‘exceptional’ cases, Jenks (2018) appeals to the pragmatic notion of topic-hood. The idea is that the subject position of a sentence overrides \( \text{Index!} \) because subjects are ‘salient members of the question under discussion (QUD)’ (p. 525), thus introducing an index of their own.
Subsequent work such as Simpson and Wu 2022 and Dayal and Jiang 2023 has shown, however, that Mandarin bare nouns can occur not only in subject but also in non-subject positions, encoding anaphoric definiteness. This is exemplified in (5).

(5) a. Jiaoshi li zuo zhe yi ge nansheng he
    classroom inside sit PROG one CLF boy and
    yi ge núsheng.
    one CLF girl
    ‘A boy and a girl are sitting in the classroom.’

b. Núsheng zuo zai nansheng pangbian.
    girl sit DUR boy side
    ‘The girl is sitting next to the boy.’

(Dayal and Jiang 2023: (11a,b))

Based on such observations, Dayal and Jiang (2023) claim that Jenks’ Index!, which leads to categorical distinctions in (un)acceptability, is not the right tool to explain the relevant data. More concretely, they assert that anaphoric bare nouns and Dem-NPs are not in complementary distribution, and the choice between them is a matter of ‘preference’. In addition, they suggest that the relation between the initial situation $s$ and a subsequent situation $s'$ determines the preference (p. 161).

As an alternative to Jenks’ analysis, Dayal and Jiang argue that Mandarin Dems are plain demonstratives whose semantics is no different from English demonstratives’, as given in (6a), and that the iota operator $\iota$ can be ambiguous between a strong definite article and a weak definite article, as given in (6b) and (6c).

(6) a. $\llbracket \text{Dem} \rrbracket = \lambda s \lambda P. \exists s' s \leq s' | P s | > 1. \lambda x[P x & x = y]$

b. $\llbracket \text{the}_\text{strong} \rrbracket = \lambda s \lambda P. | P s \cap \lambda x[x = y]| = 1. \lambda x[P x & x = y]$

c. $\llbracket \text{the}_\text{weak} \rrbracket = \lambda s \lambda P. | P s | = 1. \lambda x[P x]$

(adapted from Dayal and Jiang 2023: (19))

According to Dayal and Jiang, in Mandarin-type languages, a Dem-NP is used instead of an anaphoric bare noun when it is presupposed that the situation under description, i.e., $s$, has an expanded situation $s'$ such that there is more than one individual with the same property $P$ denoted by the NP in $s'$. In addition, they explain the contrast between (2) and (5) as follows: In (5), anaphoric bare nouns are used because the situation described by (5a) is defined by two individuals, and the same two individuals define the situation in (5b). In contrast, the individuals in (2a) are a proper part of the individuals in (2b), so a Dem-marking is preferred in (2b).
Dayal and Jiang’s analysis improves Jenks’ analysis in certain respects. But under their analysis, some empirical facts do not receive proper treatments.

First, their anti-uniqueness presupposition of $[[\text{Dem}]]$ given in (6a), between the colon and the dot, is not satisfied in (2b) (there is only one boy in the discourse context), and yet the Dem is necessary or strongly preferred.

Second, anaphoric bare nouns can occur even when the initial context is expanded to include additional participants, as shown in (7).

(7) a. Jiaoshi li zuo zhe yi ge nanhai he classroom inside sit PROG one CLF boy and yi ge nühai. one CLF girl

‘A boy and a girl were sitting in the classroom.’

b. Turan yi ge xiaohai pao jin jiaoshi jiao suddenly one CLF kid run in classroom ask nanhai gen ta chuqu. boy with him go.out

‘Suddenly, a kid ran into the classroom and asked the boy to go out with him.’

(Dayal and Jiang 2023: (26a,b))

Dayal and Jiang state that (7a) is ‘minimally’ expanded in (7b) via a ‘controlled’ introduction of an individual (p. 163). They do not explain, however, in what sense (7b) is a minimal and controlled expansion of (7a) and (2b) is not a minimal and controlled expansion of (2a).

Notably, the facts are parallel in Korean, as shown in (8)-(9) (Kim 2022). Given this, the pattern we see in Mandarin cannot be language-specific, and the question is: When are anaphoric bare nouns licensed in M/J/K-type languages?

(8) a. Kyosil an-ey sonyen han-myeng-kwa classroom inside-LOC boy one-CLF-and

sonye han-myeng-i ancaissta. girl one-CLF-NOM are.sitting

‘A boy and a girl are sitting in a/the classroom.’

b. Sonye-ka sonyen yep-ey ancaissta. girl-NOM boy side-LOC are.sitting

‘The girl is sitting next to the boy.’
   I-TOP yesterday that boy-ACC met
   ‘I met the boy yesterday.’

3 A New Perspective and a New Analysis

In this section, drawing on previous research, as well as by adding some new observations, we identify in what contexts anaphoric bare nouns occur in Korean, as opposed to Dem-NPs. After this, we propose new semantics for anaphoric bare nouns and Dem-NPs. This will be followed by demonstrating how the proposed analysis captures some of the Korean and Mandarin facts in ways that improve existing analyses like Jenks 2018 and Dayal and Jiang 2023. We end this section by briefly discussing how our analysis captures so-called anti-uniqueness effects (Wolter 2006; Simonenko 2014) without making commitments that all occurrences of Dem-NPs in human language come with such a presupposition (compare Dayal and Jiang 2023). In this context, we also discuss some English data, along with Korean data.

3.1 When Are Anaphoric Bare Nouns Licensed in Korean?

As observed by authors like Kim (2021a,b) and Simpson and Wu (2022), in Korean, anaphoric bare nouns occur when the same spatiotemporal location is maintained in the narrative sequence, e.g., (8) and (10), and Dem-NPs occur when there is a shift in the spatiotemporal location, e.g., (9) and (11).

(10) a. Ecey kay han mali-lul pwassta.
   Yesterday dog one CLF-ACC saw
   ‘Yesterday I saw a dog.’

b. (?Ku) kay-ka kwiyewuessta.
   that dog-NOM was.cute
   ‘The dog was cute.’

(11) a. Ecey kay han mali-lul pwassta.
   Yesterday dog one CLF-ACC saw
   ‘Yesterday I saw a dog.’

b. Onul #(ku) kay-ka cip-ey wassta.
   today that dog-NOM house-to came
   ‘Today the/that dog came to my house.’
However, as Kim (2021b) notes, this is not a sufficient condition for licensing anaphoric bare nouns in Korean: Even if the same spatiotemporal location is maintained, an anaphoric bare noun may not be licensed if its referent is not the only \( x \) that has \( P \) in \( s \). This can be seen by comparing (12) and (13): In (13), there is more than one \( x \) that has \( P \) in \( s \), and a Dem is necessary.

(12) a. Ecey nolay.calang-eyse yeca.ai namca.ai yesterday singing.contest-LOC girl boy 
kuliko elun han-myeng-ul pwassta. and adult one-CLF-ACC saw
‘Yesterday, in a singing contest, I saw a girl, a boy, and a grown-up person.’

b. (Ku) yeca.ai-ka nolay-lul kacang cal hayssta. that girl-NOM singing-ACC most well did
‘The/that girl sang the best among them.’

(13) a. Ecey thipi chwukkwu cwungkey-eyse yesterday television soccer broadcasting-LOC Son Ho-Min-ul pwassta. Ho-Min Son-ACC saw
‘Yesterday, on the soccer broadcast, I saw Ho-Min Son.’

b. #(Ku) senswu-ka mom-nollim-i kacang ppallassta. that player-NOM body-movement-NOM most was.quick
‘That player exhibited the fastest performance of all.’

(Kim 2021b: (34))

In addition, we should note that an anaphoric bare noun may be licensed even if the same spatiotemporal location is not maintained across the sentences if its referent is familiar to the speaker at the text level or if it acts like a text-internally licensed quasi-name (Kim 2021a,b). Such cases are exemplified in (14) and (15).

(14) a. Cinancwu-ey kangaci han mali-lul ipyanghayssta. last.week-LOC puppy one CLF-ACC adopted
‘Last week I adopted a puppy.’

b. Onul kangaci-ka salaciessta. today puppy-NOM disappeared
‘Today the puppy disappeared.’

(Kim to appear: (23))
Based on these facts, we propose that in Korean, an anaphoric bare noun is used (i) when its referent is uniquely identifiable at the situation level or (ii) when its referent is uniquely identifiable at the text level. In the former cases, the perspective holder is an event participant of the situation in which the antecedent of the anaphoric definite is found; in the latter cases, the perspective holder is the speaker/narrator. As to the occurrence of an anaphoric Dem-NP, we submit that it is used when its referent bears a discourse salient relation to the perspective holder at the cross-sentential level.

3.2 Semantics of Anaphoric Bare Nouns and Anaphoric Dem-NPs

To provide a new formal semantic analysis of anaphoric bare nouns and anaphoric Dem-NPs in Korean-type languages, we make the following assumptions: First, anaphoric definites in Korean are individual-denoting. That is, they are of type e. Second, the existence and uniqueness presuppositions of anaphoric definites hold in what Schwarz (2009) and Jenks (2018) call a resource situation $s_r$. Third, anaphoric definites have antecedents in what Kim (to appear) calls a source situation $s_s$. On these assumptions, we propose that an anaphoric bare noun in Korean is licensed in $s_s$ when its referent is familiar as $P$ to the perspective holder $y$ of $s_s$ in $s_r$ and it is the only $x$ that has $P$ in $s_s$, and that an anaphoric Dem-NP is licensed in $s_s$ when its referent bears a discourse salient relation $R$ to $y$ in both $s_s$ and $s_r$ and it is the only $x$ that has $P$ in $s_r$, and bears $R$ to $y$ in both $s_s$ and $s_r$ (compare Kim to appear).

These ideas are more formally represented in (16) and (17), where $F$ represents the phonologically null functional category that selects for an anaphoric bare noun ($F_b$) or an anaphoric Dem-NP ($F_{Dem}$) in Korean-type languages.\(^1\) Below, presuppositions occur between the colon and the dot; numerals indicate indices; $g$ indicates the assignment function; $\subseteq$ indicates a

\(^1\) $F$ may be equated with what is referred to as Index in recent generative literature (e.g., Jenks 2018; Hanink 2018; Ahn 2019; Kim to appear), but we leave this issue open for now.
part-whole relation between individuals and situations; and the values of \( s_r \) and \( s_s \) are assumed to be contextually determined.

\[
(16) \quad \lbrack F_{NI} \rbrack^g = \lambda P: \exists ! x[P(x)(s_r) \& \exists y \subseteq s_s[Familiar-as-P(x)(y)(s_r)]].
\]

\[
\mu x[P(x)(s_r) \& \exists y \subseteq s_s[Familiar-as-P(x)(y)(s_r) & x = g(1)]]
\]

\[
(17) \quad \lbrack F_{Dem} \rbrack^g = \lambda P: \exists ! x[P(x)(s_r) \& R(x)(y)(s_s)].
\]

\[
\mu x[P(x)(s_r) \& R(x)(y)(s_s) & x = g(1)]]
\]

Notably, in (16), \( y \) is bound, and it is also part of \( s_r \). Hence, using an anaphoric bare noun requires maintaining the same perspective between \( s_r \) and \( s_s \) unless it is overridden at the text level. On the other hand, in (17), \( y \) is free, and \( R \) holds both in \( s_r \) and \( s_s \). Hence, using an anaphoric Dem-NP may indicate a perspectival shift or taking a situation-external perspective in \( s_s \), as suggested by authors like Simpson and Wu (2022) and Kim (2021a,b).

3.3 Explaining the Facts

When we apply the proposed analysis to the anaphoric definites in (10b) and (11b), we obtain what is given in (18a) and (18b) as two possibilities for their form and meaning.

\[
(18) \quad \text{a.} \quad \lbrack \text{kay}_1 \rbrack^g = \mu x[dog(x)(s_s) \& \exists y \subseteq s_s[Familiar-as-dog(x)(y)(s_s) \& x = g(1)]]
\]

\[
\text{b.} \quad \lbrack \text{ku}_1 \text{ kay}_1 \rbrack^g = \mu x[dog(x)(s_s) \& R(x)(y)(s_s) \& x = g(1)]]
\]

In the case of (10b), an anaphoric bare noun is used because the presupposition of (18a) is satisfied. That is, there is exactly one \( x \) such that \( x \) is a dog in \( s_s \) and for some \( y \) that is an event participant of \( s_s \), \( x \) is familiar as a dog to \( y \) in \( s_s \). In this discourse, the event participant \( y \) that functions as the perspective holder can ‘access’ the dog \( x \) which is in \( s_s \) when \( y \) itself is in \( s_s \) because \( s_s \) and \( s_r \) share the spatiotemporal location, so are part of the same larger situation. Consequently, the viewpoint in narrating the story can stay within the same situation, and this gives rise to an impression that the speaker is taking a situation-internal perspective in the sense of Kim (2021b). For these reasons, using an anaphoric Dem-NP in (10b) would be judged less felicitous by Korean speakers. However, if the larger discourse context satisfies the presupposition of (18b), i.e., if it turns out that the dog at issue bears a discourse salient relation to the perspective holder at the cross-sentential level, then using a Dem-NP will be fine.

In the case of (11b), we obtain what appears to be the opposite picture of (10b). Here, a bare noun is not used because \( s_s \) and \( s_r \) do not share the
spatiotemporal location, and as a result, the dog in \( s_r \) cannot be familiar as a dog to the event participant \( y \) which is in \( s_s \). Using a Dem-NP is fine, though, because the presupposition of (18b) is satisfied. That is, there is exactly one \( x \) such that \( x \) is a dog in \( s_r \) and \( x \) bears a discourse salient relation \( R \) to the perspective holder \( y \) in \( s_s \). Consequently, a Korean speaker may intuit that a situation-external perspective in the sense of Kim (2021b) is taken in narrating the story.

When we apply the proposed analysis to the anaphoric bare nouns in (8b), we obtain (19a) and (19b) as their semantics. And this explains why in this discourse, anaphoric bare nouns are used. The reason is that here too, \( s_s \) and \( s_r \) share the spatiotemporal location, so the presuppositions of (19a) and (19b) are satisfied: The girl and the boy who are in \( s_s \) are uniquely familiar as a girl/boy to an event participant \( y \) which is in \( s_s \) because \( s_s \) and \( s_r \) are part of the same larger situation due to their spatiotemporal location sharing. Relat-edly, in this discourse, a situation-internal perspective is taken in narrating the story, and doing so does not create a situating-internal identifiability issue in referring to the anaphoric definites’ intended referents. Finally, there is no pragmatically felicitous reason to take a situation-external perspective in narrating the story. Hence, in this two-sentence narrative, using anaphoric bare nouns is not only licensed but also necessary.

(19) a. \( [\text{sonyei}]^g = \forall x[\text{girl}(x)(s_r) \& \exists y \subseteq s_s[\text{Familiar-as-girl}(x)(y)(s_r) \& x = g(1)]] \)
b. \( [\text{sonyen}]^g = \forall x[\text{boy}(x)(s_r) \& \exists y \subseteq s_s[\text{Familiar-as-boy}(x)(y)(s_r) \& x = g(2)]] \)

We can apply essentially the same logic to the Mandarin data in (4), (5), and (7), and account for the occurrences of the anaphoric bare nouns in their second sentences: What licenses bare nouns in such data is that the sentences forming the narrative sequences share the spatiotemporal location and the speaker has no intention to take a situation-external perspective in narrating the story as doing so is not needed for the purpose of the discourse at hand.

In contexts like (9), a Dem-NP is used for the same reason why it is used in (11b). Here, \( s_s \) and \( s_r \) do not share the spatiotemporal location, so the presupposition of (20a) is not satisfied. On the other hand, the presupposition of (20b) is satisfied. As a result, it may seem that in narrating the story, the speaker is taking a situation-external perspective in the sense of Kim (2021b).

(20) a. \( [\text{sonyen}]^g = \forall x[\text{boy}(x)(s_r) \& \exists y \subseteq s_s[\text{Familiar-as-boy}(x)(y)(s_r) \& x = g(1)]] \)
b. \( [\text{ku1 sonyen}]^g = \forall x[\text{boy}(x)(s_r) \& R(x)(y)(s_r) \& x = g(1)] \)
Again, we can apply the same logic to (2) and explain the need for using an anaphoric Dem-NP in such Mandarin data. And this shows that our analysis improves both Jenks’ (2018) and Dayal and Jiang’s (2023) analyses in dealing with data like (2), (4), (5), and (7) without resorting to notions like topic-ood (compare Jenks 2018) or by defining situations based on the number of event participants (compare Dayal and Jiang 2023).

Since our analysis relies on spatiotemporal sharing between events in accounting for the distribution of anaphoric bare nouns, it may seem that we would have difficulty dealing with data like (14) and (15). However, our analysis can handle such cases as well. To take (14) for example, in our analysis, this discourse permits an anaphoric bare noun despite the spatiotemporal shift between the two sentences, because, in this discourse, the referent of the anaphoric definite is uniquely identifiable at the text level. That is, in this narrative sequence, the speaker is construed as the text-level perspective holder, so the presupposition of (21a) can be satisfied beyond s. That said, if the puppy at issue bears a discourse salient relation to the perspective holder and thus the presupposition of (21b) is satisfied, then a Dem-NP can be used, modulo the slightly different pragmatic meaning it conveys than using an anaphoric bare noun would.

(21) a. \(\llbracket\text{kangaci}\rrbracket^g = \llbracket\text{puppy}(x(s_s)) \& \exists y \subseteq s_r[\text{Familiar-as-puppy}(x(y))(s_r) \& x = g(1)]\rrbracket\]
   b. \(\llbracket\text{ku kangaci}\rrbracket^g = \llbracket\text{puppy}(x(s_s)) \& \text{R}(x(y))(s_r) \& x = g(1)\rrbracket\]

Turning now to accounting for the difference between data like (12) and (13): in (12b), an anaphoric bare noun can be used because \(s_s\) and \(s_r\) share the spatiotemporal location, so a situation-internal perspective can be taken, and the presupposition of (22a) is satisfied. In this discourse, a Dem-NP can be used, too, because the superlative meaning of the second sentence makes its referent bear a discourse salient relation \(R\) to the perspective holder not only in \(s_s\) but also in \(s_r\), so the presupposition of (22b) is satisfied.

(22) a. \(\llbracket\text{yecaai}\rrbracket^g = \llbracket\text{girl}(x(s_s)) \& \exists y \subseteq s_s[\text{Familiar-as-girl}(x(y))(s_s) \& x = g(1)]\rrbracket\]
   b. \(\llbracket\text{ku yecaai}\rrbracket^g = \llbracket\text{girl}(x(s_s)) \& \text{R}(x(y))(s_s) \& x = g(1)\rrbracket\]

In contrast, in (13), even though \(s_s\) and \(s_r\) share the spatiotemporal location, an anaphoric bare noun does not occur because the uniqueness presupposition of (23a) is not met. That is, there is more than one \(x\) such that \(x\) is a player in \(s_s\) and \(x\) is familiar as a player to the perspective holder \(y\) in \(s_r\). On the other hand, using a Dem-NP in (13) is fine because the presupposition of (23b) is
met. That is, there is just one \( x \) such that \( x \) is a player in \( s_r \) and \( x \) bears a discourse salient relation \( R \) to the perspective holder in \( s_s \).

\[
(23)\ a. \left[ \text{senswu}_1 \right]^g = \forall [\text{player}(x)(s_r) \land \\
\exists y \subseteq s_s [\text{Familiar-as-player}(x)(y)(s_r) \land x = g(1)]]
\]
\[
b. \left[ \text{ku}_1 \text{senswu} \right]^g = \forall [\text{player}(x)(s_r) \land R(x)(y)(s_r) \land x = g(1)]
\]

As mentioned above, our analysis captures so-called anti-uniqueness effects induced by Dems but without presupposing that there are other individuals with \( P \) in an extended situation of the current situation \( s_s \), unlike what authors like Dayal and Jiang (2023) claim. To see this, consider (24) and (25), which show that when two individuals with the same property \( P \) are introduced into the discourse, one cannot use a weak definite to refer to them. That is, using a Dem-NP is obligatory regardless of whether the language used has a definite article (e.g., English) or not (e.g., Korean).

\[
(24) \text{A dog}_1 \text{ barked. Another dog}_2 \text{ barked, too. That}_2/\# \text{the}_2 \text{ dog} \text{ bit me.}
\]

\[
(25) \text{Kay}_1-\text{ka cicessta. Talun kay}_2-\text{to cicessta.}
\]
\[
\text{dog-NOM barked different dog-also barked}
\]
\[
\ast (\text{Ku}_2) \text{ kay-ka na-lul mwulessta.}
\]
\[
\text{that dog-NOM I-ACC bit}
\]
\[
' \text{A dog}_1 \text{ barked. Another dog}_2 \text{ barked, too. That}_2 \text{ dog bit me.'}
\]

Under our analysis, an anaphoric bare noun is not licensed in (25) because there is more than one \( x \) such that \( x \) is a dog in \( s_s \), so the uniqueness presupposition of (26a) is not satisfied. In contrast, a Dem-NP is licensed because the presupposition of (26b) is satisfied. The same reasoning accounts for the use of the Dem \( \text{that} \), as opposed to the definite article \( \text{the} \), in (24). That said, (26b) does not come with an anti-uniqueness presupposition, and this lets us handle data like (2b)/(9b) and (11b), where an anti-uniqueness presupposition does not hold but using a Dem-NP is necessary, posing a challenge to analyses like Dayal and Jiang 2023.

\[
(26)\ a. \left[ \text{kay}_2 \right]^g = \forall [\text{dog}(x)(s_s) \land \exists y \subseteq s_s [\text{Familiar-as-dog}(x)(y)(s_s) \land \\
x = g(2)]]
\]
\[
b. \left[ \text{ku}_2 \text{ kay} \right]^g = \forall [\text{dog}(x)(s_s) \land R(x)(y)(s_s) \land x = g(2)]]
\]

4 Conclusion

The present paper has sought to show that in Korean, the choice between an anaphoric bare noun and a Dem-NP is not a matter of optionality or
preference (compare Ahn 2019; Park 2022; Simpson and Wu 2022) and the same may hold for other bare noun languages (compare Moroney 2021; Simpson and Wu 2022; Dayal and Jiang 2023).

Under our analysis, what licenses an anaphoric bare noun in Korean-type languages is familiarity-based, situation- or text-internal unique identifiability of the intended referent in $s_r$, and what licenses an anaphoric Dem-NP is salience-based unique identifiability of the intended referent in $s_r$ (compare Park 2022; Kim to appear).

We have also shown that anaphoric Dem-NPs do not come with anti-uniqueness presuppositions; anti-uniqueness effects associated with their use are likely to stem from other sources such as discourse structure (see also Kim to appear; compare Simonenko 2014; Dayal and Jiang 2023).

Another important point we have made in this paper is that in some contexts, an anaphoric bare noun and a Dem-NP may appear to occur in free variation, but the choice between them is not exactly ‘free’ because each expression carries different meanings (see also Kim 2021a,b, 2022, to appear).

If the present analysis is correct, then inter-speaker variation in anaphoric bare noun use in Korean-type languages may obtain because some speakers may construe its referent as uniquely identifiable at the situation level, but some may construe it as uniquely identifiable at the text level.

Yet another notable implication of the proposed analysis is that article-less languages may employ bare nouns to encode unique/weak definite meanings, as exemplified in (27), because situationally used unique definites have similar presuppositions to anaphoric bare nouns: Their referents are presupposed to be uniquely identifiable at the situation level or at the text level due to their familiarity as $P$ to the relevant perspective holder in $s_r$.

(27) Onul taythonglyeng-i kicahoykyen-ul hanta.
   today president-NOM press.conference-ACC do
   ‘The President is having a press conference today.’

There are several issues we could not address in this paper. To single out just a few interrelated issues in the interest of space: as Kim (2021b, to appear) observes, in Korean, anaphoric marking on subjects varies depending on whether the anaphoric definite at issue bears the topic marker nun or the nominative marker í/ka, and what type of topic or focus meaning it carries. On the other hand, in Japanese, there is a strong tendency for nominative (ga)-marked anaphoric definites to have a Dem and topic (wa)-marked ones to not (Kim 2022). That said, while Korean speakers prefer to use an anaphoric bare noun in contexts like (28), Japanese speakers prefer to use a Dem-NP in the corresponding environment, as shown in (29), even though, in both (28) and (29), the anaphoric definite at issue has a nominative-case marking.
Another notable difference between Japanese and Korean is that while the Japanese counterpart to (10b) has a topic-marked Dem-NP occurring in the subject position, as shown in (30), the Korean counterpart to (30) is judged less felicitous than (10), as shown in (31)\(^2\).

(28) a. Na-nun phathi-eyse etten chengnyen
   I-TOP party-LOC some young.man
   han myeng-ul mannassta.
   one CLF-ACC met
   ‘I met a young man at a/the party.’

   b. (?/#Ku) chengnyen-i maywu chincelhayssta.
      that young.man-NOM very was.kind
      Intended: ‘The young man was very kind.’

(29) a. Watasi-wa paatii-de hitori no seinen-to deatta.
   I-TOP party-at one no young.man-with met
   ‘I met a young man at a/the party.’

   b. ??(Sono) seinen-ga totemo yasasikatta.
      that young.man-NOM very was.gentle
      Intended: ‘The young man was very gentle.’

(30) a. Kinoo watasi-wa inu-o mimasita.
   yesterday I-TOP dog-ACC saw
   ‘Yesterday I saw a dog.’

   b. ??(Sono) inu-wa kawaiikatta desu.
      that dog-TOP cute was
      Intended: ‘The/that dog was cute.’

(31) a. Ecey kay han mali-lul pwasssta.
   yesterday dog one CLF-ACC saw
   ‘Yesterday I saw a dog.’

   b. ?/#Ku kay-nun kwiyeuwessta.
      that dog-TOP was.cute
      Intended: ‘The/that dog was cute.’

We suspect that such (cross-linguistic) variation arises due in part to the semantics/pragmatics of the relevant discourse particles. However, we must leave further investigating these and other issues, such as the role that numeral classifiers play in definiteness meaning building in bare noun languages, to future research.

\(^2\) We are grateful to the late Chisato Kitagawa and Asako Higurashi for providing the Japanese data given in (29) and (30) and discussing their acceptability with the first author.
References


On the Polarity Sensitivity Induced by the Contrastive Topic Marker *wa* in Japanese

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1 Introduction

In this paper, I focus on the polarity sensitivity that arises when the contrastive topic marker *wa* is added to the focus particle *made* ‘even’. As pointed out by Mogi (1999) and Ido (2017, 2018), among others, *made* has two interpretations in negative sentences:

(1) a. Odoruitatoni, ano mazimena Taro-made konakkata.
    surprisingly that earnest Taro-even didn’t.come
    ‘Surprisingly, even Taro, who is earnest, did not come.’

b. ⇝ It is unlikely that Taro, who is earnest, does not come. (*made* > ¬)

*I would like to thank the reviewers and audience of JK 30 for their constructive comments and suggestions. All remaining errors, of course, are my own. This work was supported by the JSPS Grant-in-Aid for Early-Career Scientists, Grants Numbers JP22K13117.*
c. Touzen, kodomo-no kenka-de keisatu-made konakkata. naturally children-GEN fight-in police-even didn’t.come
‘Naturally, it is not the case that even the police came when a children’s fight happened.’ (based on Ido 2017)

d.⇝ It is unlikely that the police come when a children’s fight happens. ($\neg > \text{made}$)

In the above examples, the scalar inferences in (1b) and (1d) are introduced by \textit{made} and these inferences differ in whether or not they include negation. Mogi (1999) claims that this difference is due to the scope ambiguity between \textit{made} and negation.

In addition, Mogi (1999) and Ido (2017, 2018) indicate that if \textit{made} is combined with the contrastive topic marker \textit{wa}, negation is required and \textit{made} takes an obligatory narrow scope with respect to it:

(2)  

a. #Touzen, kodomo-no kenka-de keisatu-made-wa kita. naturally children-GEN fight-in police-even-CT came
‘Naturally, it is the case that even the police came when a children’s fight happened.’

b. Touzen, kodomo-no kenka-de keisatu-made-wa konakkata. naturally children-GEN fight-in police-even-CT didn’t.come
‘Naturally, it is not the case that even the police came when a children’s fight happened.’ (based on Ido 2017)

c.⇝ It is unlikely that the police come when a children’s fight happens. ($\neg \neg > \text{made}$)

d.̸⇝ It is unlikely that the police does not come when a children’s fight happens. (*made > $\neg$)

In this paper, I propose an analysis to explain why the addition of \textit{wa} to \textit{made} induces the polarity sensitivity. In particular, I claim that the combination of \textit{made} and \textit{wa} is a polarity sensitive item similar to but different from so-called concessive scalar particles (CSPs) in other languages and that these focus particles introduce two conflicting presuppositions that can be satisfied only when negation intervenes between them.

The structure of this paper is as follows. In Section 2, I introduce two important characteristics of CSPs and their two representative analyses. In Section 3, I propose the analysis of the polarity sensitivity of \textit{made-wa} based on the conflicting presuppositions introduced by these particles. In Section 4, I conclude this paper with a few words on the anti-reconstruction effect of focus particles in Japanese.
2 Concessive Scalar Particles and Their Polarity Sensitivity

CSPs in various languages such as magari in Slovenian, esto ke in Greek and siquiera in Spanish have attracted much attention in the recent literature. The previous analyses (e.g. Giannakidou 2007, Crnič 2011a,b and Alonso-Ovalle 2016) point out that these particles are focus sensitive and have several interesting characteristics. In what follows, by using the Spanish CSP siquiera, I introduce the two of them, their polarity sensitivity and the restriction on their focus associates, which are crucial for the analysis of the polarity sensitivity of made-wa, and briefly review the analyses of Crnič (2011a, b) and Alonso-Ovalle (2016).

Suppose that in the current context, winning the bronze medal and winning the gold medal are the most likely and least likely propositions, respectively. As shown below, the Spanish CSP cannot be used in a positive episodic environment regardless of whether or not its focus associate is the most likely.

(3) a. *Pedro ganó siquiera la medalla de [oro].
   Pedro won:3S SIQUIERA the medal of gold
   ‘Pedro even won the gold.’

   b. *Pedro ganó siquiera la medalla de [bronze].
   Pedro won:3S SIQUIERA the medal of bronze
   ‘Pedro even won the bronze.’ (Alonso-Ovalle 2016: (1))

The following examples indicate that the CSP can be licensed in a downward entailing (DE) environment (e.g. within the scope of negation) if its focus associate is the most likely among its alternatives:

(4) a. #Pedro no ganó siquiera la medalla de [oro].
   Pedro not won:3S SIQUIERA the medal of gold
   ‘Pedro did not even win the gold.’

   b. Pedro no ganó siquiera la medalla de [bronze].
   Pedro not won:3S SIQUIERA the medal of bronze
   ‘Pedro did not even win the bronze.’ (Alonso-Ovalle 2016: (1))

Thus, CSPs are a polarity sensitive item with the restriction on the focus associate.

Based on the distribution of the Slovenian CSP magari, Crnič (2011a,b) proposes that CSPs are composed of two covert operators, EVEN and AT LEAST, and that their polarity sensitivity arises from two conflicting presup-
positions introduced by these two operators:

\[ \text{(5) a.} \quad [\text{EVEN}] = \lambda C. \lambda p. \forall q \in C[q \neq p \rightarrow p \preceq q], \lambda w. p(w). \]

(based on Crnić 2011a, b)

b. The prejacent \( p \) is the least likely proposition in its alternative set \( C \). (Presupposition)
c. The prejacent \( p \) is true. (Assertion)
d. \[ \text{[AT LEAST]} = \lambda C. \lambda p. \forall q \in C[q \neq p \rightarrow q \preceq p]. \]

\( \lambda w. \exists q \in C[q \preceq p \& q(w)] \)

(based on Crnić 2011a, b)
e. The prejacent \( p \) is the most likely proposition in its alternatives set \( C \). (Presupposition)
f. The prejacent \( p \) or its less likely alternatives in \( C \) are true. (Assertion)

The existence of the covert operator AT LEAST, after it is associated with the most likely alternative, leads to disjunctive truth conditions:

\[ \text{(6) a.} \quad [\text{AT LEAST}_{C_1} [\text{Pedro won the [bronze] medal}]] \]

b. \( C_1 = \{ \text{bronze, silver, gold} \} \), where “gold” \( \preceq \) “silver” \( \preceq \) “bronze”.

(Alternative Set for AT LEAST)
c. ✓ The prejacent Pedro won the bronze medal is the most likely in the alternative set \( C_1 \). (Presupposition)
d. Pedro won the bronze or its less likely alternatives in \( C_1 \) \( \iff \) Pedro won the bronze or silver or gold medal. (Assertion)

In non-DE environments, the two conflicting presuppositions introduced by EVEN and AT LEAST cannot be satisfied at the same time:

\[ ^1 \text{I adopt Heim and Kratzer’s (1998) notation of definedness conditions/presuppositions: the materials between the colon and the period designate definedness conditions/presuppositions.} \]

\[ ^2 \text{Crnić (2011a) adopts the more weaker presupposition of \text{EVEN} (i.e., there must be at least one alternative that is more likely than the prejacent). According to Crnić (2011a), however, the same result can be obtained regardless of this difference. For the sake of simplicity, I use the more familiar definition in (5a).} \]
(7) a. *Pedro ganó siquiera la medalla de [bronze]. \((=3b)\)

Pedro won:3S SIQUIERA the medal of bronze

b. \[B_{EVEN}C_2 \ boxdef \ A_{AT \ LEAST}C_1 [Pedro \ won \ the \ [bronze] \ medal] \]

most likely

(Simplified LF)

c. \[C_1 = \{ \text{bronze, silver, gold} \}, \]

where ‘gold’ \(\ll\) ‘silver’ \(\ll\) ‘bronze’.

(Alternative Set for \(AT \ LEAST\))

d. ✓ The prejacent Pedro won the bronze medal is the most likely in \(C_1\).

(Presupposition of \(AT \ LEAST\))

e. \(\lldef A\) = bronze \(\lor\) silver \(\lor\) gold

(Prejacent of \(EVEN\))

f. \[C_2 = \lldef A^{ALT} = \{ \begin{array}{l}
\text{[AT LEAST[ Pedro won the bronze medal]],} \\
\text{[AT LEAST[ Pedro won the silver medal]],} \\
\text{[AT LEAST[ Pedro won the gold medal]]}
\end{array} \]

= \{ \text{bronze \(\lor\) silver \(\lor\) gold, silver \(\lor\) gold, gold} \},

where ‘gold’ \(\ll\) ‘silver \(\lor\) gold’ \(\ll\) ‘bronze \(\lor\) silver \(\lor\) gold’.

(Alternative Set for \(EVEN\))

g. *The prejacent ‘bronze \(\lor\) silver \(\lor\) gold’ is the least likely in \(C_2\).

(Presupposition of \(EVEN\))

The presupposition of \(AT \ LEAST\) is satisfied because its prejacent (i.e. ‘bronze’) is the most likely among its alternatives. However, the presupposition of \(EVEN\) cannot be satisfied because its prejacent (i.e. ‘bronze \(\lor\) silver \(\lor\) gold’) is entailed by all the other alternatives and it is not the least likely but the most likely proposition. Hence, the CSP is not acceptable in non-DE environments.

These two presuppositions, by contrast, can be satisfied at the same time if negation intervenes between the two covert operators:

(8) a. Pedro no ganó siquiera la medalla de [bronze]).\((=4b)\)

Pedro not won:3S SIQUIERA the medal of bronze

\(^3\) Cmič (2011a,b) assumes that the alternative set for \(EVEN\) is computed without reference to the presupposition of \(AT \ LEAST\). Hence, the alternative propositions other than the prejacent are included in the alternative set.
b. \[
C^{\text{EVEN}}_{C_2} B^{-1}_{C_1} \text{[Pedro won the [bronze]$_F$ medal]}\]

\[
\begin{array}{c}
\text{most likely} \\
\text{least likely}
\end{array}
\]

(Simplified LF)

c. \(C_1 = \{\text{bronze, silver, gold}\}\),
where ‘gold’ \(\prec_{\text{likelihood}}\) ‘silver’ \(\prec_{\text{likelihood}}\) ‘bronze’.

(Alternative Set for \text{AT LEAST})

d. \(\checkmark\) The prejacent \textit{Pedro won the bronze medal} is the most likely in \(C_1\).

(Presupposition of \text{AT LEAST})

e. \(\llbracket A \rrbracket = \text{bronze} \lor \text{silver} \lor \text{gold}\)

f. \(\llbracket B \rrbracket = \neg [\text{bronze} \lor \text{silver} \lor \text{gold}]\) (Prejacent of \text{EVEN})

g. \(C_2 = \llbracket B \rrbracket^{\text{ALT}}\)
   \(= \{\neg [\text{bronze} \lor \text{silver} \lor \text{gold}], \neg [\text{silver} \lor \text{gold}], \neg \text{gold}\},\)
   where \(\neg [\text{bronze} \lor \text{silver} \lor \text{gold}]\) \(\prec_{\text{likelihood}}\) \(\neg [\text{silver} \lor \text{gold}]\) \(\prec_{\text{likelihood}}\) \(\neg \text{gold}\).

(Alternative Set for \text{EVEN})

h. \(\checkmark\) The prejacent \(\neg [\text{bronze} \lor \text{silver} \lor \text{gold}]\) is the least likely in \(C_2\).

(Presupposition of \text{EVEN})

As in the previous example, the presupposition of \text{AT LEAST} is satisfied because its prejacent (i.e. ‘bronze’) is the most likely among its alternatives. The intervening negation reverses the likelihood relation and the prejacent of \text{EVEN} (i.e. \(\neg [\text{bronze} \lor \text{silver} \lor \text{gold}]\)) is the least likely among its alternatives because it entails all the other alternatives in \(C_2\). Hence, the presupposition of \text{EVEN} can be satisfied, and the CSP is licensed in DE-environments.

However, not all CSPs exhibit the uniform behavior. Alonso-Ovalle (2016) points out that the Spanish CSP \textit{siquiera} does not have the same distribution as that of the Slovenian CSP \textit{magari}. Based on this fact, he claims that the Spanish CSP is composed of two operators, \text{AT LEAST} and \text{EXH}, the latter of which has the semantics similar to \textit{only}, and that these two operators lead to contradictory truth conditions when there is no DE-operator between them. Thus, there are two types of polarity sensitive focus particles/CSPs, as summarized below:

(9) Two Types of Polarity Sensitive Focus Particles/CSPs

\[\text{Type 1 } : \text{EVEN} + \text{AT LEAST} \]

\(\text{[EVEN} [\neg [\text{AT LEAST} [\ldots \text{most likely}_{F} [\ldots]]]]\)
b. Type 2: EXH + AT LEAST (Spanish CSP) 
\[ \text{EXH} \left[ \neg \left[ \text{AT LEAST} \left[ \ldots \text{most likely} \right] \ldots \right] \right] \]

In the next section, I claim that the combination of made-wa constitutes a new type of polarity sensitive focus particle.

3 Proposal

Recall that made-wa shows the polarity sensitivity and made takes an obligatory narrow scope with respect to negation:

\[(10) a. \quad \text{Touzen, kodomo-no kenka-de keisatu-made-wa konakkata.} \quad \text{naturally children-GEN fight-in police-even-CT didn’t.come} \]

‘Naturally, it is not the case that even the police came when a children’s fight happened.’ (based on Ido 2017)

\[b. \neg \Rightarrow \text{It is unlikely that the police comes when a children’s fight happens.} \quad (\neg > \text{made}) \]

I assume that made, like even, introduces the presupposition that its prejacent is the least likely among its alternatives. In addition, I adopt Sawada’s (2007) analysis of the contrastive topic marker wa. He claims that the contrastive topic marker has the scalar contrastive usage, where it is presupposed that (i) one of its alternatives other than the prejacent is false and (ii) the prejacent must be the most likely among its alternatives. The following contrast serves as a piece of evidence for the existence of the scalar component:

\[(11) \quad \text{Context: Taro participated in an unofficial tennis tournament (= round robin). He competed with an amateur, a semi-professional and a professional.} \]

\[a. \quad \text{Taro-wa sirooto-ni-wa ka-tta.} \quad \text{Taro-TOP amateur-DAT-CT win-past} \]

‘Taro beat the [amateur] cont.’ (Sawada 2007: (6))

\[b. \neg \Rightarrow \text{Taro-wa pro-ni-wa ka-tta.} \quad \text{Taro-TOP professional-DAT-CT win-past} \]

‘Taro beat the [professional] cont.’ (Sawada 2007: (7))

According to Sawada (2007), (11b) is infelicitous because the prejacent of wa denotes the least likely proposition among its alternatives and its scalar presupposition cannot be satisfied.

Based on these assumptions, I propose that made-wa constitutes the third type of polarity sensitive focus particle, where the order of even and at least in the Slovenian CSP (= (12a)) is reversed, as shown in (12c):
(12) Proposal

a. Type 1: \[ \text{EVEN} + \text{AT LEAST} \] (Slovenian CSP)
   \[ [\text{EVEN} \ [\neg \ [\text{AT LEAST} [\ldots \text{most likely}_F \ldots]]]] \]

b. Type 2: \[ \text{EXH} + \text{AT LEAST} \] (Spanish CSP)
   \[ [\text{EXH} \ [\neg \ [\text{AT LEAST} [\ldots \text{most likely}_F \ldots]]]] \]

c. Type 3: \[ \text{AT LEAST} + \text{EVEN} \]
   \[ [\text{wa} \ \neg \ [\text{made} [\ldots \text{least likely}_F \ldots]]]] \] (made-wa)

In what follow, I demonstrate that the polarity sensitivity of made-wa observed above arises due to the two conflicting presuppositions of made and wa.

3.1 Sketch of the Analysis

First, consider the case where negation is not present:

\[
\text{(13) a.} \quad [\text{wa} \ (\text{made} \ \text{[the police]}_F \text{came} \ ])] \quad \text{(Simplified LF)}
\]

\[
\text{b.} \quad [\text{A}]^\text{ALT} = [\text{B}]^\text{ALT} = \begin{cases}
\text{the police came (=}[\text{A}], =\text{least likely}), \\
\text{the principal came,} \\
\text{the teachers came,} \\
\text{the friends came (= most likely)}
\end{cases}
\]

To satisfy the presupposition of made, its prejacent, \([\text{A}]\), should be the least likely among \([\text{A}]^\text{ALT}\). However, if this is the case, the presupposition of wa cannot be satisfied, because this particle utilizes the same alternatives as made and its prejacent, \([\text{B}]\), is the least likely among \([\text{B}]^\text{ALT}\). Hence, made-wa cannot be used in non-DE environments.

Next, consider the case where negation exists but it does not intervene between wa and made:

\[
\text{(14) a.} \quad [\text{wa} \ (\text{made} \ \neg \ [\text{the police]}_F \text{came} \ ])] \quad \text{(Simplified LF: wa > made > \neg)}
\]

\[4\] I assume that made and wa share the same alternative set. See Section 3.3 for the justification of this assumption.
b.  \[[A]\]_{\text{ALT}} = \left\{ \neg [\text{the friends came}], \neg [\text{the teachers came}], \neg [\text{the principal came}], \neg [\text{the police came}](= [A]_{\text{ALT}}) \right\}

To satisfy the presupposition of \textit{made}, its prejacent, \[[A]\], should be the least likely among \[[A]\]_{\text{ALT}}. However, due to the presence of negation within the scope of \textit{made}, \[[A]\] is not the least likely but the most likely among \[[A]\]_{\text{ALT}}. Hence, the presupposition of \textit{made} cannot be satisfied, and this interpretation is excluded.

Lastly, consider the case where negation intervenes between these particles:

(15) a. \[\text{wa} \neg [\text{made} [A] \text{[the police] came}]]\]

\[\begin{array}{c}
\text{least likely} \\
\text{most likely}
\end{array}\]

(Simplified LF: \textit{wa} > \neg > \textit{made})

b.  \[[A]\]_{\text{ALT}} = \left\{ \text{the police came}(=[A], \text{least likely}), \text{the principal came}, \text{the teachers came}, \text{the friends came}(= \text{most likely}) \right\}

c.  \[[B]\]_{\text{ALT}} = \left\{ \neg [\text{the friends came}], \neg [\text{the teachers came}], \neg [\text{the principal came}], \neg [\text{the police came}](= [B], \text{most likely}) \right\}

As in the first case, the prejacent of \textit{made}, \[[A]\], is the least likely among \[[A]\]_{\text{ALT}}. The existence of negation, however, reverses the likelihood relation, and the prejacent of \textit{wa}, \[[B]\], is the most likely among \[[B]\]_{\text{ALT}}. The two presuppositions, therefore, can be satisfied at the same time only when negation intervenes between the two focus particles, and the polarity sensitivity of \textit{made-wa} is derived.

The current analysis correctly captures the distribution and interpretation of \textit{made-wa} as summarized below:
The presupposition of *wa cannot be satisfied.

The presupposition of *made cannot be satisfied.

The presuppositions of *made and *wa can be satisfied at the same time because of the intervening negation.

3.2 Implementation

As shown in (16c), the two focus particles, though they are adjacent to each other, take scope in different positions. To achieve this, I follow Tomioka’s (2010a,b) analysis of the contrastive topic marker *wa. Under this analysis, the contrastive topic marker itself does not have any semantic content, and its only function is to introduce alternatives that must be interpreted by an operator located in a higher position (i.e. the Speech Act Phrase). This analysis enables the OP associated with the alternatives introduced by the contrastive topic marker to take scope in a different position from *made.

In addition, as the OP in a higher position, I adopt the contrastive topic operator CT in (17a), which has the same semantics as Sawada’s (2007) analysis of the scalar contrastive usage of *wa and introduces the two presuppositions:

(17) a. $\lambda p. \lambda w. \forall q \in \text{ALT}(p) \wedge q \neq p \wedge \neg q(w) \wedge \forall q \in \text{ALT}(q) \wedge q \neq p \rightarrow q \text{ < likelihood } p$. $p(w)$. $p(w)$. $p(w)$. $p(w)$.

b. There is an alternative proposition $q$ other than the prejacent $p$ such that it is false. (Anti-additive Presupposition)

c. The prejacent $p$ is the most likely among its alternatives. (Scalar Presupposition)

d. The prejacent $p$ is true. (Assertion)

As for *made, I assume the semantics in (18a).

(18) a. $\lambda x. \lambda P. \lambda w. \forall y \in \text{ALT}(x) \wedge y \neq x \rightarrow P(x) \text{ < likelihood } P(y)$. $P(x)(w)$.

b. The prejacent $P(x)$ is the least likely among its alternatives. (Presupposition)
c. The prejacent $P(x)$ is true. (Assertion)

Given these assumptions and the syntactic reconstruction of the subject DP into its base-generated position at LF, the same result as above is obtained.\(^5\)

   the.police-even-CT come-NEG-PAST
   ‘It is not the case that even the police came.’

b. $\left[ \begin{array}{l}
   \{ CT \} \{ TP \} \{ DPNP \} \{ the \ police \} \{ made \-wa \} \\
   \{ T \} \{ NegP \} \{ vP \} \{ DPNP \} \{ the \ police \} \{ made \-wa \} \{ come \} \{ Neg \} \{ Past \} ]
   \end{array} \right]$
   (LF: CT $\succ \neg \succ made$)

c. $\llbracket vP \rrbracket = \lambda w. \text{the come in } w$

d. $\forall y[y \in \text{ALT}(\text{the police}) \land y \neq \text{the police} \rightarrow \text{come}(\text{the police}) <_{\text{likelihood}} \text{come}(y)]$
   $\Leftrightarrow$ ‘The police come’ is the least likely among its alternatives.
   (Presupposition of made)

e. $\llbracket TP \rrbracket = \lambda w. \text{it is not the case that the police came in } w$

f. $\exists q[q \in \text{ALT}(\llbracket TP \rrbracket) \land q \neq \llbracket TP \rrbracket \land \neg q(w)]$
   $\Leftrightarrow$ There is an alternative individual $x$ other than the police such that $x$ came in $w$.
   (Anti-Additive Presupposition of CT)

g. $\forall q[q \in \text{ALT}(\llbracket TP \rrbracket) \land q \neq \llbracket TP \rrbracket \rightarrow q <_{\text{likelihood}} \llbracket TP \rrbracket ]$
   $\Leftrightarrow$ ‘It is not the case that the police came’ is the most likely among its alternatives.
   (Scalar Presupposition of CT)

h. (19a) is true in a world $w$ iff it is not the case that the police came in $w$.
   (Truth Conditions)

3.3 Computation of Alternative Sets for the Contrastive Topic Operator

What is crucial for the proposed analysis is the assumption that the alternative propositions for the contrastive topic operator do not include the focus particle made.\(^6\) Without this assumption, the alternative set would become a singleton set because the alternative propositions other than the prejacent cannot satisfy the presupposition of made.

\(^5\)Note that if the higher copy of the subject DP is interpreted at LF, the reading where made takes a wide scope over negation will be obtained. However, as shown in the previous section, this reading is excluded because the presupposition of made cannot be satisfied.

\(^6\)I thank an anonymous reviewer of JK 30 for pointing out the potential problem of the proposed analysis.
As a result, the presupposition of the contrastive topic operator is vacuously satisfied, and it is wrongly predicted that made-wa is accepted in non-DE environments.

To exclude this possibility, I adopt Sauerland’s (2013) analysis of presupposition projection. He points out that if a presupposition trigger (e.g. a pronoun) is within the scope of a focus sensitive operator (e.g. only), the alternative set can be computed without reference to the presupposition introduced by the presupposition trigger:

(21) a. Only I did my homework. (Sauerland 2013: (1))

(b. Nobody other than the speaker did the speaker’s homework.
   (Referential Interpretation)

(c. Nobody other than the speaker did his or her homework.
   (Bound Variable Interpretation)

In the bound variable interpretation above, the presuppositions relevant to the $\phi$-features of the pronouns are disregarded when computing the alternative set for the focus sensitive operator only. Sauerland (2013) calls this kind of projection weakened projection, and he claims that only purely presuppositional expressions (i.e. those which induce presuppositions but do not contribute to an at-issue content) exhibit this behavior.

Given this, the focus particle made is purely presuppositional because it just introduces the presupposition and does not change the at-issue content of

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7 Note that Sauerland (2013) adopts the presuppositional approach to $\phi$-features (see e.g. Cooper 1983, Heim and Kratzer 1998, and Sudo 2012 a.o.).
its prejacent. Hence, the presupposition of made does not have to be considered in computing the alternative set for the contrastive topic operator and the vacuous satisfaction of its presupposition is avoided.8

In addition, even if the presupposition of made is not disregarded in the alternative set of the contrastive topic operator, the following principle proposed by Crnić (2011a,b) excludes the above possibility:

(22) The principle of non-vacuity (Crnić 2011b: (18))
The meaning of a lexical item used in the discourse must affect the meaning of its host sentence (either its truth-conditions or its presuppositions).

If the presupposition of CT is vacuously satisfied, the above principle is violated. Hence, the use of made-wa in non-DE environments is correctly ruled out.

4 Conclusion and Remaining Issues

In this paper, I claim that the combination of made and wa constitutes the third type of polarity sensitive focus particle and that the polarity sensitivity arises from the two conflicting presuppositions introduced by these particles. The proposed analysis, however, is incompatible with the anti-reconstruction effect of focus particles in Japanese.

As is well known, focus particles like dake ‘only’ and mo ‘also’ must take a wide scope over negation (see e.g. Shibata 2015):9

(23) a. Taro-dake konakatta.
   Taro-only didn’t come
   ‘Everyone except Taro came.’ (dake \(\not> \neg \neg > \) dake)

b. Taro-mo konakatta.
   Taro-also didn’t come
   ‘Taro and someone other than him didn’t come.’ (mo \(\not> \neg \neg > \) mo)

Shibata (2015) derives the obligatory wide scope reading of focus particles in Japanese based on the copy theory of movement and the operation called Trace Conversion (Fox 2002), which targets a lower copy of a moved element

8 Incidentally, Erlewine (2014) points out that if a purely presuppositional focus particle (e.g. even) is within the scope of another focus particle (e.g. also) and they share the same focus associate, the weakened projection happens. See Erlewine (2014: 107) for the relevant discussion.
9 But see also Futagi (2004) for a more complicated behavior of dake.
and replaces a determiner with the covert definite article THE. However, because focus particles are not a determiner, they remain at lower copies after Trace Conversion and they are interpreted twice at higher and lower copies, which results in the semantic anomaly. To avoid this, they must be acyclically inserted into higher copies and the reconstruction under negation is blocked, which leads to the obligatory wide scope reading.

In this respect, the obligatory narrow scope reading of zen’in-wa (Hara 2006) seems puzzling.

(24) Zen’in-wa konakatta.
    everyone-CT didn’t.come
    ‘It is not the case that everyone came.’ \((\neg \forall)\)

Under the proposed analysis, the reconstruction of zen’in-wa under negation is possible. The focus particle wa does not have any semantic content and does no harm if it is interpreted twice, which enables wa to avoid the application of the late merger. In addition, the anti-additive presupposition of the CT operator is satisfied only when the universal quantifier takes a narrow scope with respect to negation (see Sawada 2007). Thus, the obligatory narrow scope reading of zen’in-wa can be derived as desired.

However, there is one problem to be resolved. As noted above, made and made-wa can take a narrow scope with respect to negation but made has a semantic content in the presuppositional domain unlike wa. Hence, this focus particle will lead to some problem if it is interpreted twice, and it is predicted that it will be acyclically inserted into a position higher than NegP and will obligatorily take a wide scope over negation. I leave for future work a possible way to deal with made and made-wa under Shibata’s (2015) analysis.

References
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On the Directive Interpretation of Non-Past Sentences in Japanese

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1 Introduction

Japanese non-past sentences, which involve the non-past morpheme -(r)u on the verb stem, are usually interpreted as declarative sentences referring to present (habitual) or future events, as exemplified in (1).

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1 I would like to thank Jon Gajewski, Magdalena Kaufmann, and Stefan Kaufmann, for helpful comments and discussion. I am also grateful to the audiences of the Japanese/Korean Linguistics 30. All errors are, of course, my own.

1 The following abbreviations are used: ACC = accusative, C = complementizer, GEN = genitive, IMP = imperative morpheme, NOM = nominative, NP = non-past morpheme, POL = politeness, Q = question marker, SFP = sentence final particle, TOP = topic particle

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In addition, they can also be used as a directive speech act, typically pronounced with phonological emphasis (represented by capitals in the following examples); e.g., see Onoe (1979), Nitta (1999), Miyazaki et al. (2002) and Nihongo Kijutsubunpoo Kenkyuuukai (2003) for descriptive surveys, and see Arita (2015), Noguchi (2016), Ihara and Noguchi (2018) and Ihara (2020, 2021) for theoretical research. (2), for example, is interpreted as a directive sentence similar to the (standard) imperative (3), in which an imperative morpheme is attached to the verb stem.

(2) HASIR-U.
 run-NP
 ‘Run.’

(3) Hasir-e.
 run-IMP
 ‘Run.’

I refer to directive sentences like (2) as non-past directives (NPDs, henceforth). NPDs are generally considered to be interchangeable with corresponding imperatives.\(^2\) However, it will be observed that the two differ in terms of their contextual restrictions; NPDs can be felicitous in a more restricted range of contexts than imperatives. This paper aims to propose a semantic analysis of NPDs that can capture their contextual restriction.

This paper proceeds as follows: Section 2 illustrates the contextual restriction on the use of NPDs. Section 3 establishes the assumption for the proposal in this paper. Section 4 proposes a semantic analysis of NPDs that can capture their contextual restriction. Section 5 introduces two pieces of evidence for the proposal. Section 6 concludes the paper.

2 Where NPDs are Felicitous

This section discusses the contexts where NPDs are felicitously uttered. More specifically, it will be shown that they are felicitous only in contexts where

\(^2\) Some differences between imperatives and NPDs are observed by Ihara and Noguchi (2018) and Ihara (2020, 2021), including the availability of so-called weak readings like permissions. Since these do not concern the core directive uses that this paper focuses on, I will leave it to future work to examine how my proposal is relevant to their observations.
the addressee(s) seems to the speaker to be “lazy”. Such “lazy” contexts can be characterized by the two descriptions in (4).

(4) a. The speaker believes that it is obvious to the addressee(s) that they should realize the prejacent \( p \) in the current situation.
b. It seems to the speaker that the addressee(s) will not realize \( p \) in the current situation.

With these in mind, witness now the following contexts:

(5) [It is a well-known rule in this PE course that students must run around the grounds when a class starts. In one class, the students somehow feel too lazy to run and keep chatting. When the class starts, the teacher is surprised to find that they have not started to run. He says to them:]
NPD (2): ✓ / Imperative (3): ✓

(6) [The teacher believes that the new first-year students know the rule of his PE course that students must run around the grounds when a class starts, which is not the case. So, when the first class starts, the teacher is surprised to find that they have not started to run. He says to them:]
NPD (2): ✓ / Imperative (3): ✓

Although the two contexts differ in whether the teacher’s belief is true or not, they satisfy both (4a) and (4b); the teacher believes that it is obvious for the students that they should run, since he believes that they know the rule (cf. (4a)), but it seems to him that they will not run (cf. (4b)). Note, then, that the NPD (2) is felicitous in those contexts, as well as the imperative (3).

Consider now the following contexts, where (4a) or (4b) does not hold:

(7) [The teacher is planning to make a rule for his new PE course that the students run around the grounds as a first exercise. In the first class, he says to them:]
NPD (2): # / Imperative (3): ✓

---

3 I leave open why the sentence final particle \( yo \) is necessary for the imperative (3) in the context (8); see, e.g., Davis (2009, 2011) and Oshima (2014) for relevant discussion and further references.
(8) [It is a well-known rule in this PE course that students must run around the grounds when a class starts. In one class, the teacher arrives a little early and so the students have not yet started to run. He expects them to start running soon since they have followed the rule in every class. As a reminder, he says to them:]

NPD (2): # / Imperative (3): ✓ (with the sentence final particle yo)

In (7), (4a) does not hold; the teacher does not believe that it is obvious for the students that they should run, since he has not told them about the rule. In (8), while (4a) holds, (4b) does not; the teacher does not have any reason to believe that the students will not run, given their obedience to the rule. Notice crucially that the NPD (2) is infelicitous in these contexts, unlike the imperative (3). The contrast between (5-6) and (7-8) thus indicates that NPDs are felicitous only in the contexts where both (4a) and (4b) are satisfied.

3 Assumption: Modal Approach

Before I propose the semantic analysis of NPDs, this section introduces the assumption for the proposal. Specifically, I adopt the modal approach to imperatives (e.g. Kaufmann 2012), according to which imperatives involve the imperative modal operator IMP. At the level of at-issue meaning, IMP is equivalent to necessity modals like should and must. It differs from them, however, in that it additionally triggers several presuppositions that make imperatives non-assertoric/performative. This paper focuses only on one of them that is relevant to the following discussion, namely Ordering Source Restriction (OSR, henceforth); I refer the reader to, e.g., Kaufmann (2012) for other presuppositions. Consider, for example, the imperative (3), repeated below. With the modal approach, I assume that (3) has the structure (9a), where IMP takes the propositional prejacent, and that it is interpreted as in (9b) (based on the Kratzerian modal analysis; e.g. Kratzer 1991, 2012).

(This paper assumes that any utterance context c determines the world w and a time t at which c takes place, what is common ground (CG) between the interlocutors (Stalnaker 1978), and what modal base f and ordering source g is salient.)

4 For expository purposes, I assume that the prejacent of an imperative (and an NPD) involves a tense element that posits the event denoted by the prejacent in a temporal location which follows the index time i, as shown in (9b). Kaufmann (2012) argues that the temporal information of imperatives is encoded as a presupposition they trigger.

5 This paper assumes without any argument that imperatives (and NPDs) involve a covert second person pronoun as their subject, as in (9).
(3) Hasir-e.
run-IMP
‘Run.’

(9) a. \[\text{IMP } [\text{you run}]\]

b. \[\{(9a)\}^c = \forall w' \in \text{BEST}(CG_c, g_c, t_c, w_c) [\exists t' [\text{you.run}(t', w') \& i_c < t']\]

presupposes, among others:

\(p\) (i.e. you run) resolves a salient decision problem of the addressee(s) \(\Delta_{c,i'}\), such that the speaker and the addressee(s) consider the ordering source \(g_c\) the relevant criteria for solving \(\Delta_{c,i'}\). (Ordering Source Restriction: OSR)

Three notes on some notions in the denotation (9b) are in order here. First, \(\text{BEST}(CG_c, g_c, t_c, w_c)\) denotes a set of worlds which are compatible with the common ground \(CG_c\) (i.e. modal base) and best according to the contextually salient ordering source \(g_c\) at the utterance time \(t_c\) in the actual world \(w_c\).

Second, \(\Delta_{c,i'}\) denotes the salient decision problem of the addressee(s), consisting of future courses of their actions.

Third, following Saito (2018), I assume three salient times: the utterance time \(t_c\), the index time \(i_c\) and the decision time \(i'_{c}\). The index time \(i_c\) is part of the at-issue meaning of imperatives and is normally identified with the utterance time \(t_c\). The decision time \(i'_{c}\) accompanies \(\Delta_{c,i'}\) and refers to the time when the addressee(s) makes a decision of how to solve \(\Delta_{c,i'}\). Saito assumes that \(i'_{c}\) corresponds to \(t_c\) in unmarked cases (i.e. if there is no contextually salient decision time before an imperative is uttered). Therefore, all the three salient times normally fall together (i.e. \(t_c = i_c = i'_{c}\)). In Section 5.2, however, we will observe the case where this equation does not hold.

Given all this, the at-issue meaning of the imperative (3)/(9a) is that the event of “your running” takes place after the index time \(i_c\) or the utterance time \(t_c\), in all the worlds of \(\text{BEST}(CG_c, g_c, t_c, w_c)\), thus being equivalent to that of necessity modals like should and must.

4 Proposal: Special Imperative Operator

Building on the assumption illustrated in the last section, this section proposes a semantic analysis of NPDs that can capture their contextual restriction. More specifically, I propose that NPDs involve a special type of IMP, \(S(\text{pecial})\)-IMP. Consider, e.g., the NPD (2), repeated below; I argue that (2) has the structure in (10a), which crucially involves S-IMP, and it is construed as in (10b).
HASIR-U.

run-NP

‘Run.’

(10) a. \[S-IMP \{you run\}]  

b. \[\{10a\} \equiv \forall w' \in BEST(CG_c, g_c, t_c, w_c)[\exists t'[you.run(t', w') \& t < t']}\]

presupposes, among others:

(i) \(p\) (i.e. you run) resolves a salient decision problem of the addressee(s) \(\Delta_{c,i}\), such that the speaker and the addressee(s) consider the ordering source \(g_c\) the relevant criteria for solving \(\Delta_{c,i}\).  

(Ordering Source Restriction: OSR)

(ii) The addressee(s) is/are behaving irrationally with respect to their decision problem \(\Delta_{c,i}\) at \(t_c\). (Irrational Behavior by Addressee: IBA)

Note that S-IMP is minimally different from IMP in that it triggers the additional presupposition, Irrational Behavior by Addressee (IBA, henceforth). The “irrational behavior” described in IBA draws on the notion Rational Choice (11), which Kaufmann and Kaufmann (2012) propose that OSR entails. (In (11), \(\square^f g q\) stands for a proposition where the prejacent \(q\) is modalized by a necessity modal like should and must with respect to the modal base \(f\) and the ordering source \(g\).)

(11) A rational hearer who believes \(\square^f g q\) such that \(q\) serves as a solution to the salient decision problem will aim to bring about \(q\). (Rational Choice; Kaufmann and Kaufmann 2012: 219)

Positing IBA for S-IMP is motivated by two characteristics of the contexts (5-6), where the NPD is felicitous, repeated below:

(5) [It is a well-known rule in this PE course that students must run around the grounds when a class starts. In one class, the students somehow feel too lazy to run and keep chatting. When the class starts, the teacher is surprised to find that they have not started to run. He says to them:]  

NPD (2): ✓ / Imperative (3): ✓

(6) [The teacher believes that the new first-year students know the rule of his PE course that students must run around the grounds when a class starts, which is not the case. So, when the first class starts, the teacher is surprised to find that they have not started to run. He says to them:]  

NPD (2): ✓ / Imperative (3): ✓
In both contexts, (i) the teacher (correctly or wrongly) believes that the students know that they should run, based on his assumption that they know the rule, and (ii) Rational Choice should be entailed, since the imperative, which presupposes OSR (see (9)), is felicitous as well in these contexts. Given these and the definition of Rational Choice (11), in (5-6) the teacher should assume that the students will run as long as they are rational. Actually, however, it seems to him that they will not run. Hence, he concludes that they are irrational, thus presupposing IBA when using the NPD.

Let us now examine how IBA/S-IMP accounts for why the NPD (2) is infelicitous in the contexts (7-8), repeated below.

(7) [The teacher is planning to make a rule for his new PE course that the students run around the grounds as a first exercise. In the first class, he says to them:]  
NPD (2): # / Imperative (3): ✓

(8) [It is a well-known rule in this PE course that students must run around the grounds when a class starts. In one class, the teacher arrives a little early and so the students have not yet started to run. He expects them to start running soon since they have followed the rule in every class. As a reminder, he says to them:]  
NPD (2): # / Imperative (3): ✓ (with the sentence final particle yo)

Consider (7) first. Recall that in (7) the teacher does not believe that the students know that they should run (cf. (4a)), since he has not told them about the rule. Note here that to determine the rationality of the addressee(s) on the basis of Rational Choice (11), the speaker needs to assume that they believe $\Box f^g q$. Therefore, there is no reason for the teacher to assume that the students are irrational, thus preventing him from presupposing IBA. Let us next consider (8). There, as observed in Section 2, the teacher has no reason to think that the students will not run (cf. (4b)), given that they have been obeying the rule. Hence, it does not seem to him that they are irrational in the sense of Rational Choice (11), and thus he cannot presuppose IBA. In a nutshell, the NPD (2) is infelicitous in (7-8) due to presupposition failure regarding IBA.

5 Evidence

This section provides two pieces of evidence for the proposed analysis of NPDs, one regarding the “Hey, wait a minute.” test (Section 5.1) and the other regarding past readings of imperatives in Japanese (Section 5.2).
5.1 *Hey, Wait a Minute.*

The first piece of evidence is based on the “Hey, wait a minute.” test. It is argued by von Fintel (2004) that a complaint after uttering “Hey, wait a minute.” is regarding what the speaker presupposes, rather than what (s)he asserts. See (12), for example.

(12) A: The mathematician who proved Goldbach’s Conjecture is a woman.
B: Hey, wait a minute. I had no idea that someone proved Goldbach’s Conjecture.
B’: #Hey, wait a minute. I had no idea that that was a woman.

(von Fintel 2004: 271)

In (12), A presupposes that someone proved Goldbach’s Conjecture, as suggested by the subject the mathematician who proved Goldbach’s Conjecture. After uttering “Hey, wait a minute.”, B can complain about A’s presupposing it, saying that (s)he did not know it. However, B cannot complain about the asserted content of A’s utterance by saying that (s)he did not know that that mathematician was a woman.

Note that this test holds in Japanese as well, given that translating (12) into Japanese results in the same as (12), as shown in (13).

(13) A: Goorudobahha-no yosoo-o shoomeesita Goldbach-GEN conjecture-ACC proved suugakusya-wa zyosee nanda tte.
mathematician-TOP woman is SFP
‘The mathematician who proved Goldbach’s Conjecture is a woman.’
B: E, chotto matte. Goorudobahha-no yosoo-o hey little wait Goldbach-GEN conjecture-ACC shoomeesita hito-ga iru nante siranakatta yo.
proved person-NOM there.is C not.knew SFP
‘Hey, wait a minute. I didn’t know that (there is) someone (who) proved Goldbach’s Conjecture.’
B’: #E, chotto matte. Sono hito-ga zyosee da nante hey little wait that person-NOM woman is C siranakatta yo.
not.knew SFP
‘Hey, wait a minute. I didn’t know that that person was a woman.’

---

6 I thank Yusuke Yagi (p.c.) for suggesting the “Hey, wait a minute.” test for NPDs.
Let us now observe (14), where the “Hey, wait a minute.” test is applied to
the NPD. (The context in (14) is the same as that in (6).)

(14) [The teacher believes that the new first-year students know the rule of
his PE course that students must run around the grounds when a class
starts, which is not the case. So, when the first class starts, the teacher
is surprised to find that they have not started to run.]
Teacher: HASIR-U.
run-NP
‘Run.’
Student: E, chotto mat-tekudasai. Nani-o suru beki ka
hey little wait-IMP.POL what-ACC do should Q
wakaranakatta kara, hasiranakatta n desu yo.
not.knew because not.ran C is.POL SFP
‘Hey, wait a minute. We didn’t run because we didn’t know
what to do.’

In the context of (14)/(6), the teacher mistakenly believes that the students
know the rule. He thus considers their not running to be irrational, satisfying
IBA and making the NPD he utters felicitous. Notice now that, following the
teacher’s NPD, the student says “Hey, wait a minute.” and then felicitously
complains about the teacher’s incorrect belief by explaining the reason why
they did not run, to verify the rationality of their behavior. The felicity of the
complaint thus suggests that IBA is encoded in the presupposition component
of S-IMP.

Note further that the same result does not obtain if what the teacher utters
is an imperative, as shown in (15).

(15) [In the same context as (14)/(6):]
Teacher: Hasir-e.
run-IMP
‘Run.’
Student: # E, chotto mat-tekudasai. Nani-o suru beki ka
hey little wait-IMP.POL what-ACC do should Q
wakaranakatta kara, hasiranakatta n desu yo.
not.knew because not.ran C is.POL SFP
‘Hey, wait a minute. We didn’t run because we didn’t know
what to do.’

In (15), where the teacher utters an imperative, the student cannot felicitously
complain about the teacher’s wrong belief after saying “Hey, wait a minute.”;
the imperative would be interpreted as a mere order for the students to run.
This observation thus suggests that IBA is not encoded in imperatives, in contrast with NPDs.

5.2 Past Readings

The second piece of evidence concerns past readings of imperatives. Japanese imperatives can refer to (unrealized) past events, arguably translated as “you should have …” (e.g. Ihara and Noguchi 2018, Saito 2018, Tagawa 2019, Ihara 2020, 2021). I call imperatives with such a past reading past imperatives. See, e.g., (16), where the temporal adverb *kinoo* ‘yesterday’ forces it to be construed as a past imperative.⁷

(16) Kinoo gakkoo-ni ik-e yo.
    yesterday school-to go-IMP SFP
    Lit. ‘Go to school yesterday.’ ≈ ‘You should have gone to school yesterday.’

This paper follows Saito’s (2018) analysis for past imperatives. Assuming a modal approach like the one illustrated in Section 3, he proposes that past imperatives involve the shifting operator $O_{PT}$, which shifts the index time $i_c$ to the decision time $i_c'$. (For these temporal notions, I refer the reader back to Section 3.) Compare the structure and denotation of normal imperatives in (17) with those of past imperatives in (18).

(17) normal imperatives:
   a. $[\text{IMP} [p(\text{rejacent})]]$
   b. $[(17a) \trans \forall w' \in \text{BEST}(CG_c, g_c, t_c, w_c)[\exists t'[P(t', w') \& i_c < t']]]$
      presupposes OSR (see (9b)), among others.

(18) past imperatives:
   a. $[O_{PT} [\text{IMP} [p]]]$
   b. $[(18a) \trans \forall w' \in \text{BEST}(CG_c, g_c, t_c, w_c)[\exists t'[P(t', w') \& i_c' < t']]]$
      presupposes OSR, among others (where $i_c'$ is the decision time of the relevant salient decision problem that the imperative provides an answer to).

Crucially, (18a) contains $O_{PT}$, unlike (17a). As a result, in (18b), the original temporal argument, namely the index time $i_c$ in (17b), has been shifted to the decision time $i_c'$. According to (18b), the event denoted by the prejacent is

⁷ It has been observed in the literature that past imperatives are usually followed by the sentence final particle *yo* as in (16) and that its absence would make them at least marginal. This paper does not delve into this issue, since it will not be relevant to the following discussion.
temporally placed after $i'_c$, rather than $t_c$. In the case of (16), for example, the (unrealized) event of the addressee’s going to school yesterday temporally follows $i'_c$, or when she decided not to go to school. The temporal alignment is thus consistent. Without the shifting, however, the event in question would be located after the utterance time $t_c$, resulting in a contradictory temporal alignment.

Let us now consider what results if OP$_T$ is applied to NPDs; (19) and (20) show the structure and denotation of NPDs without and with OP$_T$ respectively.

(19) NPDs without OP$_T$

a. \([\text{S-IMP} \ [p]]\) 

b. \[\{\text{(19a)}\} \equiv \forall w' \in \text{BEST}(CG_c, g_c, t_c, w_c)[\exists t' (P(t', w') \& i_c < t')]\]

presupposes, among others:

(i) OSR

(ii) The addressee(s) is(/are) behaving irrationally with respect to their decision problem $\Delta_{c,i'}$ at $i_c$. (Irrational Behavior by Addressee: IBA)

(20) NPDs with OP$_T$

a. \([\text{S-IMP} \ [p]]\) 

b. \[\{\text{(20a)}\} \equiv \forall w' \in \text{BEST}(CG_c, g_c, t_c, w_c)[\exists t' (P(t', w') \& i'_c < t')]\]

presupposes, among others:

(i) OSR

(ii) The addressee(s) is(/are) behaving irrationally with respect to their decision problem $\Delta_{c,i'}$ at $i'_c$. (Irrational Behavior by Addressee: IBA)

(20b) consists of the denotation for past imperatives (18b) and the additional presupposition IBA. Notice crucially that in (20b) the temporal argument in IBA, which is originally the index time $i_c$ as (19b) shows, has been shifted to the decision time $i'_c$, as a result of applying OP$_T$. Given all this, it is predicted that past readings are possible with NPDs as well in the contexts where (i) past imperatives are also felicitous and (ii) IBA is satisfied with respect to the decision time $i'_c$. To examine this prediction, consider (21).

(21) [Mai’s father drives Mai to a piano lesson early morning every Sunday. On one Sunday morning, Mai has not woken up, so her father tries to wake her up. She says to him that today’s lesson was canceled yesterday. He says to her:]

Sore-wa kinoo i-e yo. 
that-TOP yesterday say-IMP SFP
Lit. ‘Say that yesterday.’ ≈ ‘You should have said that yesterday.’
Note first that the past imperative in (21) is felicitous in the given context. In addition, in that context, IBA is satisfied with respect to the decision time $i'_c$, when Mai decided not to tell her father that the lesson was cancelled; the father should believe that it was obvious to Mai at $i'_c$ that she should report the cancelation to him, given the norms that are generally accepted by everyone in their family, and thus should consider her failure to report to have been irrational. It is then expected that an NPD corresponding to the past imperative in (21) is felicitous in the above context. This is borne out, as (22) shows.

(22) [In the same context as (21):]

\[
\text{SORE-WA KINOO YU-U.}
\]
\[
\text{that-TOP yesterday say-NP}
\]

Lit. ‘Say that yesterday.’ $\approx$ ‘You should have said that yesterday.’

Furthermore, it is also predicted that past readings cannot obtain with NPDs in the contexts where IBA is not satisfied with respect to the decision time $i'_c$.

Consider, for example, (23) and (24).

(23) [A conference was hosted by Tokyo University yesterday. Some graduate students, including Ken, had been chosen to help the conference; the others, including Mai, could come for help but were not required to. It was expected that many people would come to the conference, so Ken told Mai in advance that he wanted her to join the conference for help. But Mai did not show up in the conference, and thus the students were very busy and got exhausted. Today, Ken complained to Mai:]

\[
\text{Kinoo gakkai-ni sankasi-ro yo.}
\]
\[
yesterday conference-to join-IMP SFP
\]

Lit. ‘Join the conference yesterday.’ $\approx$ ‘You should have joined the conference yesterday.’

(24) [A conference was hosted by Tokyo University yesterday. Some graduate students, including Ken, had been chosen to help the conference; the others, including Mai, could come for help but were not required to. More audiences came to the conference than expected, and so the students were very busy and got exhausted. Ken wanted more help, but no one came for help. Today, he told Mai how busy they were and said that he wanted her to join the conference for help. He then said to her:]

\[
\text{Kinoo gakkai-ni sankasi-ro yo.}
\]
\[
yesterday conference-to join-IMP SFP
\]

Lit. ‘Join the conference yesterday.’ $\approx$ ‘You should have joined the conference yesterday.’
Note first that the two contexts in (23) and (24) are common in that the past imperative is felicitous in those contexts. However, they are different in whether IBA is satisfied with respect to the decision time $i'$. In (23), on the one hand, IBA is satisfied with respect to the decision time $i'$, when Mai decided not to join the conference; given that Mai knew at $i'$, Ken’s desire for her to join the conference, Ken must consider her absence to have been irrational. In (24), on the other hand, IBA is not satisfied with respect to $i'$; since Mai did not know at $i'$ that Ken wanted her to join the conference, he cannot think that her absence was irrational. The proposed analysis then predicts that an NPD corresponding to the past imperative given above is felicitous in (23) but not in (24). (25) indicates that this prediction is borne out.

(25) a. [In the same context as (23),]
   KINOO   GAKKAI-NI   SANKASU-RU.
   yesterday conference-to join-NP
   Lit. ‘Join the conference yesterday.’ ≈ ‘You should have joined the
   conference yesterday.’

b. [In the same context as (24),]
   #KINOO   GAKKAI-NI   SANKASU-RU.
   yesterday conference-to join-NP
   Lit. ‘Join the conference yesterday.’ ≈ ‘You should have joined the
   conference yesterday.’

To sum up, the observations in this subsection support the current proposal that S-IMP consists of (i) the same content as IMP and (ii) the additional presupposition IBA.

6 Concluding Remarks

This paper has proposed a semantic analysis of NPDs to capture the fact that they can be felicitously used only in the contexts where the addressee(s) seems to the speaker to be “lazy”, unlike imperatives. More specifically, based on the modal approach to imperatives, I have proposed that NPDs involve S-IMP, which has the same denotation as IMP except that it triggers an additional presupposition IBA. I have further provided two pieces of evidence for the proposal, one concerning the “Hey, wait a minute.” test and the other concerning past readings of imperatives.

I finally note that the contextual restriction of NPDs illustrated in this paper is not observed in declaratives used as directive in other languages (e.g. *You will run!* in English; see, e.g., Recanati 1987). This difference buttresses the idea that the directive interpretation of NPDs results from a modal operator which can be parameterized, rather than from pragmatic principles.
Given the overall similarity between NPDs and imperatives, the proposal may serve as tentative support for the modal approach to imperatives (i.e. the “strong” theory) (see von Fintel and Iatridou 2017 for discussion; Portner 2004 for an alternative “minimal” theory).

References


On Negative Island Effects and Exhaustification with Adjunct Nani-o in Japanese*

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1 Introduction

It has been cross-linguistically well attested that accusative-marked wh-questions may be interpreted as reason adjunct questions, with similar meaning to why-questions, and Japanese is not an exception. (1a) is an ordinary constituent question, where the focus of the question is the thing(s) that they are eating, while the question in (1b) seeks a reason why they are clamouring.

*We express our gratitude to all the audience at the 30th conference on Japanese/Korean linguistics. This work has been supported by the JSPS Core-to-Core Program, A. Advanced Research Networks "International Research Network for the Human Language Faculty" (#JPJSC-CAJ221702004)(PI: Yoichi Miyamoto).

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In this paper, we call the latter type of wh-questions \( \text{wh}^{\text{accR}} \).\(^1\)

(1) a. Karera-wa \( \text{nani-o} \) tabe-tei-ru no?  
   \( \text{they-TOP} \ \text{what-ACC} \ \text{eat-ASP-PRES} \ \text{Q} \)  
   ‘What are they eating?’ \hspace{1cm} \text{ordinary constituent question}

b. Karera-wa \( \text{nani-o} \) sawai-dei-ru no?  
   \( \text{they-TOP} \ \text{what-ACC} \ \text{clamour-ASP-PRES} \ \text{Q} \)  
   (lit.) ‘What are they clamouring?’  
   ‘What are they clamouring for?/Why are they clamouring?’ \hspace{1cm} \text{reason adjunct questions}

It has been observed that \( \text{wh}^{\text{accR}} \) resists negation, while \text{naze} ‘why’ can co-occur with negation, per (2) (Kurafuji 1996:83). The example has been taken to be a case of negative island effects, on the assumption that \( \text{wh}^{\text{accR}} \) originates in a position below NegP, causing a violation of the Relativized Minimality (RM). \text{naze} ‘why’, on the other hand, base-generates higher than NegP, and thus no violation of the RM results (e.g., Kurafuji 1996, Endo 2015).\(^2\)

(2) Karera-wa \{ \*nani-o/naze \} sawai-dei-nai no?  
   \( \text{they-TOP} \ \{ \text{what-ACC/why} \} \ \text{clamour-ASP-NEG} \ \text{Q} \)  
   ‘What aren’t they clamouring for?/Why aren’t they clamouring?’

Our goal in this paper is to show that the aversion to a negation of \( \text{wh}^{\text{accR}} \) is not due to a syntactic constraint but a semantic one, which in turn is closely related to a ‘negative connotation’ associated with \( \text{wh}^{\text{accR}} \).

This paper is organized as follows: In the next section, after establishing that \( \text{wh}^{\text{accR}} \) originates in a V′-adjunct position, we present a new set of data that shows obviation from the negative island effects. We then show that neither a syntactic nor semantic account currently available explains the data. Section 3 offers our proposal, which crucially relies on the notion of the

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\(^1\) \( \text{Wh}^{\text{accR}} \) in Japanese has several peculiar features, as listed below. Some of them seem to apply crosslinguistically, while others do not.

1. The predicate may be transitive, unergative, unaccusative, or passive, but its subject obeys some form of animacy restriction. (see Kurafuji 1996, Nakao and Obata 2009)
2. The predicate is often marked by imperfective aspect marker (Ochi 2015).
3. The question is associated with the speaker’s negative-attitude to what is happening. (Takami 2010, Nakao and Obata 2009, Yang and Mizuno 2020.)

\(^2\) There is a cross-linguistic variation here. Korean, for example, also has \( \text{wh}^{\text{accR}} \), but it generally allows negation (Kim 2021). We leave this cross-linguistic variation for future research.
speaker’s negative attitude/the speaker’s unexpectedness. The notion is formalized as a covert exhaustification operator, and we argue that it is this operator that governs the grammaticality of negated/non-negated \( \text{wh}_{\text{accR}} \). Section 4 concludes the paper.

2 Apparent Negative Island Effects

2.1 Adjuncthood of \( \text{wh}_{\text{accR}} \)

Kurafuji (1996) claims that \( \text{wh}_{\text{accR}} \) syntactically behaves as adjunct in the same way as \textit{naze} ‘why’. For example, (3a) and (3b) represent cases of extraction from complex NP, where \( \text{wh}_{\text{accR}} \) and \textit{naze} ‘why’ are illicit.

\[
(3) \quad \begin{align*}
(3a) & \quad \text{John-wa} \ [\text{asokode nani-o si-tei-ru}] \ \text{hito-tati-o} \\
& \quad \text{John-TOP} \ [\text{there what-ACC do-ASP-PRES}] \ \text{person-PL-ACC} \\
& \quad \text{keibetu-si-tei-ru no?} \\
& \quad \text{despise-do-ASP-PRES Q} \\
& \quad \text{‘What is John despising people who are doing t?’} \\
& \quad \text{(Kurafuji 1996:86)} \\
(3b) & \quad \text{John-wa} \ [\text{asoko-de} \ \text{\{} \text{naze/nani-o} \ \text{\}} \ \text{sawai-dei-ru}] \\
& \quad \text{John-TOP} \ [\text{there \{} \text{why/what-ACC} \text{ clamour-ASP-PRES} \}] \\
& \quad \text{hito-tati-o keibetu-si-tei-ru no?} \\
& \quad \text{person-PL-ACC despise-do-ASP-PRES Q} \\
& \quad \text{‘Why is John despising people [who are clamouring there t]?’} \\
& \quad \text{(Kurafuji 1996:86), slightly adapted}
\end{align*}
\]

Ochi (2015) identifies \( \text{wh}_{\text{accR}} \) as a V’-adjunct, providing a set of data from VP-preposing. Although focus particle \textit{sae} can be attached to V, as shown in (4a), V-\textit{sae} cannot be moved leaving an accusative DP behind, as the contrast between (4b)-(4c) shows. Ochi (2015) attributes the ungrammaticality of (4c) to the violation of Proper Binding Condition (PBC), which bans the unbound trace, \( t_i \), in \([\text{VP} \ t_i \ \text{sell-even}] \ldots \text{book} \ldots \ t_j \).

\[
(4) \quad \begin{align*}
(4a) & \quad \text{Taro-ga hon-o uri-sae si-ta} \\
& \quad \text{Taro-NOM book-ACC sell-even do-PAST} \\
& \quad \text{‘Taro even sold a book.’} \\
(4b) & \quad \text{Hon-o uri-sae Taro-ga si-ta} \\
& \quad \text{book-ACC sell-even Taro-NOM do-PAST} \\
(4c) & \quad \text{*Taro-ga uri-sae hon-o si-ta} \\
& \quad \text{Taro-NOM sell-even book-ACC do-PAST}
\end{align*}
\]
Ochi (2015) argues that the ungrammaticality of wh<sub>accR</sub> in (5b) is also due to the PBC violation, which suggests that wh<sub>accR</sub> is a V'-adjunct, as shown in (6).

(5) a. Taro-wa { naze/nani-o } kodomo-ni turaku-atari-sae
    Taro-TOP { why/what-ACC } child-DAT badly-treat-even
    si-tei-ru no?
    do-ASP-PRES Q
    ‘Why is Taro even treating his child badly?’

b. Kodomo-ni turaku-atari-sae Taro-wa { naze/*nani-o }
    child-DAT badly-treat-even Taro-TOP { why/what-ACC }
    si-tei-ru no?
    do-ASP-PRES Q
    ‘[Even treating his child badly], why is Taro doing t? ’

(Ochi 2015:420-421)

(6) [iP SUBJ [v' [vP IO [v' wh<sub>accR</sub> [v' DO V]]]] v]]

(Ochi 2015:421), slightly adapted

The claim that wh<sub>accR</sub> is a VP-internal adjunct while naze ‘why’ is not conforms to the former’s aversion to negation observed in (2); if the RM is operative, wh<sub>accR</sub> cannot move across negation to a higher position.

This rationale, however, does not quite work since there are cases where wh<sub>accR</sub> and negation can co-occur. We will offer such data in the next section.

2.2 Obviations from Negative Island Effects

This section shows that the ‘negative island effects’ observed in (2) is not as pervasive as claimed above. Takami (2010) offers a set of data where negated wh<sub>accR</sub> sounds acceptable.
(7) a. You’ve done enough studying for the exam already, but ...
   Nani-o son’nani otituka-nai no?
   what-ACC so.much calm.down-NEG Q
   ‘What’s still unsettling you?’
   (Takami 2010:10), the gloss and translation added

b. You said you were sleepy, …
   Nani-o mada nete-i-nai no?
   what-ACC yet sleep-ASP-NEG Q
   ‘Why haven’t you slept yet?’
   (Takami 2010:10), the gloss and translation added

c. I told you everything, …
   Nani-o mada nattoku/manzoku si-tei-nai no?
   what-ACC still consent/satisfaction do-ASP-NEG Q
   ‘Why aren’t you convinced/satisfied yet?’
   (Takami 2010:10), slightly adapted, the gloss and translation added

We, however, argue that these examples seem to include cases of lexical negation rather than sentential negation or cases where corresponding positive predicates are available (e.g. (be) not sleeping yet = be awake), and thus they do not constitute solid counterexamples of the alleged negative island effects. Otituka-nai ‘calm.down-NEG’ in (7a), for example, does not license an NPI.\(^3\) X-sika ‘only’ is a typical NPI that is licensed by negation, as shown in (8a), while (8b) shows that otituka-nai does not license it.\(^4\)

(8) a. Taro-sika paatii-ni \(\{\text{*ki-ta/kor-nakat-ta}\}\)
    Taro-only party-DAT \(\{\text{come-PAST/come-NEG-PAST}\}\)
    ‘Only Taro came to the party (although we expected that others would come).’

   Taro-only calm-NEG
   (Intended) ‘Only Taro is feeling unsettled.’

Nonetheless, we offer a new data set that constitutes obviation from the alleged negative island effects, where sentential negation is working. The first

\(^3\) It has been well documented that NPIs in the subject position are licensed by negation in Japanese, unlike English. This may be attributed to (i) Neg-head raising to higher than TP/IP (Kishimoto 2013) or (ii) the subject remaining in vP-internal position, e.g., (Watanabe 2004).

\(^4\) The other examples in (7b)-(7c) behave rather differently from (7a) in that when they are not accompanied by mada ‘still’, the negated predicates license sika, but when they are with the temporal adverbial, the negated predicates sound degraded with sika-marked subjects.
data set includes cases of universal negation (e.g., $\forall x. \neg p...$). The native speakers of Japanese we have consulted all judged that the grammaticality of these sentences is far better than (2).

(9) a. *I expected that they should definitely be clamouring and fighting, but*
    
    Nani-o karera-wa sawa-ide-mo kenkas-ite-mo nai no?
    what-ACC they-TOP clamour-ASP-also fight-ASP-also NEG Q
    ‘Why aren’t they either clamouring or fighting?’

b. *I told you to do all those homework, and*
    
    Nani-o mada nani-mo yat-tei-nai no?
    what-ACC yet what-mo do-ASP-NEG Q
    ‘Why haven’t you done anything?’

Another type of example is a case where *mo* ‘even’ is attached to a constituent, as shown in (10b).

(10) a. Context: There is a set of papers that a professor told students to read. There is an order to the papers to be read; Paper A is absolutely necessary and Paper B is strongly recommended to be read, but Paper C is optional. One lazy student didn’t read any.
    
    Nani-o kimi-wa A ronbun-mo yon-dei-nai no?
    what-ACC you-TOP A paper-even read-ASP-NEG Q
    ‘Why haven’t you even read paper A?’

Although (9a)-(10b) cannot be explained in terms of syntactic constraints such as the RM, we could rely on semantic/pragmatic accounts already entertained in the literature. In the next section, we discuss a possible alternative semantic account and argue that it turns out to be inapplicable to the cases at hand when we consider the scope relation between negation and wh\textsubscript{accR}.

2.3 A Possible Semantic Account

Negative islands are known to be weak islands, often explained in semantic terms (e.g., Szabolcsi and Zwarts 1993, Fox and Hackl 2007, Abrusán 2014). Abrusán (2014), for example, explains negative islands in terms of (the violation of) the Maximal Informativity Principle of questions, cf. Dayal (1996):

(11) Maximal Informativity Principle:
    
    Any question presupposes that it has a maximally informative answer, i.e. a true answer which logically entails all the other true answers.
    
    (Abrusán 2014:90)
Degree questions show a negative island effect, as shown in (12). Under this theory, the positive question sounds fine because if a true answer is ‘I ran at 8 km/h’, then it entails all the other true answers such as ‘I ran at 7 km/h’, ‘I ran at 6 km/h.’ The negative question, on the other hand, lacks a maximally informative answer: even if ‘I didn’t run at 8 km/h’ is a true answer, you will never know that ‘I didn’t run at 7 km/h’ or ‘I didn’t run at 9 km/h’ is also true.

(12) How fast { did/*didn’t } you run?
   a. For what degree d, you ran at d-fast?
      – I ran at 8 km/h. \(\Rightarrow\) I ran at 7 km/h. , I ran at 6 km/h, . . .
      \(\Rightarrow\) A true answer entails all the other true answers.
   b. For what degree d, you didn’t run at d-fast?
      – I didn’t run at 8 km/h. \(\Rightarrow\) I might have run at 7 km/h, I might have run at 10 km/h, . . .
      \(\Rightarrow\) There will be no true answer that entails all the other true answers.

In the case of questions that ask for reasons, the maximality of information manifests itself as incompatibility with else, as shown in (13). The why question Why did Maria see Anna? presupposes that \(\exists p(_s,t)\). Maria saw Anna because p. (13) is not allowed as only one true answer is allowed. Suppose that Maria saw Anna because she wanted to return a book is a true answer to the question. Then Maria saw Anna because she wanted to return a book and talk about their future plan is not a true answer to the question, because talking about their future plan is not included in the reason why Maria saw Anna.

(13) #Why else did Maria see Anna?

If negation is appended to why, we cannot have an interpretation where negation takes a wider scope than why as in (14b). Applying Abrusán (2014) to this case, we argue that the negated question never has a maximally informative answer.

(14) a. Why did Mary not see Anna?
   b. What is not the reason why Mary saw Anna?

Note at this point that this semantic explanation targets the scopal relation where the wh takes scope below negation, cf. Szabolcsi and Zwarts (1993).

---

5 We are grateful to Satoshi Tomioka (p.c.) for bringing this analysis to our attention.
6 Why else-questions become felicitous as rhetorical questions.
In (15a), where negation takes scope below the wh, there is actually a legitimate interpretation, while the wide scope negation interpretation results in the violation of Maximal Informativity Principle.

(15) How many books didn’t you buy?
   a. For what number n, n is the cardinality of the set of books that you did not buy?
      \[ wh > \neg \]
      \[ \Rightarrow A \text{ true answer entails all the other true answers.} \]
   b. #For what number n, you didn’t buy n-many books?
      \[ \neg > wh \]
      \[ \Rightarrow \text{There will be no true answer that entails all the other true answers.} \]

Turning to our cases, \textit{wh}_{\text{accR}} always has a narrow scope interpretation of negation, despite the fact that it is base-generated below negation (see Section 2). An answer to (16a) has to be a reason why they are not clamouring or fighting. This is accounted for if we take the Maximal Informativity Principle at work.

However, the ungrammaticality of our data in (2), repeated here as (16b), cannot be explained by the same principle, since (16b) sounds degraded even if we take it as a question asking for a reason why they are not clamouring.

(16) a. (=9a)) \textit{I expected that they should definitely be clamouring and fighting, but}
      Nani-o karera-wa sawa-ide-mo kenkas-ite-mo nai
      what-ACC they-TOP clamour-ASP-also fight-ASP-also NEG
      no?
      Q
      ‘Why aren’t they either clamouring or fighting?’
   b. (=2))
      *Karera-wa nani-o sawai-dei-nai no?
      they-TOP what-ACC clamour-ASP-NEG
      ‘What aren’t they clamouring for?/Why aren’t they clamouring?’

To recap, a syntactic analysis based on the RM would not predict the grammaticality of some negated \textit{wh}_{\text{accR}}, while a semantic analysis that resorts to the Maximal Informativity Principle is not applicable to the ungrammatical cases where negation takes a narrow scope.

These considerations lead us to propose another semantic analysis that can explain the contrast between (16a) and (16b) on the one hand and the contrast between (16b) and (1b).
3 Proposal

3.1 The Speaker’s Negative Attitude

It has been observed that \(\text{wh}_{\text{accR}}\) is associated with the speaker’s negative attitude to the described event (see footnote 2). This attitude may be realized as a surprisal or unexpectedness to what is happening. Yang and Mizuno (2020) observe that \(\text{wh}_{\text{accR}}\) in (1b) is not felicitously followed by *though I’m not surprised.*

This surprisal/unexpectedness is further related to the extremeness of the event described. \(\text{wh}_{\text{accR}}\) is often accompanied by a degree adverb that refers to a great degree on the relevant scale. *Son’nani* ‘so much/that much’ is a typical degree adverb that co-occurs with \(\text{wh}_{\text{accR}}\), which behaves as an NPI, as indicated in (17a)-(17b). In (17a), *son’nani* ‘so much/that much’ can alternate with another NPI degree adverbial *amari* ‘very’, which is only licensed in the scope of negation.

\(\text{wh}_{\text{accR}}\) is only compatible with *son’nani* and even when with a negated \(\text{wh}_{\text{accR}}\), *amari* ‘very’ is not allowed. *Naze* ‘why’ questions do not show this contrast:

\[
\begin{align*}
\text{(17)} & \quad \text{a. Taro-wa \{ amari/son’nani \} \{ *tabe-ta/tabe-nakat-ta \},} \\
& \quad \text{Taro-TOP \{ very/that.much \} \{ eat-PAST/eat-NEG-PAST \}} \\
& \quad \text{‘Taro ate/didn’t eat a lot/that much.’} \\
& \quad \text{b. Taro-wa \{ *amari/son’nani \} \text{ tbe-ta no?} } \\
& \quad \text{Taro-TOP \{ very/that.much \} \text{ eat-PAST Q} } \\
& \quad \text{‘Did Taro eat a lot/that much?’}
\end{align*}
\]

In (17a), the degree adverbs serve to describe understatements: being high-degree adverbs, they are interpreted to be understatements in the scope of negation. In (17b), where only *son’nani* is allowed, the degree adverb refers to a contextually given large amount of food and there is no understatement interpretation. The utterance in (18a) serves as a good antecedent for *son’nani* in (17b), but (18b) does not.

\(\text{wh}_{\text{accR}}\) is only compatible with *son’nani* and even when with a negated \(\text{wh}_{\text{accR}}\), *amari* ‘very’ is not allowed. *Naze* ‘why’ questions do not show this contrast:

\[
\begin{align*}
\text{(18)} & \quad \text{a. Taro ate ten whole pizzas.} \\
& \quad \text{b. Taro ate a piece of pizza.} \\
\text{\(\text{wh}_{\text{accR}}\) is only compatible with *son’nani* and even when with a negated } & \quad \text{\(\text{wh}_{\text{accR}}\), *amari* ‘very’ is not allowed. *Naze* ‘why’ questions do not show this contrast:}
\end{align*}
\]

\[
\begin{align*}
\text{(19)} & \quad \text{a. Nani-o \{ *amari/son’nani \} manzoku-si-tei-nai no?} \\
& \quad \text{what-ACC \{ very/that.much \} satisfaction-do-ASP-NEG Q} \\
& \quad \text{‘Why aren’t you satisfied so much?’}
\end{align*}
\]
b. Naze { amari/son’nani } manzoku-si-tei-nai no?
   why { very/that.much } satisfaction-do-ASP-NEG Q
   ‘Why are you not satisfied that much?’

We take the contrast observed in (19) as indicating that wh_{accR} is only compatible with an event that is considered to be ‘extreme’. We conjecture that this extremeness requirement comes from the speaker’s unexpectedness: the described event exceeds some high degree in a relevant gradable property, to the extent that the speaker does not expect.

The notion of the speaker’s (un)expectedness is not confined to what the speaker believes, as in (1b), which conveys that the speaker believes that they should not make noises in that situation. In (9b) and (10b), on the other hand, what is happening is not what the speaker wanted the addressee to do. We thus suggest that in wh_{accR}, what is relevant is the speaker’s wish/hope, and this derives what the speaker believes. ⁷

3.2 Wh_{accR} as Exhaustification

Based on the observations above, we propose that wh_{accR} is a construction that checks how unexpected the proposition is. This is formalized via a covert EVEN-Exhaustification operator, EVEN-EXH. As a covert version of even, the operator checks unlikeliness ordering among the alternative propositions (including the prejacent itself), and requires the prejacent to be the least likely one, as defined in (20).

\[ \mathcal{EVEN-EXH} \mathcal{F}(w) = \lambda_{p(s,t)} \cdot p(w) = 1 \land \forall q. (q \in C \land q \neq p) \rightarrow (p \leq \text{what.the.speaker.wants } q) \]

We would like to make a modification to (20) when applied to wh_{accR} in such a way that EVEN-EXH is defined in a context where what the speaker wants (according to her norms) is supposed to be best, and propositions are ordered with respect to the speaker’s wish. If this is defined, we predict that the prejacent to EVEN-EXH in wh_{accR} induces an implication in (21b): the speaker thinks that the proposition described should not be happening.

\[ \mathcal{EVEN-EXH} \mathcal{F}(w) = \lambda_{p(s,t)} \cdot p(w) = 1 \land \forall q. (q \in C \land q \neq p) \rightarrow (p \leq \text{what.the.speaker.wants } q) \]

b. Wh_{accR} associated implication:

\[ \forall w' \in \cap \mathcal{F}(w) \subseteq (s, sp) \cdot \neg p(w')(c) \]

(sp denotes the speaker in c, and g is bouletic)

⁷ We thank the audience in JK 30 and Satoshi Tomioka for bringing this issue to our attention.
We posit that the $EVEN$-$EXH$ situates at a higher position than IP, and thus it checks whether the proposition in IP is the least likely one or not among its alternatives, which we assume are formed at VP.

\[(22) \quad [CP\ Wh_1\ [C\ [EVEN\-EXH\ [IP\ they\ [NegP\ [vP\ [VP\ clamour\ for\ t_1]_F\] ing ]]]]]]\]

With these assumptions, the proposition in IP in (1b) provides the alternatives given in (23b):

\[(23) \quad a.\ (1b):\ [CP\ Wh_1\ [C\ [EVEN\-EXH\ [IP\ they\ [vP\ [VP\ clamour\ for\ t_1]_F\] ing]]]]]\
b. Alternatives to $they\ are\ clamouring\ for\ x$
\quad C = \{ They\ are\ clamouring\ for\ x, \ They\ are\ reading\ books\ for\ x, \ They\ are\ dancing\ for\ x \}

The requirement put by $EVEN$-$EXH$ is satisfied if the prejacent $They\ are\ clamouring\ for\ x$ is ordered to be the ‘worst’ from the speaker’s point of view. Thus, if the prejacent is not true in the speaker’s best worlds, $EVEN$-$EXH$ is defined. In other words, as far as we can set up a context where the propositions in the alternative set (=C) are ordered as in (24), (1b) should be grammatical.

\[(24) \quad C = \{ They\ are\ clamouring\ for\ x < They\ are\ reading\ books\ for\ x/They\ are\ dancing\ for\ x \}\]

### 3.3 Negated Wh$_{accR}$

Let us turn to how this analysis explains the aversion to negation of wh$_{accR}$. If the prejacent is negated, as in (25a), a set of its alternatives would be like (25b):

\[(25) \quad a.\ [CP\ Wh_1\ [C\ [EVEN\-EXH\ [IP\ they\ [NegP\ [vP\ [VP\ clamour\ for\ t_1]_F\] ing \ not \ ]]]] Q]\nb. \quad C = \{ They\ are\ not\ clamouring\ for\ x, \ They\ are\ not\ reading\ books\ for\ x, \ They\ are\ not\ dancing\ for\ x \}

The negated propositions may denote the same circumstances, where nothing happens. If nothing happens, that circumstance entails no clamouring (for x) or no reading of books (for x), etc. In this situation, it is hard to tell which of the alternatives is worse than the others. With no ranking among the
alternatives, **EVEN-EXH** is not satisfied, and the ungrammaticality follows. The asymmetry between (1b) and (2) thus comes from whether the ordering among the alternatives is available or not.

Let us now turn to (9a)-(9b). (9a) (repeated as (26a)) differs from (2) in that two propositions are negated. The alternatives to the prejacent in (26a) are listed in (26c). Here if they are neither clamouring nor fighting for x, then it entails that they are not clamouring (or that they are not fighting). If the speaker expects that they are clamouring and fighting (for x), then the prejacent should be the least expected thing. In this way, the prejacent can be ordered with respect to its alternatives and it is the least likely one. **EVEN-EXH** is defined under this situation.

(26) a. *I expected that they should definitely be clamouring and fighting, but*

    Nani-o karera-wa sawa-ide-mo kenkas-ite-mo nai
    what-ACC they-TOP clamour-ASP-also fight-ASP-also NEG
    no?
    Q
    ‘Why aren’t they either clamouring or fighting?’

b. **EVEN-EXH**(they are not clamouring or fighting for x)

c. C = { they are not clamouring for x, they are not fighting for x, they are neither clamouring nor fighting for x }

(9b) is explained in the same way, because the prejacent proposition entails other propositions in the alternatives, as it is a universal negation.

Another case that allows negated wh_{acc}, (10b), repeated as (27b), includes an explicit marking of *mo* ‘even’. To satisfy the meaning of *mo*, the prejacent proposition has to be the least likely one (from the speaker’s point of view). This feeds the requirement of **EVEN-EXH** (rather trivially).

(27) a. Context: There is a set of papers that a professor told students to read. There is an order to the papers to be read; Paper A is absolutely necessary and Paper B is strongly recommended to be read, but Paper C is optional. One lazy student didn’t read any.

    Nani-o kimi-wa A ronbun-mo yon-dei-nai no?
    what-ACC you-TOP A paper-even read-ASP-NEG Q
    ‘Why haven’t you even read paper A?’

c. [mo [You did not read [paper A]_{f}]] is defined, if *You did not read paper A* is the least likely one.
To summarize: We have discussed the (apparent) negative island effects observed with \( \text{wh}_{\text{accR}} \) have to be explained semantically, since there are cases where negation is allowed with \( \text{wh}_{\text{accR}} \) and the RM predicts the ungrammaticality of negated \( \text{wh}_{\text{accR}} \) across the board. Our semantic analysis is needed in addition to the semantic analysis based on the Maximal Informativity Principle, because the data set at hand includes cases where \( \text{wh}_{\text{accR}} \) takes a wider scope than the negation, which cannot be the target of such semantic analysis.

The current analysis crucially relies on the idea that the grammaticality of \( \text{wh}_{\text{accR}} \) is related to its ‘connotation’ that the speaker believes that the described event should not be happening, cf. Takami (2010). The negated \( \text{wh}_{\text{accR}} \) is acceptable when the prejacent denotes an ‘extreme’ case, which derives the speaker’s surprisal. We formalize this as \textsc{even-exh}, which serves to check the ‘extremeness’ as well as to derive the speaker’s unexpectedness connotation.

4 Conclusion

This paper has two contributions to the literature on \( \text{wh}_{\text{accR}} \). First is that the alleged negative island effects observed with \( \text{wh}_{\text{accR}} \) constitute a different status than the ‘typical’ negative island effects, such as the one observed with degree questions. Another finding is a new set of data that obviates the effect of negation: negated \( \text{wh}_{\text{accR}} \) improves when it includes a universally negated proposition or a \textit{mo} ‘even’-marked constituent.

The present semantic proposal is consistent with a recent syntactic proposal about the nature of \( \text{wh} \)-indeterminates in Japanese by Saito (2017), which claims that Japanese \( \text{wh} \)-indeterminates are defective in that their quantificational value is not determined until they move to CP where the quantificational value is assigned by particles such as \textit{ka} and \textit{mo}. If \( \text{wh} \)-indeterminates including \textit{nani} lack quantificational values when they move, they should not cause a violation of the RM: accordingly, the apparent negative island effects should come from other sources.

References


1 Introduction

The proposal of a factorial definition of island effects has led to recent research revisiting the notion of islands in various languages using formal acceptability judgment experiments. This research has discovered measurable island effects in structures previously thought to elude them, such as complex NP (CNP) island effects with argument \textit{wh-in-situ} in \textit{wh-in-situ} languages (Lee and Park 2015; Lee 2018; Tanaka and Schwartz 2018; Lu et al. 2020; Nguyen 2021).
The current study reexamines the island status of CNPs with argument *wh-in-situ* in Japanese, a structure previously considered to be not island sensitive. The results from three formal acceptability judgment experiments using the factorial definition of island effects show measurable effects with CNPs with argument *wh-in-situ*.  

Section 2 provides an overview of CNP island effects in Japanese and other languages, Section 3 presents the logic of the study’s factorial design, Sections 4–6 describe the methodology and results of the three experiments, and Section 7 offers a general discussion and conclusions.

2 Background

While *wh*-movement is not clause-bound (1), CNPs such as relative clauses (RCs) (2) and noun complements (NCs) (3) are generally considered to restrict *wh*-movement (Sprouse and Hornstein 2013: 2).

(1) What does Susan think [that John bought _]? 
(2) * What did you meet [the scientist who invented _]? 
(3) * What do you make [the claim that John bought _]? 

In *wh-in-situ* languages, argument *wh-in-situ* is generally believed to be immune to CNP island effects (Huang 1982; Nishigauchi 1986; Choe 1987; Richards 2008). In Japanese, for example, argument *wh-in-situ* in RCs (4) or NCs (5) is possible, while adjunct *wh-in-situ* such as *naze* ‘why’ within CNPs leads to unacceptability (6).

(4) Takeshi-wa [nani-o katta onnanohito-o]  
T-TOP what-ACC bought woman-ACC  
tsuretekimashita-ka  
'brought-Q  
'What did Takeshi bring [the woman who bought _]?’

(5) Takeshi-wa [onnanohito-ga nani-o katta-toiu  
T-TOP woman-NOM what-ACC bought-COMP  
hanashi-o] shimashita-ka?  
story-ACC tell-Q  
'What did Takeshi tell [the story that a woman bought _]?’

---

1 The original presentation at the 30th Japanese/Korean Linguistics Conference included a fourth experiment, but this paper focuses on the three experiments due to space limitations.
Previous work has sought to explain the lack of CNP island effects in *wh*-in-situ languages by proposing that *wh*-phrases do not move (e.g. Aoun and Li 1993), that covert *wh*-movement is not subject to island effects (e.g. Huang 1982; Lasnik and Saito 1984), or that island effects incurred by covert *wh*-movement can be circumvented by pied-piping the whole CNP (e.g. Nishigauchi 1986; Choe 1987).

However, recent formal experimental studies on *wh*-in-situ languages that used the factorial definition of island effects detected island effects previously claimed to be absent. The studies have shown that argument *wh*-in-situ triggers RC island effects in Chinese (Lu et al. 2020), Japanese (Tanaka and Schwartz 2018), and Vietnamese (Nguyen 2021). Island effects have also been observed with argument *wh*-in-situ inside NCs in Korean (Lee and Park 2015; Lee 2018), although not in Japanese (Sprouse et al. 2011).

A finding of (previously unobserved) measurable *wh*-island effects with *wh*-movement in Brazilian Portuguese led Almeida (2014) to propose ‘subliminal island effects’: measurable island sensitivity effects that do not lead to gross sentence unacceptability, in contrast to traditional, ‘supraliminal’ island effects, which lead to categorical unacceptability. Subliminal island effects, however, must be carefully examined, as they may reflect participant variability (Kush et al. 2018, 2019) or processing confounds (Keshev and Meltzer-Asscher 2019).

These experimental studies all conducted formal acceptability judgment experiments using the factorial definition of island effects, as does the current study. As a follow-up to Tanaka and Schwartz 2018, I conducted three acceptability judgment experiments to test the island status of CNPs, specifically RCs and NCs, by manipulating the presence and absence of argument *wh*-in-situ, the former resulting in *wh*-questions and the latter in yes-no questions. The results show that there are measurable effects that fit the criteria for subliminal island effects proposed by Almeida (2014).

### 3 The Logic of the Design

A factorial design crossing two factors, STRUCTURE and QUESTION, each with two levels, resulted in four conditions per experiment. As shown in Table 1, the factor STRUCTURE varied between declarative CPs and RCs in Experiment 1, declarative CPs and NCs in Experiment 2, and NCs and RCs in Experiment...
3. The factor QUESTION manipulated the presence of argument wh-in-situ in all three experiments. The condition without wh-in-situ involved a yes-no question and the condition with wh-in-situ involved a wh-question.

<table>
<thead>
<tr>
<th>Experiment</th>
<th>STRUCTURE</th>
<th>QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>declarative CP</td>
<td>yes-no question (no wh-in-situ)</td>
</tr>
<tr>
<td></td>
<td>RC</td>
<td>wh-question (wh-in-situ)</td>
</tr>
<tr>
<td>2</td>
<td>declarative CP</td>
<td>yes-no question (no wh-in-situ)</td>
</tr>
<tr>
<td></td>
<td>NC</td>
<td>wh-question (wh-in-situ)</td>
</tr>
<tr>
<td>3</td>
<td>NC</td>
<td>yes-no question (no wh-in-situ)</td>
</tr>
<tr>
<td></td>
<td>RC</td>
<td>wh-question (wh-in-situ)</td>
</tr>
</tbody>
</table>

Table 1. Factorial Designs in Experiments 1–3 (CP = complementizer phrase; NC = noun complement; RC = relative clause).

The factorial design helps isolate island effects as ‘superadditive’ effects that cannot be explained by the simple combination of effects of multiple experimental factors, thus countering the reductionist view that they are complexity effects arising from processing difficulty (Sprouse et al. 2012). The schematic examples in (7) present the four conditions in Experiment 1.

(7) a. **Declarative CP** | **yes-no question**
NP-TOP [DECL, NP-NOM, NP-ACC V\_EMBEDDED\_COMP] V\_MATRIX Q  

b. **Declarative CP** | **wh-question**
NP-TOP [DECL, NP-NOM, wh-ACC V\_EMBEDDED\_COMP] V\_MATRIX Q  

c. **RC** | **yes-no question**
NP-TOP [RC, ei, NP-ACC V\_EMBEDDED\_head NP\_ACC] V\_MATRIX Q  

d. **RC** | **wh-question (critical condition)**
NP-TOP [RC, ei, wh-ACC V\_EMBEDDED\_head NP\_ACC] V\_MATRIX Q

Example (7d) illustrates the condition of interest with RC-internal wh-in-situ questions, while (7a) is the baseline condition, with declarative CPs and yes-no questions (no wh-in-situ). The effect of STRUCTURE can be measured as the difference in acceptability between the two yes-no question conditions (7a) and (7c), and the effect of QUESTION can be measured as the difference between the two declarative CP conditions (7a) and (7b). If the total effect, measured as the difference between the baseline (7a) and critical (7d) conditions, is greater than the sum of the effects of STRUCTURE and QUESTION, showing a superadditive relationship, then there are effects that cannot be accounted for by the simple addition of the effects of STRUCTURE and QUESTION: that is, island effects.

A superadditive relationship can be envisioned as nonparallel lines mapping two factors, as shown in the righthand graph in Figure 1. When there are
no superadditive effects, two parallel lines, as shown in the lefthand graph, indicate that any lowering in the acceptability of (7d) can be accounted for by the combination of the STRUCTURE and QUESTION effects. A superadditive relationship can be statistically confirmed as a significant interaction between STRUCTURE and QUESTION.

Figure 1. Patterns predicted for Experiment 1 (no island effects vs. island effects).

A superadditive effect can also be measured as a difference-in-difference (DD) score (Maxwell and Delaney 2003), calculated by subtracting the difference between (7a) and (7c) from the difference between (7b) and (7d): $\text{DD} = (7b - 7d) - (7a - 7c)$. A DD score of zero indicates the absence of island effects; a DD score larger than zero indicates an island effect. DD scores also quantify the size/strength of the superadditive effect. Hence, by-participant DD scores have been used to assess the relation of the size of the effect to other variables such as working memory (e.g. Sprouse et al. 2012) and language proficiency (e.g. Zenker and Schwartz 2017), and to show between- and within-participant variation (Kush et al. 2018, 2019; Fukuda et al. 2022; see also Fukuda et al. in this volume).

As discussed in Section 2, island effects can be supraliminal or subliminal. The graphs in Figure 2 illustrate both scenarios.

Figure 2. Patterns predicted for Experiment 1 (supraliminal vs. subliminal island effects).
In the graphs, zero on the y-axis represents the grand mean. The graph on the left visualizes supraliminal island effects: The critical condition receives a mean z-score rating well below zero, signifying that the structure is relatively less acceptable. The graph on the right visualizes subliminal island effects: There is measurable superadditivity, but the mean rating for the critical conditions hovers around zero or is above zero.

Similar logic was used for Experiment 2, which compared declarative CPs and NCs, and for Experiment 3, which compared NCs and RCs. As detailed below, the inclusion of NCs aimed to address the differences in the number of dependencies involved in the embedded structures.

4 Experiment 1

Experiment 1 compared declarative CPs and RCs with and without argument wh-in-situ to reexamine the island status of RCs.

4.1 Method

4.1.1 Participants

Self-identified native speakers of Japanese (n = 91, 41 female, mean age = 35.7) were recruited at universities in Japan and in North America, through social media, and using a Japanese crowdsourcing platform, CrowdWorks (https://crowdworks.jp). Participants were compensated.

4.1.2 Materials

A factorial design crossing two factors, STRUCTURE (declarative CP, RC) and QUESTION (yes-no question, wh-question) resulted in four conditions. The example in (8) presents the four versions of a sample lexicalization.

(8) Four versions of a sample lexicalization in Experiment 1

a. **Declarative CP | yes-no question**
   
   Momoko-wa [otokonohito-ga kaban-o katta-to]  
   M-TOP man-NOM bag-ACC bought-COMP  
   iimashita-ka?  
   say-Q  
   ‘Did Momoko say [that the man bought a bag]?’

b. **Declarative CP | wh-question**
   
   Momoko-wa [otokonohito-ga nani-o katta-to]  
   M-TOP man-NOM what-ACC bought-COMP  
   iimashita-ka?  
   say-Q  
   ‘What did Momoko say [that the man bought _ ]?’
c. **RC | yes-no question**
   Momoko-wa [kaban-o katta otokonohito-o]
   M-TOP  bag-ACC bought man-ACC
   mimashita-ka
   saw-Q
   ‘Did Momoko see [the man who bought a bag]?’

d. **RC | wh-question**
   Momoko-wa [nani-o katta otokonohito-o]
   M-TOP  what-ACC bought man-ACC
   mimashita-ka
   saw-Q
   ‘What did Momoko see [the man who bought _]?’

Four versions of forty base lexicalizations generated 160 experimental items, which were distributed across four lists using a Latin square design so that each list contained only one version of each lexicalization. The 40 experimental items (4 conditions × 10 tokens) were combined with 40 fillers (20 acceptable, 20 unacceptable) for a total of 80 items in each list.

### 4.1.3 Procedure

Participants completed a web-based acceptability judgment task administered through Qualtrics. Participants were randomly assigned to one of the four lists, and the order of the items within a list was randomized. Participants were asked to rate the naturalness of each sentence on a scale of 1 (*totemo fushizen* ‘very unnatural’) to 4 (*totemo shizen* ‘very natural’), with an off-scale option, *wakaranai* ‘I don’t know’.

### 4.2 Results

After blank or ‘I don’t know’ responses were excluded (0.63%), each participant’s acceptance ratings were standardized through z-score transformation following Sprouse et al. 2012. The lme4 (Bates et al. 2015) and lmerTest

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2 All three experiments were originally designed as a study on second language learners on Japanese. An even-numbered scale was used to avoid a midpoint, which might reflect uncertainty, and the ‘I don’t know’ option was included for instances in which learners were uncertain or unable to make a judgment (Ionin and Zyzik 2014; Ionin 2021). Additionally, forty base lexicalizations were prepared so that each participant saw ten tokens per condition. This differed from most previous studies where participants encountered fewer tokens per condition. While there is a risk of satiation effects in native speakers, a larger number of tokens per condition was necessary due to a large amount of noise typically observed in L2 data. The lexical items used in the stimuli were all taken from elementary-level teaching materials for Japanese as a second language, which significantly restricted the choice of vocabulary that can be used for the experiments.
(Kuznetsova et al. 2017) packages in R version 4.1.1 (R Core Team 2021) were used to fit a linear mixed effects model estimating z-score ratings as a function of treatment-coded predictors, STRUCTURE and QUESTION. Random effects included by-participant and by-item varying intercepts. Figure 3 presents the interaction plot, DD score, and p-value for the interaction between STRUCTURE and QUESTION in the linear mixed effects model.

![Figure 3. Experiment 1: Interaction plot (points: conditional means; error bars: standard errors), DD score, and p-value for the interaction between STRUCTURE and QUESTION in the linear mixed-effects model.](image)

As shown in Figure 3, the two yes-no question (no wh-in-situ) conditions exhibit very similar mean z-score ratings (declarative CPs: 0.65; RCs: 0.68). Declarative CPs with wh-in-situ questions received a slightly lower but very similar mean rating (0.59). In contrast, the mean rating for the critical condition (RC | wh-question) is much lower (−0.12) than the other three conditions, although it is just below zero. The nonparallel lines, the positive DD score (0.69) and a significant interaction between STRUCTURE and QUESTION (coefficient: −0.73, $SE = 0.07$, $t = −10.44$, $p < .001$) all indicate superadditivity.

4.3 Discussion

The results from Experiment 1 showed that mean rating for the critical condition, which involved RC-internal argument wh-in-situ questions, was much lower compared to the mean ratings for the yes-no question (no wh-in-situ) conditions or the declarative CP conditions. The measurable effects associated with RCs with argument wh-in-situ cannot be solely explained by the effects associated with RCs (compared to declarative CPs) or those associated with wh-questions (compared to yes-no questions). These potential island effects fit the characteristics of subliminal island effects because the mean rating for the critical condition hovered around zero.

This experiment, however, had a confound because the critical condition differed from the other conditions in another way. As schematized in (9), it was the only condition that involved two overlapping dependencies: a gap-
filler dependency in RCs and a dependency between a wh-phrase and its Q particle suggested in previous work (e.g. Ueno and Kluender 2003).

\[(9) \text{NP-} \text{TOP} [\text{RC} e_i \text{wh-ACC} V_{\text{EMBEDDED}} \text{head NP-ACC}] \text{V-} \text{MATRIX} \text{Q}\]

Keshev and Meltzer-Asscher (2019) argued that the processing cost of maintaining two dependencies can create apparent subliminal island effects. Therefore, it is possible that the subliminal effects observed in this experiment reflected the maintenance cost of these two dependencies. The next two experiments address this possibility by adding NCs to the factorial designs.

5 Experiment 2

Experiment 2 compared declarative CPs and NCs with and without argument wh-in-situ. As explained in Section 2, NCs are another type of CNPs that are considered islands in wh-movement languages, but they do not exhibit island effects with argument wh-in-situ in wh-in-situ languages. Importantly, NCs do not involve a gap-filler dependency, allowing for a direct comparison between non-islands (declarative CPs) and potential islands (NCs) without the number of dependencies as a confounding factor. In the critical condition involving NCs with wh-in-situ, only a dependency between a wh-phrase and its Q particle is present, much like in declarative CPs with wh-in-situ. If superadditivity is observed in this scenario, it is hypothesized to reflect a structural difference between declarative CPs and NCs, i.e., a difference in island status.

5.1 Method

A factorial design crossing two factors, STRUCTURE (declarative CP, NC) and QUESTION (yes-no question, wh-question) resulted in four conditions as exemplified in (10).

\[(10) \text{Four versions of a sample lexicalization in Experiment 2}\]

a. **Declarative CP | yes-no/wh-question**

Takeshi-wa [onnanohito-ga megane/nani-o katta-to]
T-\text{TOP} woman-NOM eyeglasses/what-\text{ACC} bought-COMP
hanashimashita-ka?
say-Q

*yes-no*: ‘Did Takeshi say [that the woman bought eyeglasses]?’

*wh*: ‘What did Takeshi say [that the woman bought _ ]?’
b. **NC | yes-no/wh-question**

Takeshi-wa [onnanohito-ga megane/nani-o katta-toiu]
T-top woman-nom eyeglasses/what-acc bought-comp
hanashi-o shimashita-ka?
story-acc told-q

**yes-no:** ‘Did Takeshi tell [the story that the woman bought eyeglasses]?’

**wh:** ‘What did Takeshi tell [the story that the woman bought _ ]?’

Four versions of forty base lexicalizations were created and Latin-squared into four lists. The 40 experimental items (4 conditions × 10 tokens) were combined with 40 fillers (20 acceptable, 20 unacceptable) for a total of 80 items in each pseudorandomized list.

Self-identified native speakers of Japanese (*n* = 111, female 58, mean age = 33.5), who were recruited through universities in Japan and CrowdWorks, completed a paper- or web-based acceptability judgment task. Participants were randomly assigned to one of the four lists and asked to rate the naturalness of each sentence using the same scale as Experiment 1.

### 5.2 Results

After blank or ‘I don’t know’ responses were excluded (0.63%), the acceptability ratings were analyzed using the same procedure that was used in Experiment 1. As shown in Figure 4, the mean rating for the critical condition with NC-internal wh-*in-situ* questions (0.09) was much lower (albeit nearly zero) than mean ratings for the other conditions (declarative CP | yes-no question: 0.60; declarative CP | wh-question: 0.48; NC | yes-no question: 0.68).

![Figure 4. Experiment 2: Interaction plot (points: conditional means; error bars: standard errors), DD score, and p-value for the interaction between STRUCTURE and QUESTION in the linear mixed-effects model.](image)

The nonparallel lines, the positive DD score (0.36) and a significant interaction between STRUCTURE and QUESTION (coefficient: −0.36, *SE* = 0.07, *t* = −5.40, *p* < .001) all indicate superadditivity.
5.3 Discussion

Experiment 2 produced similar results to Experiment 1, where significant superadditivity was observed, but with ratings hovering around zero, suggesting subliminal island effects. Unlike in Experiment 1, NCs with wh-in-situ in the critical condition only involved one dependency—the same number of dependencies as declarative CPs with wh-in-situ. This means that the measurable effects observed in Experiment 2 are likely due to the difference in island status: NCs are (potential) islands, while declarative CPs are not.

6 Experiment 3

Experiment 3 further investigated the source of the effects found in Experiments 1 and 2 by comparing NCs and RCs. As explained previously, both are CNPs; however, RCs involve a gap-filler dependency, unlike NCs. If superadditivity is observed, it suggests that there are effects arising from multiple dependencies or that there is a qualitative difference between NCs and RCs.

6.1 Method

Experiment 3 crossed two factors, STRUCTURE (NC, RC) and QUESTION (yes-no question, wh-question). The four conditions are exemplified in (11).

(11) Four versions of a sample lexicalization in Experiment 3

a. **NC | yes-no/wh-question**
   Takeshi-wa [onnanohito-ga megane/nani-o katta-toiu]
   T-TOP woman-NOM eyeglasses/what-ACC bought-COMP
   hanashi-o shimashita-ka?
   story-ACC told-Q
   yes-no: ‘Did Takeshi tell [the story that the woman bought eyeglasses]?’
   wh: ‘What did Takeshi tell [the story that the woman bought _]?’

b. **RC | yes-no/wh-question**
   Takeshi-wa [megane/nani-o katta onnanohito-o]
   T-TOP eyeglasses/what-ACC bought woman-ACC
   tsuretekimashita-ka
   brought-Q
   yes-no: ‘Did Takeshi bring [the woman who bought eyeglasses]?’
   wh: ‘What did Takeshi bring [the woman who bought _]?’

Four versions of forty base lexicalizations were created and Latin-squared into four lists, which were mixed with 40 fillers (20 acceptable, 20 unacceptable) to create a total of 80 items in each pseudorandomized list.
The participants in the experiment were self-identified native speakers of Japanese \(n = 107\), female 56, mean age = 30.6) who were recruited through universities in Japan and CrowdWorks. The experiment was conducted following the same procedure as Experiment 2.

6.2 Results

Blank or ‘I don’t know’ responses were excluded from the analysis (0.09%). Participants’ acceptance ratings were analyzed using the same procedure as in Experiments 1 and 2. As shown in Figure 5, items with RCs \((-0.27)\) received a lower mean rating than those with NCs (0.31) in the wh-in-situ conditions, while the mean ratings for the yes-no question (no wh-in-situ) conditions did not differ largely between NCs (0.81) and RCs (0.75). The nonparallel lines, the positive DD score (0.5) and a significant interaction between STRUCTURE and QUESTION (coefficient: +0.51, \(SE = 0.07\), \(t = -6.82\), \(p < .001\)) all indicate superadditivity.

![Figure 5. Experiment 3: Interaction plot (points: conditional means; error bars: standard errors), DD score, and \(p\)-value for the interaction between STRUCTURE and QUESTION in the linear mixed-effects model.](image)

6.3 Discussion

In Experiment 3, superadditivity was observed when comparing NCs and RCs. While both structures are CNPs and potential islands, RCs involve a gap-filler dependency that is not present in NCs. Although the two structures did not differ in terms of acceptability in the yes-no question conditions, there was a nonnegligible difference between NCs and RCs in the wh-question conditions. One possibility is that this difference reflects the difference in the number of dependencies and that the maintenance of two overlapping dependencies does incur superadditive effects, as suggested by Keshev and Meltzer-Asscher (2019). However, the results from Experiment 2 indicate that the maintenance cost alone does not account for the superadditivity. It is also possible that there exists a qualitative difference between NCs and RCs beyond the number of dependencies. This interpretation aligns with previous claims made by Chomsky (1986) and Fukuda et al. (2022) that NCs exhibit
weaker island effects than RCs with respect to \textit{wh}-movement in English and scrambling in Japanese.

7 General Discussion and Conclusions

This paper presented results from three formal acceptability judgment experiments that reexamine Japanese CNP islands with argument \textit{wh-in-situ} using the factorial definition of island effects. The results revealed potential subliminal island effects with argument \textit{wh-in-situ} in RCs (Experiment 1), where \textit{wh-in-situ} inside these islands produced superadditive effects but was not completely unacceptable. However, Experiment 1 compared declarative CPs and RCs, which differ not only in terms of the possible island status but also in terms of the number of dependencies. To address the confound, Experiment 2 compared declarative CPs and NCs, which differ only in terms of the possible island status, and Experiment 3 compared NCs and RCs, both of which are potential islands but differ in the number of dependencies involved. Superadditivity was observed in both Experiments 2 and 3. Thus, possible subliminal island effects were observed with both NCs and RCs with \textit{wh-in-situ}, while there was also a difference in the size of the effects between NCs and RCs.

Future research should include other types of dependencies that are by-hypothesis non-island sensitive in the factorial design. This would help further investigate the source of the subliminal island effects and examine the status of complex NP islands. Additionally, limitations in the current study should also be addressed, including the position of the embedded clauses in the experimental items. The items used in the three experiments contained an embedded clause in the center following the matrix subject. In the RC conditions, this pattern created a sequence in which the matrix subject was followed by the embedded object and the embedded verb. The parser might initially misanalyze the embedded object and the embedded verb as the matrix object and the matrix verb, causing a garden-path effect upon encountering the RC head. This additional effect might have influenced the results and should therefore be addressed.\footnote{The fourth experiment, which is not reported here, compared \textit{wh-in-situ} with dependencies that are hypothesized to be non-island sensitive. The experiment also included items designed to reduce garden-path effects.}

While the findings from the current study do not completely eliminate the possibility of other extrasyntactic factors causing superadditivity, they contribute new data that would further our understanding of crosslinguistic variation of island effects and help develop a theory that accounts for it (Sprouse and Hornstein 2013).


Focus Intervention Effects Revisited: A Semantics-Pragmatics Approach

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1 Introduction

This paper aims to provide a new account for focus intervention effects in wh-in-situ languages like Korean and Chinese (see e.g., Kim 2002; Beck 2006; Li and Law 2016). In these languages, wh-questions usually do not involve the fronting of wh-items (see mwusun in (1) and shén-me in (2)).

(1) Mary-nun mwusun chayk-ul ilk-ess-ni?
Mary-TOPIC what book-ACC read-PAST-Q
‘What book(s) did Mary read?’ Korean (SOV): wh-in-situ

(2) Mary dú-le shén-me shú?
Mary read-PFV what book
‘What book(s) did Mary read?’ Chinese (SVO): wh-in-situ

When there is a focus item in a wh-question (see -man in (3) and zhǐ-yǒu in (4)), the wh-in-situ version with the pattern ‘only . . . wh’ is degraded, while the wh-movement version with the pattern ‘wh . . . only’ sounds natural.

(3) a. * [Mary] ONLY mwusun chayk-ul ilk-ess-ni?
    Mary-ONLY what book-ACC read-PAST-Q
    Intended: ‘What is the book-sum x s.t. only Mary read x?’
b. mwusun chayk-ul [Mary]\textsuperscript{\textit{F}}-man ilk-ess-ni?  
\textit{what book-ACC Mary-ONLY} read-PAST-Q
\textit{‘What book(s) did Mary read?’} 
(4) a. * zhí-yǒu [Mary]\textsuperscript{\textit{F}} dú-le shén-me shū?  
\textit{only Mary read-PFV what book}
\textit{Intended: ‘What is the book-sum s.t. only Mary read x?’}

b. shén-me shū zhí-yǒu [Mary]\textsuperscript{\textit{F}} dú-le?  
\textit{what book only Mary read-PFV}
\textit{‘What book(s) did Mary read?’} 
(5) Generalizations on focus intervention effects: 
   a. Degraded pattern: \textit{only} \ldots \textit{wh} \textit{wh-in-situ + focus X} 
   b. Acceptable pattern: \textit{wh} \ldots \textit{only} \textit{wh-movement + focus ✓}

In the existing literature on intervention effects, the degraded pattern (5a) has often been attributed to derivational failure (see e.g., Beck 2006; Li and Law 2016). However, it has also been pointed out that there is variation among native speakers’ judgments (see Tomioka 2007).

Inspired by works on post-suppositions (see e.g., Brasoveanu 2013; Bumford 2017), I propose a new semantics-pragmatics account for intervention effects data. Both focus items like \textit{only} and \textit{wh}-items bring relativized maximality/definiteness requirements that need to be checked at a global, sentential level, as post-suppositions. When \textit{only} and \textit{wh}-items appear together, their relativized maximality/definiteness requirements cannot be met, leading to meaning triviality in using \textit{only}. Thus the degraded pattern (5a) is not due to derivational crash, but rather meaning triviality. I also propose that the acceptable pattern (5b) has a covert distributivity operator associated with the fronted \textit{wh}-item, helping (5b) avoid triviality/uninterpretability.

The rest of the paper is organized as follows. Section 2 presents new empirical observations on how sentences with \textit{only} are interpreted, showing a crucial contrast between declarative sentences and \textit{wh}-questions. Based on these observations, Section 3 explains why a relativized reading for \textit{only} is never available in \textit{wh}-questions and accounts for the generalizations in (5). Section 4 compares the current proposal with existing studies on intervention effects and addresses advantages of the current proposal. Section 5 concludes.

2 New Empirical Observations

Here I show that when a focus item like \textit{only} appears in a declarative sentence vs. a \textit{wh}-question, the interpretations of \textit{only} are not exactly the same.
2.1 The Interpretation of Declarative Sentences with Only

Cross-linguistically, declarative sentences with only have two readings. The availability of these two readings is evidenced by our truth-value judgments of sentences in (6) under different scenarios (see (7) and (8)).

(6) Declarative sentences with only
   c. Chinese: (= (6a)) zhí-yǒu [Mary] dú-le Batman hé Sandman only Mary read-PFV Batman and Sandman

Declarative sentences in (6) are true under the scenario in (7). Under this scenario, Batman and Sandman are books that have the property of having a unique reader, Mary. In this case, what is under consideration is each atomic book \( x \) and whether the property \( \lambda x. [\text{only Mary read } x] \) holds true for \( x \).

(7) Scenario 1 (‘distributive’ scenario): Mary read all the three books, while Lucy and Nancy only read one book, Watchmen.

\[
\begin{array}{c}
\text{Batman} \\
\text{Watchmen} \\
\text{Sandman}
\end{array}
\begin{array}{c}
\text{Lucy} \\
\text{Mary} \\
\text{Nancy}
\end{array}
\]

Declarative sentences in (6) are also true under the scenario in (8). Under this scenario, no book has a unique reader. Sentences in (6) are true because Mary is unique in reading the combination of books ‘Batman and Sandman’. Here the uniqueness of Mary is based on the entire rest of the sentence, i.e., read Batman and Sandman. Only Mary is interpreted at the sentential level.

(8) Scenario 2 (‘collective’ scenario): Lucy, Mary, and Nancy each read two books. Only Mary read the combination ‘Batman and Sandman’.

\[
\begin{array}{c}
\text{Batman} \\
\text{Watchmen} \\
\text{Sandman}
\end{array}
\begin{array}{c}
\text{Lucy} \\
\text{Mary} \\
\text{Nancy}
\end{array}
\]
Therefore, each of the sentences in (6) has two readings.

In one reading, as interpreted under Scenario 1 in (7), only Mary (read) is interpreted in an **absolute** sense. The meaning of only Mary (read) is computed **locally** (i.e., the property \(\lambda x.\) [only Mary read \(x\)] is first derived), independent of the part *Batman and Sandman*.

In the other reading, as interpreted under Scenario 2 in (8), only Mary is interpreted in a **relative** sense. The meaning of only Mary cannot be fully computed until at the sentential level. The uniqueness of Mary is checked in a delayed manner, involving the information ‘*Batman and Sandman*’.

Thus sentences in (6) are reminiscent of **superlatives**, which can be interpreted in an **absolute** way vs. a **relative** way (see (9)). According to Bumford (2017), the absolute reading of *the tallest mountain* (see (9a)) is based on a local, DP-level interpretation of this superlative: the maximality/definiteness requirement is applied at the DP level and picks out the tallest mountain in the domain (e.g., in our actual world, the Everest). In contrast, the relative reading of *the tallest mountain* (see (9b)) is based on a more global interpretation of this superlative: the maximality/definiteness requirement is applied at a higher level and picks out the tallest mountain climbed by some girl.

(9) The girl who climbed the tallest mountain (see e.g., Bumford 2017)
   a. The absolute reading of the tallest mountain:
      \(\sim\) the tallest mountain in the world, i.e., the Everest
   b. The relative reading of the tallest mountain:
      \(\sim\) the tallest mountain climbed by some girl

In Section 3, I will present Bumford (2017)’s analysis of superlatives and propose to analyze focus expressions like only Mary in the same way.¹

### 2.2 The Interpretation of Wh-questions with Only

In wh-questions, if only Mary is interpreted in exactly the same way as in declarative sentences, we would expect that there are also two interpretations: a DP-level, absolute interpretation of only Mary, as well as a sentence-level, relative interpretation of only Mary. The prediction is that for wh-questions in (10), *Batman and Sandman* would be a true and felicitous answer under both Scenarios 1 and 2 (see (7) and (8)). However, this prediction is not borne out.

(10) Acceptable wh-questions with the pattern ‘wh . . . only’
   a. **What** books did only [Mary] \(F\) read? English
   b. mwusun chayk-ul [Mary] \(F\)-man ilk-ess-ni? Korean (= (3b))
   c. shên-me shū zhí-yǒu [Mary] \(F\) dú-le? Chinese (= (4b))

¹ The absolute vs. relative readings of superlatives and only Mary seem also reminiscent of scope taking. I follow Bumford (2017) and do not pursue a scope-taking-based account for them.
As summarized in (11), we intuitively feel that under Scenario 1 (see (7)), *Batman and Sandman* is a true and felicitous answer, while under Scenario 2 (see (8)), this is not a true answer. Actually, our intuition is that for Scenario 2, *wh*-questions in (10) can only be answered with *none*, because none of the books have a unique reader.

(11) Answers to the questions in (10)

a. *Batman* and *Sandman.* ✓ under Scenario 1 (see (7))  
b. *Batman* and *Sandman.* ✗ under Scenario 2 (see (8))

The contrast in (11) indicates that *wh*-questions in (10) can only be interpreted as addressing ‘which books have the property of having a unique reader, Mary’, never interpreted as addressing ‘Mary is unique in reading a certain combination of books, and what this book-combination is’. In other words, in these *wh*-questions, *only Mary* can only be interpreted in an absolute sense, but never in a relative sense.

2.3 Generalizations

When combined together, Sections 2.1 and 2.2 show that the interpretation(s) of *wh*-questions with *only* does not match exactly with the interpretation(s) of corresponding declarative sentences with *only*. As shown in (12), a sentence-level, relativized interpretation for *only Mary*, which is available for declarative sentences, is never attested for *wh*-questions. *Wh*-questions containing *only Mary* can only have a DP-level, absolute interpretation for *only Mary*.

(12) a. Declarative sentences with *only*:

(i) ✓ a DP-level, absolute interpretation for *only Mary*  
(ii) ✓ a sentence-level, relative interpretation for *only Mary*

b. *Wh*-questions with the acceptable pattern ‘*wh* . . . *only*’:

(i) ✓ a DP-level, absolute interpretation for *only Mary*  
(ii) ✗ a sentence-level, relative interpretation for *only Mary*

3 Proposal

I follow Brasoveanu (2013) and Bumford (2017)’s studies on post-suppositions and propose a post-suppositional perspective in analyzing focus items and *wh*-items (Section 3.1). Then, in Section 3.2, I explain why a sentence-level, relativized interpretation of focus items is never possible in *wh*-questions. Finally, in Section 3.3, I account for the judgment contrast between ‘*only* . . . *wh*’ and ‘*wh* . . . *only*’ (see (5)), proposing that the availability of the DP-level, absolute interpretation of focus items hinges on *wh*-movement and the use of a covert distributivity operator. After all, the pattern ‘*only* . . . *wh*’ is degraded because it has no felicitous interpretation.
3.1 A Post-suppositional View on Wh-items and Focus

Bumford (2017) adopts dynamic semantics to analyze the absolute and relative readings of superlatives. Within dynamic semantics, meaning derivation is considered a series of updates from an information state to another. Here an information state \( m \) (of type \( g \rightarrow \{g\} \)) is represented as a function from an input assignment function to an output set of assignment functions.

(13) The\(^u\) girl who climbed the\(^u\) tallest mountain

a. The absolute reading of the\(^u\) tallest mountain

\[
\lambda g. \{g^{u_{\text{def}}} \mid x = \iota x \in G \land \neg \exists z \in G. \text{TALLER}(x, z) \},
\]

where \( G = \{x \mid \text{MOUNTAIN}(x)\} \)

\[
\lambda g. \{g^{u_{\text{def}}} \mid \text{MOUNTAIN}(x)\},
\]

\[
\lambda g. \{g^{u_{\text{def}}} \mid \text{MOUNTAIN}(x)\},
\]

b. The relative reading of the\(^u\) tallest mountain

\[
\lambda g. \{g^{u_{\text{def}}} \mid x = \iota x \in G \land \neg \exists z \in G. \text{TALLER}(x, z) \},
\]

where \( G = \{x \mid \text{MOUNTAIN}(x), \text{GIRL}(y), \text{CLIMB}(x, y)\} \)

\[
\lambda g. \{g^{u_{\text{def}}} \mid \text{GIRL}(y), \text{CLIMB}(x, y), x = \iota x \in G \land \neg \exists z \in G. \text{TALLER}(x, z) \},
\]

where \( G = \{x \mid \text{MOUNTAIN}(x), \text{GIRL}(y), \text{CLIMB}(x, y)\} \)

As illustrated in (13), Bumford (2017) splits the semantic contribution of definite determiner the into two parts. In (13a), in ①, the indefinite part of the\(^u\) first introduces a discourse referent (dref) in a non-deterministic way. After relevant restrictions are added (here \( \text{MOUNTAIN}(x) \)), in ②, the definite part of the\(^u\) contributes definiteness, picking out the unique mountain that is taller than all other mountains in the domain. The absolute reading of this superlative, the tallest mountain, is thus derived.

In (13b), after the indefinite part of the\(^u\) introduces a dref in a non-deterministic way (this part is omitted in the tree), definiteness contributed by the\(^u\) is not at work immediately. It is after another dref is introduced and more restrictions are added (here \( \text{GIRL}(y) \) and \( \text{CLIMB}(x, y) \) – see the bottom right part of the tree) that definiteness tests eventually come to work. In (13b),
these delayed, post-suppositional tests pick out (i) the unique mountain that is taller than all other mountains climbed by some girl in the domain and (ii) the unique girl who climbed this unique mountain. The relative reading of this superlative, the tallest mountain, is thus derived.

Bumford (2017)'s post-suppositional account for definite determiner the in the relative reading of superlatives is in the same spirit as Brasoveanu (2013)'s account for modified numerals in cumulative-reading sentences.

(14) is intuitively true under the scenario of (15a), but false under the scenario of (15b), indicating that the interpretation of modified numerals like exactly 3 NP and exactly 5 NP should be relativized. The cumulative reading of (14) counts the cardinality of all boys that saw movies and all movies seen by any boys, not the cardinality of all boys and movies in the domain.

(14) Exactly 3\(u\) boys saw exactly 5\(\nu\) movies. Cumulative\(^2\)

exactly 3: not counting all the boys, but all boys who saw movies

Thus modified numerals in (14) work in the same way as definite determiner the in (13), with a two-fold semantic contribution. As shown in (16a), modified numerals first introduce (potentially plural) drefs, \(x\) and \(y\), in a non-deterministic way, and various restrictions are added onto these drefs. Then as shown in (16b), modified numerals contribute post-suppositions, checking definiteness and cardinality requirements (see (17) and (18)). The cumulative reading of (14) is true if \(u\) and \(\nu\) are assigned to the (mereologically) maximal boy-sum and movie-sum and their cardinalities are equal to 3 and 5.

(16) A post-suppositional analysis of modified numerals for (14)

a. Introducing drefs: \(p = \{\text{some}^u\text{ boys saw some}^\nu\text{ movies}\} = \lambda g. \{ g^{u \to x} \} \text{ MOVIE}(y), \text{ BOY}(x), \text{ SAW}(x, y) \}

b. Checking maximality and cardinality as post-suppositions:

\[ [[(14)]] = [[\text{exact}^3\text{ boys saw exactly}^5\text{ movies}]] = M_{u,\nu}(p), \text{if} |x| = 3 \land |y| = 5 \]

\[ = \lambda g. \{ g^{u \to x} \} \quad y = \sigma y, [\text{MV}(y) \land \exists x. [\text{BOY}(x) \land \text{SAW}(x, y)]] \}
\]

\[ \text{if} |x| = 3 \land |y| = 5 \]

\(^2\)Sentence (14) has also a distributive reading: there are exactly 3 boys such that each of them saw exactly 5 movies. This distributive reading is not discussed in this paper.
(17) Maximal distinct operator: (mereology-based)
\[ \mathcal{M}_\nu \overset{\text{def}}{=} \lambda m. \lambda g. \{ h \in m(g) \mid \neg \exists h' \in m(g). h(\nu) \sqsubseteq h'(\nu) \} \]

(18) Cardinality test: \( \mathcal{S}_\nu \overset{\text{def}}{=} \lambda m. \lambda g. m(g) \), if \(|g(\nu)| = 5\)

Now I show that focus items (e.g., only Mary) and wh-items work just like definite determiner the and modified numerals, with a two-fold meaning.

As shown in (19), focus item only Mary first introduces a (potentially plural) dref, \( x \) (see (19a)). Then after various restrictions are added, maximality operator \( \mathcal{M}_\nu \) and the test of Mary, are applied at the sentential level, as delayed, post-suppositional tests (see (19b)).

Similar to (17), \( \mathcal{M}_\nu \) picks out the maximal dref \( x \) such that (each atomic part of) \( x \) read Batman and Sandman (for simplicity, cumulative closure is assumed). The test Mary (see (20)) works just like a cardinality test (see (18)), checking whether the maximal \( x \) assigned to \( u \) is equivalent to Mary.

(19) A post-suppositional view on focus

A post-suppositional view on focus

(20) The test of Mary: \( \text{Mary}_u \overset{\text{def}}{=} \lambda m. \lambda g. m(g) \), if \( g(u) = \text{Mary} \)

Wh-expressions are similar to indefinites in introducing drefs and support cross-sentential anaphora (see (21); see also e.g., Comorovski 1996).

(21) Who kissed me? I want to know her name.

According to Dayal (1996)’s Maximal Informativity Presupposition, a wh-question presupposes the existence of a maximally informative true answer.

3 Also, according to Karttunen (1977), a wh-question denotes the set of its true propositional answers. In Zhang (2023b), I show that the current post-suppositional perspective on wh-questions is also in the same spirit as Karttunen (1977).
Thus, when the above two ideas are combined, the semantic contribution of wh-items should also be two-fold. As shown in (22), a wh-item first introduces a (potentially plural) dref, \( y \) (see (22a)). Then after various restrictions are added, maximality operator \( M_{\nu} \) should be applicable (see (22b)). The maximal dref \( y \) (which is picked out via the application of \( M_{\nu} \)) actually constitutes the (analytically) maximally informative true answer.\(^4\)

(22) A post-suppositional view on wh-items

\begin{align*}
&\text{The analysis of (1)}\\
&\text{Mary"-nun mwusun" chayk-ul ilk-ess-ni?}\\
&\text{Mary-TOPIC what book-ACC read-PAST-Q}\\
&\text{‘What book(s) did Mary read?’}\\
a. &\text{Introducing drefs: } p = [\text{Mary" read some" books}]\\
&\quad = \lambda g. \left\{ g^{\nu\rightarrow y}_{y\rightarrow u} \right\| \text{BOOK}(y), x = \text{MARY}, \text{READ}(x, y) \right\}\\[2ex]
b. &\text{Applying } M_{\nu} \text{ as a post-suppositional test:}\\
&\quad [(1)] = [\text{Mary" read what" books}] = M_{\nu}(p)\\
&\quad = \lambda g. \left\{ g^{\nu\rightarrow y}_{y\rightarrow u} \right\| y = \sigma y, [\text{BOOK}(y) \land \text{READ}(x, y)] \right\}\\
\end{align*}

Overall, I have shown that focus items and wh-items (i) introduce drefs and (ii) impose definiteness at the sentential-level, in a delayed, post-suppositional way. As a consequence, their interpretation is relativized, in the sense that the introduced drefs are restricted by information from the rest of a sentence, beyond the DP-level of focus items and wh-items themselves.

3.2 Accounting for Focus Intervention Effects

Now I show that when both focus items and wh-items appear in the same sentence, their relativized interpretation is impossible.

(23) Interpreting the pattern ‘only . . . wh’

\begin{align*}
&\text{The analysis of (3a)}\\
&\text{* [Mary]"-man mwusun" chayk-ul ilk-ess-ni?}\\
&\text{Mary-ONLY what book-ACC read-PAST-Q}\\
&\text{Intended: ‘What is the book-sum } x \text{ s.t. only Mary read } x?\’}\\
a. &\text{Introducing drefs: } p = [\text{some" people read some" books}]\\
&\quad = \lambda g. \left\{ g^{\nu\rightarrow y}_{y\rightarrow u} \right\| \text{BOOK}(y), \text{HUMAN}(x), \text{READ}(x, y) \right\}\\[2ex]
b. &\text{Applying post-suppositional tests:}\\
&\quad (i) \text{ First } M_{\alpha} \circ \text{Mary}_{\nu}, \text{then } M_{\nu}\\
&\quad \rightsquigarrow \text{Is Mary the only reader? What does she read?}\\
\end{align*}

\[^4\text{Here I still adopt the mereology-based definition of maximality operator (see (17)). See Zhang (2023b) for a more general, informativeness-based definition.}\]
(ii) First $M_u$, then $M_u \circ \text{Mary}_u$

$\Rightarrow$ What are all the books read by someone? Is Mary the only one who read them?

As shown in (23), focus item *only Mary* and the *wh*-item each introduce a dref, $x$ and $y$, and various restrictions are added onto them (see (23a)).

Now the post-suppositional tests brought by the focus item (i.e., $M_u \circ \text{Mary}_u$) and the *wh*-item (i.e., $M_v$) need to be applied.

As shown in (23b-i), suppose that $M_u \circ \text{Mary}_u$ is applied first, checking whether Mary is the unique reader. If the derivation passes the test $\text{Mary}_u$, $M_v$ is further applied, picking out all the books this unique reader, Mary, read.

Then as shown in (23b-ii), suppose that $M_v$ is applied first, picking out all the books read by someone. Then $M_u \circ \text{Mary}_u$ is further applied, checking whether Mary is the unique reader that read all these books.

No matter whether the derivational order in (23b-i) or (23b-ii) was adopted, *only Mary* cannot have a relativized interpretation such that the uniqueness of Mary depends on a particular book-sum. Actually the derivations in (23b-i) and (23b-ii) would yield the same results: $\nu$ is assigned to the sum of all the books read by someone, and $u$ is assigned to the sum of all the readers. Thus the *wh*-questions (3a)/(4a)/(23) amount to request information on ‘what books are read’ or ‘what books the only reader, Mary, read’. No relativized interpretation of *only Mary* can be derived, and the use of *only* is trivial.

The current analysis explains the lack of relativized interpretation of *only* in a *wh*-question and captures our intuition.

Intuitively, without knowing what books Mary read, we would not use the word *only (Mary)* to address her uniqueness immediately. Instead, we would first raise the question ‘what books did Mary read’. Then if we do know what books Mary read and are interested in whether she is unique in reading these books, we would not need to raise a *wh*-question to request information on these books, because we already know the answer.

The lack of relativized interpretation of *only* in a *wh*-question can also be considered an order conflict. Essentially, the relativized definiteness/maximality of the drefs $x$ and $y$ relies on adding more restrictions, i.e., applying post-suppositional tests in a delayed way, when more information about drefs are given (see also the analyses of superlatives in (13)). Therefore, without the information on $x$, the relativization of the definiteness of $y$ is impossible, and vice versa. In other words, the post-suppositions with regard to drefs $x$ and $y$ compete to be applied as late as possible, after the information of the other is given, thus resulting in the failure of the relativization of either one.

3.3 Accounting for the Acceptable Pattern ‘Wh . . . only’

Now I come to explain why the pattern (5b), ‘*wh . . . only*’, is acceptable.
As already shown in Section 2, the interpretation(s) of the acceptable *wh*-question ‘*wh* ... *only*’ does not fully match the interpretation(s) of the corresponding declarative sentences with *only*. The acceptable *wh*-question ‘*wh* ... *only*’ has only a DP-level, absolute interpretation for the focus item.

For ‘*wh* ... *only*’, to derive the reading with this absolute interpretation of the focus item, I propose that the fronted *wh*-item serves as the sorting key, and there is a **covert distributivity operator**, DIST, associated with this sorting key. As shown in (24), *only Mary* is interpreted locally, within the scope of the universal quantifier of DIST (see the highest node within the square frame). Eventually the application of $M_x$ picks out the maximal dref $y$ satisfying the restrictions $\text{BOOK}(y)$ and $\forall y' \subseteq \text{ATOM} \ y[\sigma x[\text{READ}(x, y)] = \text{MARY}]$, and the *wh*-question means the sum of all the books such that Mary is the unique reader for each atomic part of these books.

(24) Interpreting the pattern ‘*wh* ... *only*’

\[
\text{mwusun} \nu \text{chayk-ul} \quad \text{DIST} [\text{Mary}] \nu \text{-man} \quad \text{ilk-ess-ni}?
\]

‘What book(s) did only Mary read?’

\[
\lambda g. \left\{ \frac{y \equiv y'}{y = \sigma y \left[ \text{BOOK}(y) \land \forall y' \subseteq \text{ATOM} \ y[\sigma x[\text{READ}(x, y)] = \text{MARY}] \right]} \right\}
\]

\[
M_x \quad \text{(maximality test)}
\]

(25) $[\text{DIST}] \overset{\text{def}}{=} \lambda X. \lambda P_{(x)} . \forall x \subseteq \text{ATOM} \ X[P(x)]$

(i.e., for each atomic part $x$ in the potentially plural entity $X$, $P$ holds true for $x$.)

One more question needs to be answered: If, for the good pattern ‘*wh* ... *only*’, there can be a covert distributivity operator associated with the *wh*-item, then why cannot there be one associated with the *wh*-item for the pattern ‘*only* ... *wh*’? Here I propose to follow an existing observation in the literature: ‘plurals do not readily take “inverse distributive scope” (see Szabolcs 2010: Section 8.2 and references therein).’ The explanation of this observation is too complicated to be addressed here, and it is not directly relevant to
the current goal. As pointed out by Szabolcsi (2010), ‘It should be noted immediately that there is no logical necessity in this’, so it’s likely due to some processing-related factors (see also Szabolcsi 2010 for more discussion).

To sum up, when a focus item and a wh-item appear together, as summarized in (26), a sentence-level, relative interpretation for only is never possible (see (26a-i) and (26b-i)), while a DP-level, absolute interpretation for only hinges on the availability of a covert distributivity operator and thus wh-movement. Therefore, the pattern ‘only . . . wh’ has no possible interpretation, making this pattern degraded, while the pattern ‘wh . . . only’ is acceptable due to the availability of one interpretation (see (26b-ii)).

\[(26)\] Accounting for focus intervention effects (see (5))

a. Degraded pattern: only . . . wh
   (i) A sentence-level, relative interpretation for only
   (ii) A DP-level, absolute interpretation for only
b. Acceptable pattern: wh . . . only
   (i) A sentence-level, relative interpretation for only
   (ii) ✓ A DP-level, absolute interpretation for only

4 Discussion: Derivational Crash vs. Interpretation Difficulty

Existing studies on intervention effects do not always share the same empirical coverage, but degradedness is often attributed to derivational crash.

For example, Beck (2006)’s account for the degraded configuration (27) is based on Rooth (1985)’s focus semantics. A wh-item has its focus semantic value (i.e., a set of alternatives), but lacks an ordinary semantic value. Thus a Q operator is needed to take this focus semantic value and output an ordinary semantic value. However, for (27), (i) the focus-sensitive operator (e.g., only) blocks the association between the wh-item and the Q operator, and (ii) the focus-sensitive operator itself requires to be applied to an expression that has both a focus semantic value and an ordinary semantic value. For these two reasons, the derivation crashes.

\[(27)\] Degraded configuration analyzed in Beck (2006):

\[?*[\{Q...[focus-sensitive operator [\text{VP} . . . \text{WH}...]]]\]

According to Li and Law (2016), as shown in (28), both XP\(F\) and WH introduce alternatives, thus \([[[\text{XP}\_F...\text{WH}...]]]\) is a set of sets of alternatives. As a consequence, there is type mismatch for the application of the focus-sensitive operator, and the derivation crashes.

\[(28)\] Degraded configuration analyzed in Li and Law (2016):

\[?*[...[focus-sensitive operator [\text{XP}\_F...\text{WH}...]]]\]
Compared with these derivation-crash-based analyses, the current account has at least three empirical advantages.

First, by attributing degradedness to interpretation difficulty or meaning triviality rather than derivational crash, the current account is better in line with the observation of Tomioka (2007): there is often variation among speakers’ judgments for this kind of data. In particular, as mentioned above, the availability of a covert distributivity operator for a sentence-initial wh-item, but not for a sentence-middle wh-item, might be related to processing load.

Second, under the current account, the acceptability of the pattern ‘wh . . . only’ is not really based on its structure, but rather the availability of an interpretation (i.e., the DP-level, absolute interpretation for only). More specifically, I point out that the acceptability of the pattern ‘wh . . . only’ hinges on the sorting-key-status of the wh-item, which in turn hinges on wh-movement. Thus the current account predicts that for wh-items that cannot serve as a sorting key, the pattern ‘wh . . . only’ should be degraded as well.

This prediction is borne out. As illustrated in (29), (29a) is a good declarative sentence with only. However, if we raise a wh-question about the height information of Mary, the corresponding wh-question is degraded (see (29b)).

\begin{equation}
\begin{align*}
&\text{(29) } a. \text{ Only Mary}_F \text{ is above 6 feet tall.} \\
&\text{b. *How tall is only Mary? }
\end{align*}
\end{equation}

Given that (29b) involves wh-movement and has the pattern ‘wh . . . only’, Beck (2006) and Li and Law (2016) would still predict it to be acceptable, which is contrary to native speakers’ intuitive judgments.

Under the current account, since (29b) is a degree question, the wh-item here, how tall, does not introduce a dref in the domain of (potentially plural) individuals or entities, but rather in the domain of scalar values (i.e., degrees or intervals, see Zhang 2020, 2023a). As shown in the definition of DIST in (25), a scalar value cannot be the first argument of DIST, i.e., covert distributivity cannot be at play here. Thus the reading with the absolute interpretation of only Mary cannot be derived. As a consequence, (29b) has no reading, and its degradedness is naturally explained.

Third, the current account also predicts that as far as the issue of relativized maximality/definiteness requirements can be resolved and the use of only is not trivial, the pattern ‘only . . . wh’ should be acceptable as well. This prediction is also borne out, as evidenced by the contrast in (30).

\begin{equation}
\begin{align*}
&\text{(30) ‘only . . . wh’ in Chinese: wh-question vs. wh-conditional} \\
&\text{a. *zhī-yǒu Mary}_F \text{ dú-le } \text{shénme shū?} \\
&\quad \text{only Mary read-PFV what book} \\
&\quad \text{‘What is the book-sum x s.t. only Mary read x?’} \quad (= \text{(4a)})
\end{align*}
\end{equation}
b. Context: Mary and I have special taste in books. Only Mary is interested in the books I read and follows me to read them.

\[ \text{wǒ dú shénme shū, zhǐ yǒu Mary (yě) gen-zhe wǒ dú}
\]

I read what books only Mary (also) follow I read

\[ \text{shénme shū}
\]

what books

‘Only Mary follows me to read whatever books I read.’

In (30), both the wh-question (30a) and the wh-conditional (30b) contain the pattern ‘only . . . wh’. The wh-question (30a) has no felicitous reading and is thus degraded. However, the wh-conditional (30b) is intuitively good. Those accounts that attribute the degradedness of ‘only . . . wh’ to derivational crash would wrongly predict unacceptability for both (30a) and (30b).

For a wh-conditional like (30b), the answer to its first part (‘what books I read’) and the answer to its second part (‘what is the book-sum \( X \) such that only Mary follows me to read \( X \)’) are equivalent. Thus, the relativized definiteness of the wh-item in the second part can be resolved by the answer to the first part and independent of the focus item in the second part. Thus the order conflict in applying post-suppositional tests brought by the wh-item and the focus item can be circumvented. We first use the answer to ‘what books I read’ to resolve the deterministic update of the wh-item in the second part of the wh-conditional, and then the post-suppositional test of the focus item is applied as the last step, checking the relative uniqueness of Mary.

5 Conclusion

(Focus) intervention effects have been a hot topic in formal linguistics for decades. In this paper, I propose that both focus items and wh-items work in a way similar to definite determiner the and modified numerals. Specifically, all these items (i) first introduce drefs and (ii) then bring post-suppositions, i.e., relativized maximality/definiteness tests that need to be checked in a delayed way, at the sentential level. As a consequence, when focus items and wh-items appear together, relativized maximality/definiteness cannot be satisfied, resulting in meaning triviality for focus items. In contrast to the degraded pattern ‘only . . . wh’, which has no felicitous interpretation at all, the acceptable pattern ‘wh . . . only’ is still left with an absolute interpretation for the focus item, due to wh-movement and the sorting-key-status of the wh-item.

Compared to existing accounts, the current analysis is empirically more advantageous. For future research, I will extend the current account to explain (i) quantificational intervention effects (see e.g., Beck 1996) and (ii) weak island effects (see Abrusán 2014; Zhang 2023a for discussions on the potential connection between intervention effects and weak island effects).
Acknowledgments

I thank the organizers, reviewers, and audience of JK 30. Errors are mine. Your feedback is welcome and can be sent to zhanglinmin@gmail.com.

References


SECTION II
Oral Papers

Part 3
Corpus/Usage-based Linguistics and Discourse Analysis
“Keepwords”, the Limits of Creativity, and the Notion of the Core of an Idiom

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1 Introduction

Idioms are conventional, non-compositional multi-word expressions, a definition which encompasses everything from e.g. phrasal verbs such as *get up* to proverbs such as *Don’t count your chickens before they hatch*. Speakers employ a broad range of creative variation with idiomatic expressions.

In our investigation of idiomatic creativity (Benom 2023, Benom and Oh 2020, Oh 2018, 2020a, 2020b, 2022, Oh and Benom 2020, 2021), we have studied tens of thousands of corpus-derived creative uses of idioms in Korean, Japanese, and English (other corpus-based approaches include Langlotz 2006, Moon 1998, Tsuchiya 2013, and Wulff 2008). The impressive breadth of variation we observed led us to wonder if all components of an idiom are
potentially up for grabs, or if there are certain privileged keywords, a ‘core’
of the idiom, that is always present. Therefore, this paper reports on our at-
ttempt to address these questions: Q1) Does an idiom have a core? and Q2) If
so, what is the nature of this core? Based on our inductive approach, we use
an operational definition that asks what the relevant corpus data show us. Of
particular interest is whether a core is comprised of all the content words in
the idiom, or some subset thereof, or if it includes both grammatical and con-
tent terms (see Talmy 2000 on the importance of the distinction between the
grammatical and lexical subsystems).

We will also ask a related but larger question: Q3) What are the limits of
idiomatic creativity? In other words, at their most creative, how far can speak-
ers push it? How creative is too creative? (Q3) is especially difficult to ad-
dress with clarity, completeness, and empiricism, and therefore, among the
answers we can offer here, those for (Q3) will be the most preliminary.

The structure of the paper is as follows: after providing some background
below, which will lead us to consider one further question and to make five
predictions, we will describe our methodology in Section 2. Section 3 will
present and discuss our results, and Section 4 gives our conclusions.

1.1 Background

Idioms hold a unique place in the history of linguistic theory. They don’t fit
neatly into “building block” or “words plus rules” approaches to language,
since they are neither words nor grammar, but share aspects of both (Croft
and Cruse 2004). For this reason, they played an essential role in the birth of
construction grammar (e.g. Fillmore et al. 1988).

Idioms are famous for their fixedness or inflexibility (Nunberg et al.
1994, Langlotz 2006:5), which is sometimes taken as definitional. After all,
some canonical form must be entrenched for speakers to treat these multi-
word expressions as single units, and to serve as the basis from which crea-
tivity can be employed.

Yet, speakers do have flexibility, and recently, a broad range of idiom
uses displaying impressive creativity has been the subject of an increasing
number of investigations, including those cited in the second paragraph of
this paper. Given this robust variation, the question of whether an idiom has
keywords or a core is well-founded, though it turns the traditional mistaken
assumption that idioms are all strongly fixed on its head, asking if anything
at all is fixed.

But the terms keywords and core need to be defined carefully. In fact, we
can envision two contrasting definitions. In the first, which we adopt, key-
words are elements in the idiom which are (essentially) always present,
regardless of how far speakers go with their creativity. These keywords, and potentially the larger syntactic structure, form the idiom’s core.

The second definition is that the core is comprised of keywords which are so salient that they needn’t be mentioned. Their meaning is implied or the meaning of the idiom as a whole is unchanged when used without them.

We employed the first definition because we wanted to know if an idiom has a “backbone” or a “foundation” that is necessarily present to permit creative uses. Therefore, we refer to the keywords that we are studying as keep-words, which we define as lexical items in the canonical form of an idiom that are essentially always present, even in the most creative uses. Speakers can delete or replace other terms, but not (usually) keepwords.

This brings us to an important point. There are two distinct types of scenarios in which lexemes from the canonical form can be missing in a creative use. We refer to them as contraction (hereafter CON) and substitution (hereafter SUB). We will exemplify them with creative uses of the idiom Don’t count your chickens before they hatch.

(1) CON: Don’t count your chickens.
(2) SUB: Don’t count your chickens before the bond gets passed.

In the first example, a contracted form of the idiom is used, and before they hatch is missing. In the second, a clause is substituted into the idiom, and they hatch is missing. We treat CON and SUB as two distinct types of idiomatic creativity.

In previous work (Benom and Oh 2020, Oh and Benom 2021), we argued that most idiomatic creativity is motivated by the complexity of idioms’ multi-layered and figurative semantics, and by speakers’ need to define reference, given this web of interconnected meaning. We refer to “referential specification”, which we define as the creative use of language in order to ground the abstract, figurative meaning of an idiomatic expression in the relatively concrete context to which it is applied by specifying information about reference. We note as crucial the fact that speakers’ creativity is constrained by the requirement that the hearer must recognize that the production is intended as an instantiation of the idiom. This is, with both CON and SUB, the biggest reason why there are limits on idiomatic creativity. So we now ask in Q3 What do these limits look like in our data?

However, we will limit the scope of the present study to examining the lexical level, because that is a sufficiently complex (and rewarding) area of study. By studying the variation of most grammatical terms (cf. Tsuchiya 2013 and other corpus-based approaches, which primarily focus only on content terms), we hope to shed light on the syntax involved. However, the scope of this study prevents us from considering the syntactic structures which defy variation, and so we won’t claim to understand the core (Q2) at a syntactic
level. Fully addressing (Q3) will also require investigation of syntax, and on the limits, if any, on what types of elements can be added to an idiom. We intend to leave these issues to future research.

At this point, we will present one final question, about which we will make five predictions: Q4) Is there a difference between the terms that are not easily deleted through CON and those that are not easily replaced through SUB? First, we predict (P1) that there should be, based on two differences between the contexts.

The first difference is that CON is frequently conventionalized variation (as in (1)), while SUB often involves true creativity (i.e. the making of new meaning, as in (2)). The second difference is that, with SUB, a substituted term is a clue to the identity of the idiom. For one thing, it is nearly always the same part of speech. Furthermore, Benom (2023), a study of SUB in heart idioms in English and Japanese, finds just five types of semantic relationships between the canonical item and its lexical substitute. Speakers should be able to take advantage of these affordances in both syntax and semantics. With more clues, based on the requirements for creative idiom use we described, speakers have more leeway to employ creativity with SUB, and so we predict that they should employ CON and SUB differently.

Based on this argument our second prediction (P2) is that, since having more clues to the identity of the idiom available means more creative potential, short idioms and long idioms should behave differently with respect to CON vs. SUB.

Our third prediction (P3) is specific to CON: based on the principle of economy, keepwords should include the fewest lexemes sufficient for hearers to recognize the idiom. This means that keepwords should not co-occur frequently outside the idiom. The juxtaposition of a small number of crucial elements is all that the speaker needs to signal the idiomatic use, but a minimalistic approach won’t work if the items are often used together in other contexts. This means that we are expecting results roughly like those in (1), rather than e.g. don’t count or chickens hatch being the keepwords. In addition, we predict (P4) that content words should be the strongest keepwords under CON, as they have lower frequency than grammatical words, and therefore co-occur less often, and they also have more specific and richer semantic content, making it likely that idioms are generally identifiable through their content words.1

Our final prediction (P5) is specific to SUB: speakers should employ substitutes for the terms that can give them maximum benefits, which, as we have argued (Benom and Oh 2020), are most commonly based on assisting

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1 For idioms that have (essentially) no flexibility, all words are keepwords, and therefore this only applies to flexible idioms.
with referential clarity. Therefore, utility in assigning reference should motivate most substitutions. We will assess to what extent our predictions hold true in Section 3 below.

2 Methods

Our operational definition of idiomatic creativity is based on variation from the canonical form, which we defined by employing as many idiom dictionaries as possible for each language (following the principle of majority rules when conflicts arose). We included case markers, but ignored the type of omission which is frequent in Korean and Japanese conversation. We ignored inflectional morphology such as tense, aspect, and person marking on verbs.

Our data come from in-depth studies of eight idioms each in Korean and English, and nine in Japanese, using the largest corpus of each language we could find. For English, we used the enTenTen15 (13 billion words), for Korean, the koTenTen18 (1.7 billion words), and for Japanese, the jaTenTen11 (8.4 billion words). We tried to extract all idiomatic variation from the corpus in each case by searching for all terms in an idiom two at a time (e.g. count and hatch), within a span of 10 words of one another (5 on each side), and manually filtering the results. For both Korean and Japanese, we were successful, but the English corpus was the largest, and when we got more than 1000 results, we limited ourselves to analyzing the first 500.

Using web data is less than ideal for several reasons. Maybe the most crucial is that language use on the web is certainly different than spoken language, and therefore any conclusions we make cannot be assumed to be true for spoken language in general. But the size of the corpora is what allowed us to collect so many relevant uses. In fact, even with our huge corpora, data sparsity was still a problem for some idioms.

Previously, we had coded all data based on whether any lexical element was added, or contracted (CON), or substituted (SUB), vis-à-vis the canonical form, and whether the use shows variation in syntax. For this paper, we collected all data with the 25 idioms that was coded as CON (total = 12,498 uses for 3 languages) and SUB (total = 4,284 uses for 3 languages). Note that some uses involve both CON and SUB, and thus are present in both data sets.

2 We studied a range of idioms in all three languages, and made efforts to match idioms by number of content words and number of morphemes, but we had to make compromises due to data sparsity. Additionally, our inductive approach meant that we allowed the results to dictate that we should distinguish the short and long idioms based on their behavior. The clear cutoff line which emerged (see Section 3) meant that two idioms each from Korean and English were included among short idioms, but just one from Japanese, and that one returned few data, so we added another short Japanese idiom. This means that the group of longer idioms contains six each from Korean and English and seven from Japanese.
3 Results and Discussion

Here, we will first briefly describe the larger trends in the data, and then examine the results for short idioms before we discuss the longer idioms in more detail. To balance depth and breadth given limited space, we will detail the results for approximately half of the idioms we studied.

The big picture: 1) Most idioms had a clear core in most environments, and all had one or more strong keepwords (defined below). Even idioms returning copious data had strong keepwords. 2) Context made a huge difference for longer idioms. Of the 6 short idioms investigated all had strong keepwords, and only one clearly varied by context. As for the longer idioms (19 total; see fn. 2), all had a clear core consisting of one or more strong keepwords in CON or SUB or both. Most (12/19) had different (sometimes overlapping) keepwords in the two contexts, while others (5/19) had one or more keepwords in one context, but none in the other. This means that 17/19 had a core for a particular context, showing the striking difference between CON and SUB. Just two longer idioms had the same keepwords in both contexts (like most of the short idioms). Our predictions were upheld in nearly all cases, and we will mention the few exceptions.

As for short idioms: our data showed that idioms with at most two content words and four morphemes (we allowed the results to determine this cutoff point) have far less creative potential and stronger keepwords which don’t usually vary by context. Let’s begin with this Korean idiom:

(3) olibal-ul naymil-ta
duck.feet-ACC3 stick.out-DEC
Lit. ‘duck feet are sticking out.’
Fig. ‘play innocent, feign innocence, pretend not to know’

Here, all numbers represent the raw frequency of uses in which the form is absent in our corpora of variation. With CON and SUB combined: olibal(0) [-ul(33) naymil-ta(20)] (149) Tot:202. To explain, olibal ‘duck feet’ is never absent, and hence a strong keepword. The accusative marker -ul and naymil-ta ‘stick out’ were both missing, together, in 149 uses, and each was absent by itself 33 and 20 times, respectively. The total of 202 represents the number of uses in which any element of the idiom was missing. In some creative uses, multiple terms are absent, and because we use brackets sparingly, to preserve clarity of presentation (and because non-contiguous elements are sometimes

3 Abbreviations used: ACC = accusative, ATT = attributive, DEC = declarative, GEN = genitive, LOC = locative, NEG = negative, NOM = nominative, PFV = perfective aspect, POT = potential, PRS = present tense, TOP = topic.
absent), the total number of uses in our corpus is not necessarily equal to the sum of the absences of each lexeme in the representation.

Arbitrarily, we defined the strongest keepwords as those absent in less than 5% of relevant creative uses, and represent them in bold and underlined, as we did with *olibal* ‘duck feet’. Weaker (potential) keepwords, absent in 5-10% of relevant uses, will only be underlined. We found few of this second type, suggesting that we are capturing a real phenomenon, based on speakers’ behavior, rather than merely confirming our pre-theoretical notion.

As with most other short idioms, distinguishing CON and SUB doesn’t reveal much; CON: *olibal(0)*-[ul naymil-ta](149) Tot: 149; SUB: *olibal(0)*-ul(33) naymil-ta(20) Tot: 53. One final point to make about this idiom core, is that, under CON, the entire meaning of the idiom has been adopted by the word *olibal* ‘duck feet’ in its lexical semantics, and thus this seems to be a case of idiom wordization (Moon 1996). This is also true of the other short Korean idiom we studied. For clarity, henceforth, we will incorporate our results at the bottom of the presentation of the idiom itself. Here we show the combined results for CON and SUB.

\[ \text{CON + SUB: } \text{olibal(0)} [-i(167) \text{nelp-ta(153)}](1908) \text{ Tot:2228}. \]

Data was plentiful, and the keepword’s vigor, noteworthy. Substitutions for the adjective *nelp-ta* ‘be wide’ included *pwuli-ta* ‘act, behave’, in which *ojilap* metonymically refers to the full meaning of the idiom, and the substituted term helps to refer to someone acting in a nosy way (P5). One short English idiom showed limited variation; (CON + SUB): *bite(0)* the(67) *bullet(0)* Tot:67. The other returned just 2 contractions, so we present the results for SUB only: beat(5) around (1) the(10) *bush (0)* Tot:16.

Data sparsity was also a problem with the Japanese *tedama-ni toru* ‘beanbag-LOC take’, Lit. ‘treat like a beanbag’, Fig. ‘have someone in the palm of your hand’; (CON + SUB): *tedama(0)* -ni(3) toru(8) Tot:11. This prevents us from drawing any strong conclusions based on these results, as with *beat around the bush*. No other Japanese idioms ended up in the shorter group, so we added the following idiom:

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4 By “relevant creative uses”, we refer to the total number of contracted uses of that idiom when we are considering each potential keepword in the context of CON, total SUB when we are considering SUB, and the combined total when we are considering all absences combined.

5 We found 67 strong keepwords and 15 weaker (potential) keepwords total for all 25 idioms.
Our purpose was to try to gain some insight from additional data. This turned out to be extremely fortunate, since this idiom doesn’t behave like any of the other short ones. The remarkable gap in the amount of data between CON and SUB is a result of the conventionalized contraction tana bota (‘shelf peony’). This is interesting for several reasons. To begin, bota is not a free morpheme. It’s bound on the right, but in tana bota, it’s attached on the left. What’s more, the kanji can be used in isolation to refer to peony flowers, but they are pronounced botan in that case. Speakers have combined the reduced form with the first content word in the idiom to create a compound word which, in its lexical semantics, bears the entire idiomatic meaning, and thus this seems to be yet another case of idiom wordization (Moon 1996). It also means that we have two content elements serving as strong keepwords. This fits (P3), except that one is a bound morpheme, rather than a lexeme. With SUB, we have no keepwords, despite limited data, but those few substitutions we did find were useful in assigning reference (P5) to both the source (tana ‘shelf’; e.g. hako ‘box’) and the specific realization of the good fortune (bota-mochi ‘peony rice cake’ had substitutes such as baritou ‘Bali’), and even both at the same time, but only after giving proper context by explicitly mentioning the beginning of the idiom:

(6) tana-kara nara-nu reizouko-kara matcha-aisu  
shelf-from become-NEG fridge-from green.tea.ice.cream  
Lit. ‘not becoming from the shelf, green tea ice cream from the Fridge’  
Fig. ‘lucky green tea ice cream from the fridge’

This gives us some clues about (Q3) which fit and support our earlier claims: speakers can substitute for almost the entire idiom, as long as they make sure to cite the idiom first, so that it is activated.

In summary, the two short Korean idioms we investigated had just one extremely strong keepword each, regardless of context, and despite copious data, and we believe that they are cases of idiom wordization. We saw something similar with the Japanese idiom in (5), as a compound-noun was created from the idiom through CON, though in that case, SUB showed different behavior. We speculate that most 2-content word idioms will include both of
their content words as keepwords, and that these idioms are outliers, but more data is needed, and this is beyond our present scope. Short idioms’ behavior mostly did not match (P1), though the short vs. long contrast itself was predicted by (P2). All keepwords were content terms, including those for CON (P3, P4). (P5) was supported when data was sufficient.

Now we will look at the results for longer idioms (3 or more content words, or 2 content words and 5 morphemes). We will begin with the Japanese idiom in (7) below.

(7) me-kuso hana-kuso o warau
    eye-shit nose-shit ACC laugh
    Lit. ‘eye boogers laugh at nose boogers.’
    Fig. ‘the pot calling the kettle black’
    CON: me-kuso(2) hana-kuso(0) o warau(1)(2258) Tot:2261
    SUB: me-kuso(11) hana-kuso(10) o(0) warau(44) Tot:58

With CON, the first two content words, which don’t often co-occur elsewhere, are strong keepwords (P3, P4). With SUB, the only keepword is the accusative marker o, and the first two content terms are replaced with e.g. ma-guso ‘horse shit’ and mimi-kuso ‘ear wax’, which involve wordplay, but also ningen ‘human’ and koumuin ‘civil servant’, which helped speakers with referential clarity, and therefore are cases of referential specification (P5).

Keepwords under CON were nearly all content words (P4), whereas with SUB, grammatical morphemes were often among the strongest keepwords, as in the next two English examples.

(8) CON: beggars(0) can(31) not(33) be(8) choosers(0) Tot:72
    SUB: beggars(29) can(11) be(1) choosers(21) Tot:67

(9) CON: Put(188) the(133) cart(0) before(6) the(70) horse(4) Tot: 230
    SUB: Put(212) the(24) cart(119) before(30) the(9) horse(105) Tot: 368

In (8 CON), the only two content words, which infrequently co-occur outside the idiom, are strong keepwords (P3, P4). In (8 SUB), these same words are most frequently replaced, and be is the only strong keepword (not is a weaker one). Lexical replacements proved versatile, with e.g. an invitation to a lecture on investment practices called Borrowers can be Choosers, which uses SUB as an aid in reference (P5). Despite only containing two content words, the behavior of the idiom matches that of longer idioms, such as (9), where, again, content words are strong keepwords under CON (P4), but this time before expresses the relationship between the two. The fact that cart and horse can co-occur in non-idiomatic contexts motivates the presence of this
grammatical lexeme in the core; it is necessary to evoke the idiom. Again, it is not the frequently co-occurring put the cart that are keepwords here, just as we predicted (P3). As for SUB: the is the only strong keepword, but there are two weaker keepwords, which, just as we saw in (9 SUB), suggest that speakers are preserving a skeleton of the larger structure, so they can be creative with the other elements. Substituting for cart by using wordplay such as cartel or Descartes was popular, but so were examples like putting the renewable energy bandwagon before the cart, and in most cases, the replacement helped with reference (P5), apart from a few examples of a dialectal difference which we coded as SUB (carriage for cart). Similar behavior was observed for the Japanese idiom in (10).

(10) sendou ooku-shite fune yama-ni noboru
    captain many-do boat mountain-LOC climb
    Lit. ‘(If you) make many captains, the ship will climb the mountains.’
    Fig. ‘Too many cooks spoil the broth.’
    CON: [sendou(3) ooku-shite(5)]
    [fune(13) [[yama(1) ni(26) noboru(2)]](2)](167) Tot: 219
    SUB: sendou(1) ooku-shite(138)
    [fune(6) [yama(6) ni(13) noboru(34)](21)](3) Tot: 222

With CON, speakers preserve the first clause, which consists of two content words (P4), which, considering that these words seem unlikely to co-occur outside the idiom, is enough to trigger the idiom (P3), but with SUB, they instead keep the first noun of each clause, ‘captain’ and ‘ship’, elements which frequently co-occur outside the idiom, allowing them to achieve two objectives: 1) to preserve the structure as a whole, as a kind of skeleton, and 2) to permit reference to both cause (ooku-shite ‘make many’) and effect (yama-ni noboru ‘climb the mountains’) (P5).\(^6\)

The larger grammatical structure is also implied by the keepword with SUB in this next Japanese idiom:

(11) kare ki mo yama no nigiwai
    dry tree also mountain GEN bustle
    Lit. ‘Dead trees are also (part of) the bustle of the mountain.’
    Fig. ‘It’s better to have something boring than nothing at all.’
    CON: [kare ki mo(7) yama(11) no(15) nigiwai(1)] Tot: 34
    SUB: kare(11) ki(18) mo(8) yama(11) no(1) nigiwai(8) Tot: 46

\(^6\) Lack of space prevents us from showing examples of these, but in translation, e.g. ‘the ship will go to the mountains’ is replaced with ‘disagreements may drag on until the end’.
With CON, the only keepword is a content word (P4), but such extreme minimalism wasn’t necessarily predicted by (P3). With SUB, a creative speaker can replace any of the content words with a substitute, but tends to preserve the grammatical structure of the genitive NP by keeping the genitive marker no. We see replacements that help in assigning reference (P5), including, for kare ki ‘dead trees’, gareki ‘debris’ and gomi ‘trash’. Again, however, the lack of data makes us hesitant to come to any strong conclusions.

The final Japanese idiom we can discuss here is presented below.

(12) se ni hara wa kaerarenai
back LOC stomach TOP change.POT.NEG
Lit. ‘You can’t replace your back with your stomach.’
Fig. ‘You can’t make an omelet without breaking eggs.’
CON: se(0) ni(0) hara(1) wa(80) kaerarenai(50) Tot: 131
SUB: se(24) ni(27) hara(8) wa(97) kaerarenai(39) Tot: 195

In (12), notice the relatively frequent substitution for elements that are strong keepwords under CON, showing the benefits of having a substituted lexeme as a clue to the idiom – just the type of results we predicted (P1). With CON, the first two content words, and the grammatical marker linking them, are keepwords. This is motivated by the fact that the two content words co-occur in other contexts, but with the locative marker ni linking them, they always instantiate the idiom (P3, P4). Substitutes for se (‘back’) included references to real-world sacrifices, kishu ‘model’ (e.g. of a phone) and yume ‘dream’ (P5).

Everything we have described to this point speaks to the limits of idiomatic creativity (Q3), but we would like to mention two common patterns in our data which reveal some more of those limits. The first is THIS OR THAT. One example can be found in the following results. CON: Penny(24) wise(25) and (292) pound (78) foolish (80) Tot: 297. In this case, there are no keepwords, since speakers either contract the idiom to penny wise or to pound foolish. The latter is used metonymically to express the full idiomatic meaning, but the former is used with a positive sense, to express only that part of the idiomatic meaning with which the lexemes correspond (see the typology of idioms in Nunberg et al. 1994, and see Oh and Benom 2021 on types of idiomatic contraction).

The second pattern we find is THIS AND THIS OR THAT, such as in the SUB results in (11) above, in which the genitive marker and any of the other lexemes (and a lexical substitute) were sufficient to activate the idiom. The content words were replaced one at a time, showing the great flexibility speakers had. THIS AND THIS OR THAT is also found in the results for SUB shown for the Korean idiom below.
Observe the number 1 just before the total. It means that speakers either substitute for \textit{pwul-i} or \textit{tteleci-ta} without a problem, but not both. If you replace all of \textit{pwul-i tteleci-ta} there won’t be enough clues left to understand that it is a use of the idiom – even with the strong keepword. So, the strategy we see is that speakers keep the first content word (\textit{paltung}) plus either of the other two content words/ phrases. The number 1 before the total represents an either/or meaning that is even more essential to the core of the idiom than the strong keepword, given their respective totals. With respect to (P5), the substitutes employed helped speakers with reference, including, for \textit{pwul} ‘fire’ (the urgent issue), \textit{kumyungwiki} ‘financial crisis’, and for \textit{tteleci-ta} ‘fall’ (which refers to the problem “arriving” or becoming reality), \textit{heykyelhata} ‘solve’ (referring to the resolution of the urgent issue).

The final Korean idiom space permits us to present is in (14) (cf. (7)).

With CON, the first two content words are weak keepwords. This is generally consistent with (P3, P4), given that they don’t frequently co-occur elsewhere, but regarding their lack of strength as keepwords, we suggest that this flexibility is attributable to the idiom’s length (seven content words), which simply provides speakers with more resources. With SUB, the structure of the whole is preserved by the repetition of \textit{mwut-un} with the nominative marker in between the two uses, allowing speakers to creatively substitute for other elements. The first word (\textit{ttong}) is a taboo term, and therefore most substitutes were based on the principles of taboo avoidance, the most common replacement being \textit{mwe} ‘something’. This was not in our predictions.
(P5), but it is well-motivated. Speakers also primarily used *mwe* ‘something’ to replace *kye* ‘chaff’; we would speculate that it is a way of preserving the larger, parallel, structure, but we admit that this is a post hoc explanation. Most other SUB was motivated by referential specification, however, as speakers replaced either use of *kay* ‘dog’ (e.g. with *Naver*, a Korean IT company), or the specific action of the first dog (the verb *namwula-n-ta*, replaced by e.g. *sengnayta* ‘be angry at’).

As our final English idiom, we will show the results for the idiom discussed above in (1–2).

(15) CON: do(329) not(263) **count**(9) your(71) **chickens**(7) before(198) they(207) hatch(195) Tot: 348
SUB: do(114) not(35) **count**(1) your(291) chickens(39) before(28) they(44) hatch(36) Tot: 369

With CON, speakers use the first two content items (P4) as keepwords, and these are sufficient to activate the idiomatic meaning (P3). With SUB, the verb is the anchor, allowing speakers to use substitutes to refer to a wide range of roles (P5), including the one who is possibly assuming too much (*your*, replaced with e.g. *its, their*), what that they are relying on (*chickens*, replaced with *conspiracies, rate hikes, teachers*), and the specifics of their potential fruition (*hatch*, replaced in e.g. … *before he is in custody, before the bond gets passed*).

At this point, we will summarize how our predictions fared. (P1) stated that CON and SUB would show different results, and it was strongly validated. (P2) said that short and long idioms would behave differently, and they did, though there were 3 idioms of the 25 that did not fit the behavioral tendencies of their length. (P3), for CON, was that keepwords should not co-occur frequently outside the idiom. It turned out that this principle is precisely what is needed to motivate the patterning with longer idioms, in addition to the tactic of “use the first content words”.

For instance, consider *put the cart before the horse*, in (9 CON) above. If speakers were to keep only the first few words in a contraction, it would be insufficient to predict the idiom, since *put and the and cart* are frequently used together in various contexts. So, speakers use the 2nd and 3rd content words, but even that is not sufficient without the preposition. *Cart, before, and horse* used together (and in that order) are strong predictors of the idiom. In this and other cases, if the keepwords are the first content words, they don’t

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7 To re-iterate, this total refers to the total number of *uses* with CON. Absences are represented here without brackets for clarity, and since a single use can include multiple contracted elements, the total of the individual items does not equal the total number of uses.
co-occur frequently outside the idiom, and if keepwords aren’t the first few content words of an idiom, we can motivate them in this way, showing that (P3) was also strongly affirmed. (P4) was another great success, since nearly all keepwords under CON were content words, and exceptions seemed well-motivated based on (P3). As for (P5), we showed that the majority of substitutions were motivated by referential specification, apart from a small number of cases, some of which were motivated by other, clear factors (such as taboo avoidance). Our five predictions were all upheld.

4 Conclusions and Looking Ahead

Here, we began by asking (Q1) if an idiom has a “core”, and (Q2) what that core looks like in our data. All 25 idioms we studied showed a clear, strong core, but not in all contexts (CON vs. SUB). All 25 had one or more strong keepwords (as defined in Section 3) in at least one context. Most short idioms had strong keepwords that did not change based on context. Of the 19 longer idioms, just two showed the same type of pattern, with the same, strong keepwords in both CON and SUB, while 12 had different (sometimes overlapping) strong keepwords for the different contexts, and 5 had one or more strong keepwords in one context only. As for (Q2), everything in the paragraph below on (Q3) below, and indeed, all of Section 3, is also part of our answer, but we cannot yet claim to understand the syntax of the core.

We looked at (Q3) the limits on idiomatic creativity, and we gained insight into many facets of the answer, including a) that keepwords are a real phenomenon, and that idioms, overall, have a core of the type we defined, b) the key role played by the requirement to maintain sufficient clues to invoke the idiom, which we showed works differently with CON (with keepwords being key content words which infrequently co-occur elsewhere) and SUB (with keepwords that preserve the syntactic skeleton of the whole, including many grammatical terms), including the strategy of citing the idiom in order to substitute for all content words, and c) the relevance of referential specification with SUB, as a motivation to shape the limits of what speakers can do, and need to do. Finally, d) we observed patterns such as THIS OR THAT and THIS AND THIS OR THAT. A fuller answer for (Q3) awaits future research.

Our predictions, repeated here, were almost entirely accurate, although there were some exceptions: (P1) there was a difference between CON and SUB, but mostly for longer idioms; (P2) short and long idioms did behave differently, with just 3 exceptions among the 25 idioms; (P3) with CON, the fewest lexemes sufficient to recognize the idiom were the keepwords; (P4) with CON, keepwords were content words; (P5) with SUB, non-keepwords were those most helpful with referential specification. We found that these
predictions, along with the principle of using the first content words of an idiom, motivated nearly all the patterns in our data.

References


Crosslinguistic and Crosscultural Similarities and Differences in Rhetorical Structure of Narratives: A Comparative Study of English and Korean Oral Narratives

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1 Introduction

Crosslinguistic studies of narratives have argued that differences in conventionalized narrative structure and style exist across languages and cultures (Berman 2001; Berman and Slobin 1994; McCabe and Bliss 2003; Minami 2002; Chafe 1980; Tannen 1980, 1993). Previous studies have maintained
that Anglo-American narratives tend to prefer a topic-centered chronological structure of a single event with rich descriptions of characters’ mental and emotional states, whereas East Asian narratives tend to combine multiple events that are similar in the same story and lack explicit reference to characters’ psychological states or evaluative comments (Kang 2003; Kuntay and Nakamura 2003; Minami 2002; Song 2017). For example, Kang (2003) examined Korean and English speakers’ oral narratives elicited through the picture book *frog where are you?* and found that Korean narratives were shorter and contained fewer evaluations than English narratives. Kang (2003: 131) attributes this to the different socialization patterns by Korean and American mothers: “Since Korean mothers elicit significantly less evaluation and descriptive information from their children than American mothers (Mullen and Yi 1995), it is also likely that Koreans may elaborate less than the native English speakers in their Korean or English narratives.” Similar observations have been made about Chinese and Japanese mothers (Han et al. 1998; Minami and McCabe 1995; Wang and Yang 2023). In addition to the suppressed expressives and evaluatives, Korean narratives have been claimed to have a different overall plot structure. Song (2017) used a comparison of two Korean folktales and their English translations to argue that Korean narratives often have a double peak contrastive structure (Longacre 1981). She notes that the second, parallel peak in the non-linear rhetorical structure could be perceived as a digression by American readers, whose typical narrative patterns involve the main character’s problem-solving and goal-oriented actions (Connor 1998).

This paper investigates whether these types of claims made in the literature—that East Asian narratives are less expressive and have different rhetorical structures than Anglo-American narratives—are replicable and thus valid. I report the result of a comparative analysis of oral narratives by Korean and English speakers elicited through a film retelling task, which showed that Korean and English narratives are more similar than previously thought. The data was analyzed in terms of a fine-grained coding scheme, expanding the existing empirical coverage. The results also contribute to a new understanding of crosslinguistic and crosscultural variations in narrative structure. Previous studies are either purely descriptive, or they tend to explain the results in terms of input differences in childhood. This only moves the question one step higher; it does not explain why Korean mothers are less expressive than American mothers in the first place. The results of the current study suggest that a systematic viewpoint/perspective variation explains different linguistic behaviors of the two language groups better than input difference resulting from varying cultural values and practices.
2 Methods

2.1 Participants
There were overall twenty participants: ten Korean speakers and ten (American) English speakers. The native Korean speaker participants (20s and 30s) consisted of graduate and undergraduate students studying at a major public university in the U.S. All of them grew up in monolingual Korean households and attended high school or college in Seoul, Korea. The native English speakers were undergraduate and graduate students in their 20s and 30s at the same university. All of them grew up in monolingual English households and had no dominant second language.

2.2 Stimulus
Oral narrative data were collected from the participants through a silent film-retelling task using the edited version of the film *Modern Times* (1936), which was broken down into two parts. The first half of the film, which was 14 minutes long, introduces the main characters, Charlie Chaplin (playing the Tramp character) and an orphan girl. Chaplin’s character gets released from the prison after preventing a drug gang’s escape and finds a job at a shipyard, but he gets fired after making a mistake. The orphan girl loses her father during a police crackdown on a protest and runs away to escape being placed into an orphanage. In the second half, which is 11 minutes long, the two characters run into each other while the girl is trying to survive, and Chaplin is seeking another prison sentence. This half of the film includes four episodes with a variety of locations and times, different configurations of actors, and a sequence of events (See Table 2 below for a more detailed episode structure).

2.3 Procedure
In each elicitation session, the participant and his/her interlocutor watched the first half of the film together, after which the interlocutor left the room while the participant watched the second half. When the interlocutor returned, the participant told her/him what happened in the rest of the film. The elicitation method created a genuine and natural communication situation because the participant had to convey new information to the interlocutor, but they also shared previous common knowledge. The sessions were audio recorded, and the recorded oral narratives were digitally transcribed with all original forms preserved.
2.4 Coding Schemes and Research Questions

To find out whether Korean narratives are less expressive and have different rhetorical structures than American narratives, I coded the data in terms of the following questions.

1) Number of clauses: Did Korean speakers produce a fewer number of clauses than English speakers?
2) Narrative structure: Did Korean speakers omit any plot events? Did they employ a different episode structure than English speakers?
3) Events vs. descriptions: Did Korean speakers use a fewer number of descriptive clauses than English speakers?
4) Characters’ psychological states: Did Korean speakers make fewer references to the characters’ thoughts and feelings than English speakers?
5) Perspectives and evaluations: Did Korean speakers shift the point of view from themselves to a character less or more frequently than English speakers? Did Korean speakers use expressives indicating their own judgment (evaluative adjectives and adverbs, epithets, etc.) less frequently than English speakers?

3 Data Analysis

3.1 Number of Clauses

The collected narratives were divided into clauses. Each clause contains one finite main predicate, describing a single event or state located on the narrative timeline. Subordinating clauses, such as embedded clauses under an attitude verb, relative clauses, and infinitive clauses (in order to, etc.), were not coded as an independent clause, whereas coordinating clauses (because, and, so, while, etc.) were coded as an independent clause. (1) is an English example and (2) is a Korean example of this coding.

(1) a. So, we saw the girl that was destitute, right? (C1)
   b. And Charlie Chaplin is, um, trying to get himself back into prison, (C2)

(2) a. pwumo epsnun yeca-ka ppangcip ka-se (C1)
   parents not-have girl-Nom bakery go-and 1
   ‘The orphan girl went to a bakery and’
   b. ppang-ul hwumch-yess-nunteyyo. (C2)
   bread-Acc steal-Past-Dec
   ‘stole bread.’

1 The abbreviations in the glosses are as follows. Nom: Nominative case, Acc: Accusative case, Top: Topic, Past: Past tense, Dec: Declarative.
Table 1 presents the number of clauses produced by each participant.

<table>
<thead>
<tr>
<th>Participant</th>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>Participant 2</td>
<td>31</td>
<td>21</td>
</tr>
<tr>
<td>Participant 3</td>
<td>21</td>
<td>167</td>
</tr>
<tr>
<td>Participant 4</td>
<td>46</td>
<td>49</td>
</tr>
<tr>
<td>Participant 5</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Participant 6</td>
<td>81</td>
<td>62</td>
</tr>
<tr>
<td>Participant 7</td>
<td>65</td>
<td>101</td>
</tr>
<tr>
<td>Participant 8</td>
<td>55</td>
<td>32</td>
</tr>
<tr>
<td>Participant 9</td>
<td>35</td>
<td>54</td>
</tr>
<tr>
<td>Participant 10</td>
<td>37</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total/Average/SD</strong></td>
<td><strong>432/43.1/18.911</strong></td>
<td><strong>576/57.6/45.026</strong></td>
</tr>
</tbody>
</table>

Table 1. Number of clauses

Contrary to the previous studies, Korean speakers as a group produced more clauses than English speakers as a group. Large SDs indicate that there were more individual variations than group variations. A t-test showed that there was no significant difference between the Korean and the English groups at the 0.05 significance level (p = 0.366). A pure number of clauses, however, does not reveal much about the crosslinguistic differences between the two languages. What is noteworthy is that Kang’s (2003) result, such that Korean narratives were shorter than English narratives, was not replicated in this study. This discrepancy could be attributed to the different experimental tasks, as Kang’s study was based on a picture description task and mine was a film retelling task. However, it is unlikely that Korean speakers had better short-term memory than English speakers at the time of data collection. Their ages and educational backgrounds were similar. The participants were encouraged to take notes while watching the film, so memory constraints presumably did not have a significant effect in their production.

### 3.2 Episode Structure

The second research question is whether Korean and English narratives have different plot structures. To investigate this issue, the data were coded in terms of the episode structure of the stimulus film, given in Table 2. The film is divided into four episodes consisting of ten scenes following Kim (2000: 88), who draws an episode boundary, based on Chafe (1987), between shifts in location, time, characters, and the overall event structure. If a change in all of these elements occurs, then an episode boundary is drawn. If there is a change in just one of them, a sub-episode or a “scene” boundary is drawn.
<table>
<thead>
<tr>
<th>Episode 1</th>
<th>Scene 1-1</th>
<th>Location</th>
<th>Characters</th>
<th>Main events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In front</td>
<td>The girl,</td>
<td>The girl steals bread; the witnesses alert the baker; the baker chases the girl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of the</td>
<td>the baker,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bakery</td>
<td>the passerby witness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Scene 1-2 | On the street | The girl, the baker, the passerby witness, Chaplin, a police officer | The girl runs into Chaplin; Chaplin claims responsibility for the theft to the police officer; the baker and the passerby witness refute the claim; the police officer chases after the girl. |

| Episode 2 | Scene 2-1 | In a restaurant | Chaplin, the cashier, a police officer | Chaplin eats a lot of food without paying; Chaplin calls in a passing police officer and asks him to arrest him. |

| Scene 2-2 | Outside the restaurant | Chaplin, the police officer, the owner of a kiosk, two children | The police officer calls for a paddy wagon; Chaplin gets a cigar from the kiosk and gives away sweets to children passing by. |

| Episode 3 | Scene 3-1 | In the paddy wagon | Chaplin, a police officer, the girl, crowd | Chaplin gets on the paddy wagon; later the girl gets aboard; Chaplin yields his seat to the girl who is weeping, and consoles her; the girl attempts to escape; the vehicle makes a wide turn and drops the girl, Chaplin and the officer. |

| Scene 3-2 | On the street | Chaplin, the girl, the police officer | Chaplin hits the police officer on the head, knocking him unconscious; Chaplin urges the girl to get away; the girl invites Chaplin to accompany her. |

| Scene 3-3 | In front of a middle-class house | Chaplin, the girl, a husband and a wife, a police officer | Chaplin and the girl take a rest in front of the house; the couple comes out of the house; Chaplin and the girl envy the couple and talk about their lives and future; |
Episode 4
Scene 4-1  On the street  Chaplin, the girl  The girl tells Chaplin that she has found a house.

Scene 4-2  In the dilapidated house  Chaplin, the girl  Chaplin and the girl go to the dilapidated house; Chaplin sleeps in an out-house; the girl serves breakfast for Chaplin.

Scene 4-3  On the road  Chaplin, the girl  Chaplin and the girl walk towards the horizon.

Table 2. Episode structure of the stimulus film

Each narrative was coded in terms of the scenes, and missing scenes were identified. Table 3 presents missing scenes (marked by scene numbers in Table 2) in each narrative.

<table>
<thead>
<tr>
<th>Participant</th>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-1, 2-2, 3-2, 3-3, 4-2, 4-3</td>
<td>3-3</td>
</tr>
<tr>
<td>2</td>
<td>1-1, 2-1</td>
<td>2-2, 3-2, 4-3</td>
</tr>
<tr>
<td>3</td>
<td>2-2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4-1</td>
<td>2-1, 2-2, 3-2</td>
</tr>
<tr>
<td>5</td>
<td>3-2, 4-1, 4-3</td>
<td>2-2, 3-2, 4-3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2-2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4-3</td>
<td>2-2, 3-2, 4-3</td>
</tr>
<tr>
<td>9</td>
<td>1-1, 2-2, 3-2, 4-1</td>
<td>4-3</td>
</tr>
<tr>
<td>10</td>
<td>4-3</td>
<td>2-2, 3-2, 4-3</td>
</tr>
</tbody>
</table>

Number of missing scenes/Average/SD

<table>
<thead>
<tr>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>20/2/1.825</td>
<td>17/1.7/1.418</td>
</tr>
</tbody>
</table>

Table 3. Narrative structure

There was no significant difference between the two groups (p = 0.73). In the English group, only one participant described all of the scenes. The rest omitted two scenes on average. The only scenes that were present in every English narrative were the girl meeting with Chaplin on the street and also in the police wagon, which the participants considered plot events. Chaplin giving a cigar and chocolate to a kid was perceived as relatively unimportant, as demonstrated its omission in four of the narratives. The last scene was also excluded by four participants, who simply concluded their narrative with ‘they lived happily ever after’.

In the Korean group, three participants included all scenes in their narratives. Like English narratives, the scenes that were present in all of the Korean narratives were the girl meeting with Chaplin on the street and then again in the police wagon. In addition, the following scenes were present in
all Korean narratives: the girl stealing bread, she and Chaplin sitting in front of a middle-class house talking, her telling him that she found a house, and them going to the house. Korean speakers in general provided a more detailed account of the story. Similar to the English narratives, Chaplin giving a cigar and chocolate to a kid and the last scene were omitted by five participants. Four Korean speakers ended the narrative with ‘they lived happily’ or ‘it was a happy ending’. It appears that events perceived to be important to or less crucial for the plot were the same for both groups.

3.3 Foreground and Background

Narratives consist of foreground and background clauses (Hopper 1979; Labov 1972). Foreground clauses are typically telic event descriptions that move the narrative time forward, whereas background clauses are lexical or grammatical states (e.g., progressive, perfect, modality), which do not move the narrative time forward but instead provide elaborations to the plot events. Background clauses remain outside the narrative timeline (Dry 1983; Kamp and Rohrer 1983; Kamp and Reyle 1993; Partee 1984). Examples from the data collected are given below.

(3) a. she showed him this kind of shack they had going on (Foreground)
   b. and it was kind of their makeshift version of the life that they saw prior (Background)

(4) a. kulayse yeca-ka palkyenha-n cip-ey kathi ka-ss-nuntey so woman-Nom find-RC. house-to together go-Past-and (Foreground)
   ‘So they went to the house the woman found together but’
   b. cip-i toykey heswulhay-se (Background)
   house-Nom very shabby-so
   ‘the house was very shabby.’

Table 4 presents the number of background clauses in English and Korean narratives. According to previous claims, English Speakers should be expected to produce more background clauses than Korean speakers.

---

2 Telic event descriptions are those with inherent endpoint, e.g., cross, die, whereas atelic event descriptions lack inherent culmination, e.g., run, swim.
<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>11/24 (45.8%)</td>
<td>1/28 (0.3%)</td>
</tr>
<tr>
<td>Participant 2</td>
<td>8/31 (25.8%)</td>
<td>5/21 (2.4%)</td>
</tr>
<tr>
<td>Participant 3</td>
<td>5/21 (23.8%)</td>
<td>68/167 (40.7%)</td>
</tr>
<tr>
<td>Participant 4</td>
<td>11/46 (23.9%)</td>
<td>7/49 (14.3%)</td>
</tr>
<tr>
<td>Participant 5</td>
<td>6/36 (16.6%)</td>
<td>7/32 (21.8%)</td>
</tr>
<tr>
<td>Participant 6</td>
<td>25/81 (30.8%)</td>
<td>20/62 (32.3%)</td>
</tr>
<tr>
<td>Participant 7</td>
<td>18/65 (27.6%)</td>
<td>17/101 (17%)</td>
</tr>
<tr>
<td>Participant 8</td>
<td>6/55 (10.9%)</td>
<td>9/32 (28%)</td>
</tr>
<tr>
<td>Participant 9</td>
<td>9/35 (25.7%)</td>
<td>8/54 (14.8%)</td>
</tr>
<tr>
<td>Participant 10</td>
<td>10/37 (27%)</td>
<td>5/30 (16.7%)</td>
</tr>
<tr>
<td><strong>Total (Percentage)</strong></td>
<td><strong>109/432 (25.2%)</strong></td>
<td><strong>147/576 (25.5%)</strong></td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>9.09</td>
<td>9.09</td>
</tr>
</tbody>
</table>

Table 4. Background clauses

English and Korean groups used approximately the same amount of background clauses and no significant difference was detected \(p = 0.27\). Much like the number of clauses, individual variation in the number of background clauses was greater than group differences. English speakers did not provide any more background information and elaboration than Korean speakers did.

### 3.4 Character’s Psychological States

In principle, it is impossible to know a third person’s inner thoughts or feelings unless they are overtly expressed. The narrator, however, can have a privileged status in the story as an “omniscient” observer and mind reader. Not all third-person narratives are omniscient narrative. Some literary critics reserve the term “omniscient narration” for eighteenth- and nineteenth-century authors. Abbott (2008: 73) argues that even for these authors, the narration itself, unlike the omniscient narrator, is not omniscient at all. As previously mentioned, existing studies claim that Anglo-American narratives tend to provide rich descriptions of characters’ mental and emotional states, whereas East Asian narratives lack explicit reference to characters’ psychological states. To find out whether this is true for the data collected, I tallied expressions of characters’ psychological states. Overt speech events and purpose clauses were excluded from this coding. Examples are given below.

(5) a. she passes a bakery and **realizes** that there's a truck out front
   b. so then, um, they're like he tells her that he was the one that like was from the bakery or whatever and she **gets really sad**
As Table 5 shows, neither English nor Korean speakers described a character’s psychological state very frequently. Therefore, the previous claim that English speakers are more expressive than Korean speakers was not replicated. The participants overall did not seem to see themselves as an omniscient narrator.

3.5 Perspectives and Evaluations

A point of view refers to a temporal and spatial vantage point from which the events in the story are observed, described, interpreted, and evaluated. In everyday conversational discourse, the perspective is indistinguishable from the utterance context. In narratives, on the other hand, the narrator has a choice. The participants in this study described the film either from their
own perspectives anchored in the context of utterance (first-person or ego-centric perspective), or from the perspective of the story embedded in the context of narrative (narrative or allocentric perspective). (7) and (8) are examples of the first-person perspective from each language, in which participants reported what they saw, making frequent comments about the film itself.

(7) a. and then it ended with them walking off, kind of, into the sunset you could say, even though it was black and white but that's kind of how I saw it.
   b. and then they're off trying to get their American dream with their, their own house and their own things and it's really heartwarming and adorable, and it's really sweet.

(8) a. ney yeeca-ka ku chang pakk-ul po-myense ku woman-Nom that window outside-Acc see-while that ppangcip an-ul po-myense ku.. ppang-kathun ke-l bakery inside-Acc see-while that bread-like thing-Acc mek-ko siphehanun cangmyen-i iss-ess-eyo. eat-like-RC scene-Nom be-Past-Dec 'yes, there was a scene where the woman was looking outside the window into a bakery and longs to eat something like bread.'
   b. nam-uy cip matang. cheumey-nun cantipath cangmyen-man other-Gen house yard first-Top grass scene-only po-yese kuke-y matang-inci molu-ko kongwen-ilako seen-since that-Nom yard-whether not-know-and park-is sayngkakul hay-ss-nuntey hwamyen-i tasi twi-lo think-Past-but scene-Nom again back-toward ppace-myense twi-ey cip-i poi-icey ku nam-uy fall-while back-in house-Nom seen-and now that other-Gen cip cengwen-ilanun key ku ttay icye poi-key tway-yo. house garden-be-RC thing that time now seen-become-Dec 'Someone else’s front lawn. At first, I could only see grass, so I thought it was a park, but then the scene expanded toward the back, and then I could see that it was someone else’s lawn.'

The first-person perspective promotes the use of expressives—exclamations like yes, hedges like kind of, epithets like the poor woman, and evaluative adjectives like damn, and speaker-oriented adverbs like perhaps that do not contribute to the truth condition of the proposition, but instead describe the narrator’s attitudes or the emotion.

Narratives adopting the third-person perspective, by contrast, contain no or few mentions concerning the narrator’s perception. A narrative was
coded as third-person perspective if the film commentary was restricted to the very beginning and the very end of the narrative. Examples are given below.

(9) She—-they bumped into each other, and the owner caught the girl and then the police officer came and the owner told the police officer that she stole his bread and Charlie Chaplin said, "No she didn't." That he did. So they took Charlie Chaplin, they arrested him, and then the lady who saw the girl take the loaf of bread, she told the owner it wasn't the man it was the girl, so the owner went after the girl and told the police officer it was a girl not the guy, uh, Charlie Chaplin, and then they took the girl

(10) κυ σόνυε-κα ππάνγ-ο-λ ηώμχι-εσ τομάνγκα-τάκα κυ ππάνγ; that girl-Nom bread-Acc steal-and run-while that break owner-by κωου-βάντη κελλι-εσ τομάνγκα-τάκα χαλλι-καυφιλιν-κακο that-and run-while Charlie Chaplin-with run.into-Past-but ππωυτιτσ-κες-νοντι Κυ ττάι τιγγχαλ-ι κκοχαψ-εσ-εγο. that time police-Nom chase-Past-Dec ‘The girl, while running away from the bakery owner after stealing bread, ran into Charlie Chaplin, but at that time the police came chasing her.’

Table 6 presents the dominant perspective (1st person vs. 3rd person) and the number of evaluative and commentary clauses.

<table>
<thead>
<tr>
<th>Participant</th>
<th>English</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1st person, 6/24 (25%)</td>
<td>3rd person, 1/28 (3.6%)</td>
</tr>
<tr>
<td>2</td>
<td>1st person, 12/31 (38.7%)</td>
<td>3rd person, 0/21 (0%)</td>
</tr>
<tr>
<td>3</td>
<td>1st person, 3/21 (14.3%)</td>
<td>1st person, 35/167 (20.9%)</td>
</tr>
<tr>
<td>4</td>
<td>3rd person, 1/46 (2.2%)</td>
<td>3rd person, 4/49 (8.2%)</td>
</tr>
<tr>
<td>5</td>
<td>1st person, 4/36 (11.1%)</td>
<td>3rd person, 4/32 (12.5%)</td>
</tr>
<tr>
<td>6</td>
<td>1st person, 25/81 (30.9%)</td>
<td>3rd person, 6/62 (9.7%)</td>
</tr>
<tr>
<td>7</td>
<td>1st person, 16/65 (24.6%)</td>
<td>1st person, 5/101 (4.9%)</td>
</tr>
<tr>
<td>8</td>
<td>3rd person, 1/55 (1.8%)</td>
<td>3rd person, 0/32 (0%)</td>
</tr>
<tr>
<td>9</td>
<td>1st person, 11/35 (31.4%)</td>
<td>3rd person, 1/54 (1.8%)</td>
</tr>
<tr>
<td>10</td>
<td>3rd person, 1/37 (2.7%)</td>
<td>3rd person, 0/30 (0%)</td>
</tr>
<tr>
<td>Total (Percentage) SD</td>
<td>80/432 (18.3%) 13.6</td>
<td>56/576 (6.1%) 6.8</td>
</tr>
</tbody>
</table>

Table 6. Perspectives and evaluations

English speakers preferred the first-person point of view, anchored in the context of utterance (7 out of 10), whereas Korean speakers preferred the
third-person point of view, anchored in the narrative context (8 out of 10). There was a significant difference between the two groups in terms of the number of evaluative and commentary clauses ($p = 0.026$). Similar results have been reported in Tannen (1980), who found in her narratives by American and Greek speakers that Americans adopted the film-viewer perspective.

4 Conclusion

The only group difference that was found in this study was a perspective difference. English speakers tended to describe the film from their own perspectives, making many commentaries about the film, such as their uncertainty about what was going on, etc. On the other hand, Korean speakers preferred to describe the film from the story context, avoiding direct commentaries about the film. In other words, Korean speakers preferred an impersonal (also known as “camera-eye”) frame of reference, relating events to one another on the narrative timeline, whereas English speakers tended to adopt an “egocentric” frame of reference, describing what they saw from the here-and-now perspective. Other aspects of the narratives, such as the number of clauses, use of background clauses, descriptions of a character’s thoughts and feelings, and the episode structure were not significantly different between the two groups. Therefore, the previous claim that Anglo-American narratives tend to prefer a chronological structure of a single event with rich descriptions of characters’ mental and emotional states, whereas East Asian narratives tend to have a parallel structure without explicit reference to characters’ psychological states or evaluative comments (Kang 2003; Kuntay and Nakamura 2003; Minami 2002; Song 2017) was not supported in this study. I suggest that the prior observations by Kang (2003) and Song (2017) were perhaps a byproduct of the difference in perspective/point of view. A correlation obviously exists between the first-person point of view and frequent use of evaluative comments, and between the narrative point of view and somewhat depressed use of them.

Highlighting the differences between language groups and attributing the different language uses to differences in inherent culture, as previous studies have tended to do, can have both positive and negative effects. While promoting awareness of cultural diversity, it may also lead to ignoring the universality of language/linguistic structures and to a somewhat simplified and stereotypical perception of a linguistic community and its culture. One might argue that the egocentric vs. neutral point of view difference derives from varying cultural values and practices. However, no obvious method exists to prove such correlation. Moreover, as shown in this study, such difference was not absolute, but could only be described in probabilistic terms. Overall, there was greater individual variation than
group differences. If perspective/point of view is indeed the determining
t factor in the differences observed, as I argue, rather than input differences
due to cultural practices, we can go beyond a mere description and begin
building a theory on the systematic crosslinguistic variation in narrative
structure.

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tion I: A Comparison between Japanese and Turkish Narratives. In Strömqvist, S.

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Shifting Semantics of Grandmother in Digital Japanese-Korean Comfort Women Discourses*

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1 Introduction

When appearing together in discourse, the terms ‘Japan’ and ‘Korea’ often invoke complex and intricate relations frequently approached from the perspective of sentiment analysis. Sentiment analysis is the use of computer science technologies “to systematically detect, extract, and classify the subjective information and affective states expressed in a text, such as opinions, attitudes, and emotions regarding a service, product, person, or topic” (Lei and Liu 2021:1). Public sentiment analysis focusing on Japanese-Korean relations using corpus linguistics (e.g., Doi et al. 2021) and quantitative survey methods (e.g., Cho et al. 2021) have been on the rise. Furthermore, the co-

* This work, *Shifting Semantics of Grandmother in Digital Japanese-Korean Comfort Women Discourses*, is supported in part by funding from the Social Sciences and Humanities Research Council of Canada (752-2021-2541).
occurrence of the two terms ‘Japan’ and ‘Korea’ is often tied to historical evocations of ‘Comfort Women’.

As outlined by Kim et al. (2019:58), ‘Comfort Women’ are those who fell victim to “the system of sexual slavery created and controlled by the Imperial Japanese government between 1932 and 1945,” the period during WWII. Despite the fact that this system is said to be “the largest case of government-sponsored human trafficking and sexual slavery in modern history,” “comfort women discourse is growing increasingly polarized as human rights claims are juxtaposed against populist claims according to a competitive logic” (Eriksson 2023:90). That is, traditionally, much “Comfort Women” research has focused on the historical debate regarding whether the claimed events happened or not, placing the victims and their personal stories under lenses of scrutiny and denying them of their self-proclaimed identities and collective memories (e.g., Ramseyer 2021).

As a result, there is often great tension between Japan and Korea, with continuous shifts in public sentiment among the nationals of both countries towards the nationals of the respective opposing country. A great deal of public sentiment studies mention Comfort Women in some capacity (e.g., Oh and Wha Han 2022; Ahn and Yoon 2020). In addition, Comfort Women Discourses have been receiving more attention from scholars in the fields of international relations and sentiment (e.g., Asaba 2021), as well as collective memory and activism (e.g., Yoon and Chang 2021) and media (e.g., Ogawa and Kobayashi 2021). However, such studies, especially those in the digital space, do not examine the language used by people discussing the topic of Comfort Women as part of their everyday digital engagement. Instead, these studies take narratives of experience as objects of study via ethnography and the products of organized media, such as news articles, as objects of study via large scale corpus linguistics. While these studies are certainly valuable, they do not shed light on the linguistic aspects of Comfort Women Discourses and the language practices of those who make these discourses possible.

Furthermore, it could be argued that the term “Comfort Women” itself devalues the identities of victims. The term is said to be a euphemism coined by the perpetrators (i.e., the Japanese military), with scholars having argued that the term “Comfort Women” downplays the severity of the crime (Kim et al. 2019:58; Ward and Lay 2018:1). However, scholars such as Soh (2008:232) note that the term ‘Comfort Woman’, in native Korean 위안부 wianbu, can be traced back to as early as the King Sejong dynasty in the 15th century. This then questions the legitimacy of claims that慰安婦 ianfu is indeed a coined euphemism by the Japanese military. While the etymology of the term “Comfort Women” itself is worthy of further pursuit, it is beyond the scope of this paper.

Nonetheless, in the Computer Mediated Communication landscape of the 21st Century, ‘Comfort Women’ are often referred to in the digital discourses
of netizens as ‘Comfort Women Grandmother(s)’ or just ‘Grandmother(s)’. This study, as an extension of Sluchinski (2022), works to further address the research gap surrounding how the identities of Comfort Women are constructed by everyday Korean and Japanese language users through focusing on the discourse of netizens in both language contexts.

More specifically, the quantitative investigation into the language use of Korean and Japanese netizens in the context of digital Comfort Women Discourses by Sluchinski (2022) has shown that the term ‘grandmother’ appears in a plethora of orthographic and morphological variations. Sluchinski’s (2022) survey yielded 14 distinct ‘grandmother’ variants in Korean and 32 distinct variants in Japanese within The Comfort Women Discourses corpus. In addition to identifying the multiple ‘grandmother’ variants used by netizens, Sluchinski (2022) generated a politeness ranking of these variants based on morpho-syntactic criteria pertaining to each lexical item. Amongst the Korean variants, 할머니(들) halmeoni(deul) ‘grandmother(s)’ was deemed the most standard, i.e., neutral, while お婆さん(たち)/おばあさん(たち) obaasan(tachi) ‘grandmother(s)’ can be considered the most neutral Japanese variant due to lexicalization. Yet, from a pragmatic discourse perspective, the ranking design begs the following question: how neutral can these two grandmother variants be when taken in the specific contexts where these variants appear?

Thus, the analysis is concerned with addressing this question through multiple layers of semantics-focused Corpus Linguistics-based approaches such as (1) Collocates and (2) NGRAMS, for the Korean term 할머니 and the Japanese Kanji term お婆さん and Japanese Hiragana term おばあさん. It must be noted that the results reported here can still be considered as ‘working results,’ the reasons for which are outlined in the Methodology.

2 Data Composition and Theoretical Background

This section explains the data origin, corpus composition, and theoretical background for the study. As the study uses a revised version of the Digital Comfort Women Discourses Corpus presented in Sluchinski (2022:245-248), only necessary information as well as information needed to understand the revisions will be presented here. The primary sourcing platform Kaikaihanno is briefly introduced in Section 2.1 along with the two primary Korean netizen community sources ILBE and Naver News, including the data allocation in each, as well as the Japanese netizen community and its data allocation; and Section 2.2 introduces the theoretical background and the research focus.
2.1 Corpus Construction and Data Origin

The data for the analyses in this study is drawn from The Revised Comfort Women Discourses corpus, constructed in January 2020 from Kaikaihanno (a translation blog dedicated to reacting to Korea), using the blog’s ‘Comfort Women’ tag, and consists of a collective of 19,553 comments in Korean, 39,283 comments in Japanese, and 2,729 Korean comments translated into Japanese which comprises some of the content of the 77 Japanese blog entries. The comments are spread across 146 texts (77 Japanese; 69 Korean), and the Korean texts mainly come from ILBE (n=32), a notorious alt-right platform, and Naver News (n=36), an online news portal. In terms of neutral grandmother variants, the data processed thus far consists of 294 おばあさん obaasan tokens of 1,149,061 corpus tokens, 154 お婆さん obaasan tokens of 1,149,061 corpus tokens, and 1,130 할머니 halmeoni tokens of 347,351 corpus tokens. An overview of the corpus is shown in Table 1 below which also reflects the Korean, Japanese, and Translation subcorpora.

<table>
<thead>
<tr>
<th>Revised Comfort Women Discourses Corpus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Korean Data</strong></td>
</tr>
<tr>
<td>Articles</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Total Comments</strong></td>
</tr>
<tr>
<td>1,461</td>
</tr>
<tr>
<td><strong>Total Translated Comments</strong></td>
</tr>
<tr>
<td>1,461</td>
</tr>
</tbody>
</table>

Table 1. Revised Digital Comfort Women Discourses Corpus Composition

The translation aspect of this project has been previously documented and explained in Sluchinski (2022) and is still a work in progress. Therefore, it will not be extrapolated further in the current paper.

2.2 Theoretical Background and Research Focus

Adopting a semantics based quantitative Corpus Linguistics approach, this study focusses exclusively on the neutral ‘Grandmother’ variants in context. The study addresses the basic question of whether these seemingly neutral variants may have developed positive or negative associations through particular frequent collocations, i.e., whether they have experienced a semantic shift, thus causing them to be no longer truly neutral as a pragmatic unit. Such
a phenomenon, also known as semantic prosody, has been investigated by scholars such as Sinclair (1991).

3 Software and Methodology

This section outlines the software used and steps taken to process the data through various stages. Specifically, the data was processed into raw txt files (Section 3.1), segmented with part of speech taggers and simple spacing (Section 3.2), was adjusted and fine tuned in bulk (Section 3.3), was subject to a series of Corpus measures under various conditions (Section 3.4), and were cleaned for presentation (Section 3.5). However, as will be discussed in Section 3.6 this multi-step process was cumbersome in several ways and has room for improvement given the appropriate access to better technology.

3.1 Text Files

The data for the study was originally collected by saving the postings, news articles, and their comments in PDF format and storing them in aggregate. These files, for both Japanese data and Korean data, were then converted to word documents to work with the text more easily. In order to be used with the other programs and software universally, these word documents were then converted to .txt files.

After converting to .txt files several modifications were required to ensure minimal interference with collocation results and other frequency based statistical analyses. These modifications included removing hyperlinks and URL tags, non UTF-8 emojis, and instances of phrases such as “this comment has been deleted (e.g., 삭제 된 댓글입니다)” from both Japanese and Korean data; removing usernames from the Korean data 1 (not applicable for Japanese data as > 99% of usernames were “anonymous”); and removing translated content/comments from the Japanese data 2 (not applicable for the Korean data as all the content is originally written in Korean).

1 ILBE community users tend to use trolling usernames as screen IDs such as “박보검팬티” (Park Bogum’s panties, where Park Bogum is a famous actor). Programs are unable to distinguish between text in a comment and text in a username, and as thus will count this portion of the username as one of the key words in proximity of other words, creating inaccurate results.

2 One key component of the blog posts on Kaikaihanno is the translation of native Korean comments into Japanese; many Japanese commentors will quote the translation in their “reply” to the blog post. The continuous quotation of the translated material skews the frequency analyses as the programs do not detect or differentiate repeated text sequences.
3.2 POS Segmenting

After obtaining the .txt files both the Korean and Japanese data were processed with POS tagging software. It is well known that Japanese, like Chinese, does not have spaces and uses a character scripted. In order to be processed by AI and NLP languages like Japanese and Chinese need to have spaces inserted at word boundaries.

For the Japanese data, TagAnt v2.0.4 was used for simple word boundary insertion, taking the text on the left in Figure 1 below and producing the segmented text on the right. However, for the purpose of the current study TagAnt produced what is known as over-segmentation, inserting word boundaries at incorrect and/or excessive junctures as marked by the red arrows. These over-segmented portions required correction which will be addressed in Section 3.3.

For the Korean data, POSTAG, released in 2002 by the POSTECH NLP Lab, was used. POSTAG is a python-based text POS tagger that operates based on the Sejong corpus. Unfortunately, POSTAG was the only program which I was able to execute on my data that provided a continuous line output (see Figure 2 below).

![Figure 1. Segmented Text in TagAnt](image1)

![Figure 2. POSTAG Output Sample](image2)

That is, while there are more advanced, UI friendly Korean POS tagging programs such as Java-based RHINO 3.8.0, these programs produce isolated, tokenized lists as output which are not compatible with corpus programs such as AntConc that require continuous line output.
POSTAG is not without problems and there is no support offered for users as the creators are unresponsive to inquiries. Some of the cons and bugs discovered when executing POSTAG were: (1) it only takes .txt files; (2) will not execute and generates errors when files contain the following: blank lines, double consonants and single vowels (e.g., ᷨ, ὑ, ᶞ, ᵔ, ᵪ, ᵹ, etc.), emojis (UTF-8 and non-UTF-8), consecutive clusters (e.g., ᶜ ᶜ, ᵖ ᵖ, etc.), consecutive dashes/lines (e.g., ------); (3) the word boundaries are not accurate; and (4) the tags are not correct. As with the Japanese data, the Korean data also required correction.

3.3 Bulk Text Editing

In order to correct both the Japanese and Korean data Notepad ++ v8.4.8. was used. Specifically, it is a bulk text editor which was used to manually manipulate/clean generated word boundaries, tags, and illegible UTF-8 encodings (emojis, etc.). In the Japanese data, this included words immediately relevant to the neutral “grandmother” variant: 慰安婦 (Comfort Woman), お婆さん (Grandmother), おばあさん (Grandmother), 日本人 (Japanese person), 朝鮮人 (Joseon Person), 韓国人 (Korean Person), 加害者 (victim). In the Korean data, there are too many cases to list individually however in general corrections were made for frequently occurring proper names, nouns, and Comfort Women terminology like in the Japanese data (see Table 2 below).

<table>
<thead>
<tr>
<th>English</th>
<th>Pre-Correction</th>
<th>Post-Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandmother</td>
<td>할머니 NNG 이/VCP 모/ETN</td>
<td>할머님 NNG</td>
</tr>
<tr>
<td>Lee Yongsoo</td>
<td>이용 NNG 수 NNB</td>
<td>이용수 NNG</td>
</tr>
<tr>
<td>Lee Yongsoo</td>
<td>이용 NNG 수리 NNG</td>
<td>이용수리 NNG</td>
</tr>
<tr>
<td>Moon Jaein</td>
<td>문재 NNG 이/VCP 띵/ETM</td>
<td>문재인 NNP</td>
</tr>
<tr>
<td>Uniqlo</td>
<td>유니크 NNG 올로 JKB</td>
<td>유니클로 NNP</td>
</tr>
<tr>
<td>Sewol Ferry</td>
<td>세월 NNG 호 NNB</td>
<td>세월호 NNG</td>
</tr>
<tr>
<td>Comfort Woman</td>
<td>위 NNG 안부 NNG</td>
<td>위안부 NNG</td>
</tr>
</tbody>
</table>

Table 2. Sample Corrections to Korean Data

3.4 Corpus Processing Software

For both the Japanese and Korean data, AntConc v4.1.4., a corpus analysis toolkit for researchers, teachers, and learners, was used. As there is already existing literature with regards to the builds and programming of AntConc,
such matters will not be discussed here. AntConc was used to conduct analyses from two angles: (1) collocates, and (2) NGRAMs. When using AntConc, the POS tags need to be converted from a / format to an _ format (e.g., 할머님/NNG to 할머님_NNG) to be imported and read.

3.4.1 Collocate Parameters
The collocate analysis was conducted at two thresholds, $p < 0.05$ (3.84) and $p < 0.0001$ (15.13), to give a comparative lens. Both thresholds had parameters set with Log-Likelihood as the Likelihood Measure, TSCORE as the Effect Size Measure, with the Threshold at All Values, and a Window Span of 8L + 5R on the Korean data 할머니, the Japanese Kanji お婆さん, and the Japanese Hiraganaおばあさん.

3.4.2 NGRAM Parameters
The NGRAM analysis was conducted at both RAW and Normalized values, with a minimum frequency of 2 for both the Korean and Japanese data. However, as Japanese is a rigidly left-branching language and NGRAM is based on right branching languages it was necessary to use Wildcards (*) to force the detection of characters to the left of the search query lemma (i.e., お婆さん). Thus, when preforming NGRAM in Kanji お婆さん was searched and when preforming NGRAM in Hiragana おばあさん was searched. The three wildcards in a row tells the engine to search 5NGRAM that includes 3 unknown characters to the left of the search query lemma, include the lemma, and then search 1 character to the right.

3.5 Cleaning and Processing Results
To clean and process the results for presentation, the query results generated by AntConc were exported as .txt files and then imported into excel. Results included a total of two collocate searches for each grandmother variant and one 5NGRAM result for each variant. Cleaning the results consisted of omitting some ranked entries in the collocates which were meaningless and superfluous for examining semantic prosody and statistic results (e.g., 의 (JKG= postpositions (case markers) as a collocate for 할머니)).

3.6 Analytical Results Preface
As mentioned previously, the results generated for the Korean data are working results due to limited access to appropriate POS tagging tools. There are too many cons to working with POSTAG, and the workarounds are time consuming and cumbersome. Unfortunately, other Python and/or Java based programs were (for my case) not very accessible/user friendly and did not generate linear output for corpus linguistics (e.g., RHINO, Kakao/Kahi
wordseg_kaist_ud, MeCab_kor, hangul-Korean pypi, KoNLPy). I hope that
the findings in this paper can generate some sense of the semantic shift in the
terms for Grandmother used in Korean and Japanese Comfort Women Dis-
courses, and generate discussion about NLP for better Korean data analysis.

4 Collocates Results and Discussion

This section discusses the collocate results for the Japanese and Korean data,
starting with comparing the p<0.0001 Kanji and Hiragana results (Section
4.1.1.), the comparing the p<0.05 Kanji and Hiragana results with highlights
notable similarities (Section 4.1.2), and then presenting a comparison of the
p<0.0001 vs p<0.05 threshold results in Korean.

4.1 Japanese Results

The p<0.0001 results generated 14 collocates for Hiragana 'grandmother 'and
31 collocates for Kanji 'grandmother', while the p<0.05 results generated
much more. Consequently, only the top 14 results for p<0.0001 are shown
and discussed while only notable unique and shared collocates between Hi-agana and Kanji within the top 50 TSCORE effect results are shown and
discussed for p<0.05 due to spatial limitations.

4.1.1 Results for p <0.0001

To examine how different ranking parameters may impact the portrayal of
semantic shift, I present the results ranked in four different ways: 1) High to
Low (H-L) Effect ranking, 2) Left + Right (LR) combined frequency ranking,
3) Frequency Scaled ranking, and 4) TSCORE Likelihood ranking. Due to
spatial limitation, Figures are provided periodically for visualization.

Focus is placed on the following collocates and how their rankings shift
depending on the ranking parameter: 応安婦 (Comfort Woman), ハルモニ
(The Korean pronunciation of 'Grandmother 'Halmeoni stylized in katakana),
奴隷 (Slave), バッカス (Bacchus), and かわいそう (Pitiful). 'Bacchus' is an
important, culturally charged collocate. Bacchus is well known as the Roman
God of fertility, wine, and pleasure. However, in the Korean cultural context
박카스 (Bacchus) is an energy drink launched in 1963. What is more, “Bac-
chus” is a code for prostitution amongst seniors in Korea with the women
offering services known as "Bacchus Ladies" (박카스 할머니) (Yi & Yun,
2022). The film "The Bacchus Lady (죽여주는 여자)" by E J-yong released
in 2016 portrays aspects of the Bacchus culture through the story of elderly
sex worker So-Young. The collocation of 'Bacchus 'with 'Grandmother 'in
both the Japanese and Korean data indicates an association of 'Grandmother',
and by extension 'Comfort Women, 'with a chosen life of prostitution.
When sorted by Effect ranking (Figure 3), Comfort Woman is the first collocate for both variants and ‘Halmeoni’ is ranked seventh for Hiragana and 14th for Kanji. Slave appears as a unique collocate at the 11th rank for Hiragana while Bacchus and Pitiful appear at the sixth and seventh rank respectively for Kanji. Contrarily, when sorted by LR Frequency (Figure 4), Comfort Woman drops to second for both variants and ‘Halmeoni’ drops to ninth for Hiragana and stays 14th for Kanji. Slave still appears as a unique collocate but at the eighth rank (three increase) for Hiragana while Bacchus and Pitiful remain at the sixth and seventh rank respectively for Kanji.

When sorted by Frequency Scaled, Comfort Woman drops to third for Hiragana while ‘Halmeoni’ drops to 21st, while for Kanji Comfort Woman remains at second and ‘Halmeoni’ rises to 12th. Slave still appears as a unique collocate at the sixth rank (two increase) for Hiragana while Bacchus and Pitiful see decreases for Kanji. On the other hand, when sorted by Likelihood (Figure 5), Comfort Woman increases to second for Hiragana and ‘Halmeoni’ rockets
to fourth while Slave drops to 28th. For Kanji, Comfort Woman remains at second and ‘Halmeoni’ drops to 13th. Yet both Bacchus and Pitiful see sharp rises for Kanji, coming at first and third respectively.

<table>
<thead>
<tr>
<th>Collocate for 舞踊女</th>
<th>Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>バックル (bacchus)</td>
<td>69.929</td>
</tr>
<tr>
<td>舞踊女 Comfort Woman</td>
<td>64.7</td>
</tr>
<tr>
<td>かわいそう pitiful</td>
<td>57.539</td>
</tr>
<tr>
<td>速</td>
<td>45.729</td>
</tr>
<tr>
<td>元</td>
<td>43.998</td>
</tr>
<tr>
<td>お婆さん</td>
<td>38.084</td>
</tr>
<tr>
<td>の</td>
<td>31.34</td>
</tr>
<tr>
<td>母さん</td>
<td>25.541</td>
</tr>
<tr>
<td>舞踊女</td>
<td>24.738</td>
</tr>
<tr>
<td>ここの</td>
<td>22.2</td>
</tr>
<tr>
<td>速</td>
<td>20.454</td>
</tr>
<tr>
<td>代</td>
<td>18.365</td>
</tr>
<tr>
<td>ハルモニ</td>
<td>17.177</td>
</tr>
<tr>
<td>代</td>
<td>15.496</td>
</tr>
</tbody>
</table>

4.1.2 Results for p < 0.05

Figure 6 below shows a comparison of NOTABLE shared tokens among the top 50 TSCORE Effect for Hiragana and Kanji collocates. The figure reveals that 舞踊女 is most common, direct association between Grandmother and Comfort Women in both contexts. We also see that shared derogatory/negative words rank more frequent in Hiragana while sympathetic words rank more frequent in Kanji.

<table>
<thead>
<tr>
<th>Token</th>
<th>Semantic Attribute (OR: OR—)</th>
<th>Hiragana Stats (Rank/Effect)</th>
<th>Kanji Stats (Rank/Effect)</th>
</tr>
</thead>
<tbody>
<tr>
<td>舞踊女</td>
<td>comfort woman</td>
<td>8.396</td>
<td>5.161</td>
</tr>
<tr>
<td>ハルモニ</td>
<td>phonetic pronunciation of korean word for grandmother</td>
<td>3.279</td>
<td>1.695</td>
</tr>
<tr>
<td>バクガス</td>
<td>Bacchus, roman god of fertility, wine, pleasure</td>
<td>43</td>
<td>35</td>
</tr>
<tr>
<td>かわいそう</td>
<td>poor; pitiful; pathetic; pitiful</td>
<td>1.568</td>
<td>2.954</td>
</tr>
<tr>
<td>喜</td>
<td>to receive; to get; to accept</td>
<td>2.12</td>
<td>1.636</td>
</tr>
<tr>
<td>受け</td>
<td>2.613</td>
<td>1.689</td>
<td></td>
</tr>
<tr>
<td>金</td>
<td>1.971</td>
<td>1.305</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6. Notable Shared Collocate Tokens
Notable distinct tokens for Hiragana showed that Hiragana has a more negative semantic prosody than Kanji with a liar and derogative identity. The Comfort Women are demanded to show proof of what happened and accused of always changing their words. In addition, the sentiment that they were not victims but sex servant emerges considering "victim" is used with strong sarcasm and occurs in the context of "victim business." The notable tokens are, with Rank/Effect noted, as follows: 証言 ‘testimony; verbal evidence’ (4/5.08); おばあさん ‘grandmother’ (6/3.281); 奴隷 ‘slave; servant’ (11/2.613); 亡くなっ ‘pass away’ (12/2.558); コロコロ ‘changing ones words frequently’ (15/2.322); 性 ‘sex’ (17/2.218); 被害 ‘(suffering) damage; injury; harm; victim’ (19/2.123); 可哀想 ‘poor; pitiable; pathetic; pitiful’ (21/2.078); 可愛 ‘cute’ (25/1.981); 自称 ‘self-proclaimed’ (34/1.831); 証拠 ‘evidence; proof’ (37/1.708); 死ん ‘die’ (41/1.673).

Notable distinct tokens for Kanji showed that Kanji seems to have more positive semantic prosody than Hiragana with a victim identity. The notable tokens are, with Rank/Effect noted, as follows: 元 ‘former’ (4/3.342); お婆さん ‘grandmother’ (8/2.58); 可哀そう ‘poor; pitiable; pathetic; pitiful’ (33/1.394); 貧し ‘poor; needy; lacking’ (35/1.391); 妊娠 ‘pregnancy’ (36/1.389); 偽証 ‘false evidence’ (37/1.381); 苦痛 ‘pain; agony; bitterness’ (39/1.376); 同情 ‘sympathy; compassion; feeling pity for’ (46/1.312).

4.2 Korean Results

The results discussed for the Korean data are based on the top 50 TSCORE Effect ranking, only taking into consideration of the collocates that were tagged as NNP, NNG, NNB, SN, VV, VA, VVS, XSV (purple exclusive to p<0.05), with a focus on the Top 14. Like the Japanese data, one goal of comparing p<0.05 and p<0.0001 under different ranking conditions is to show how different ranking mechanisms produce different results, begging the question as to which mechanism is most reliable. The analysis was conducted from two ranking angles: LR frequency H-L (Figure 7), H-L Effect (Figure 8).

Viewing the rankings in order we can see that the LR Frequency H-L shares a number of collocates between the p<0.05 and p<0.0001 thresholds, notably ‘Comfort Woman,’ ‘receive,’ ‘use,’ ‘politics,’ ‘victim’, and ‘testimony.’ This ranking mechanism starkly contrast with the H-L Effect ranking, which exhibits identical ranking and collocates between the p<0.05 and p<0.0001 thresholds. Within this parameter, we see that ‘Comfort Woman,’ ‘use,’ ‘testimony,’ and ‘victim’ are prominent collocates in the upper half.
This phenomenon in ranking shift may indicate that among all the ranking mechanisms, Effect by TSCORE is the most accurate/relevant. In addition, we see that the Korean data collocates Follows similar themes as in the Japanese data, but with a more pronounced victim identity of pity, mirroring the Kanji data.

**NGRAM Results and Discussion**

The 5NGRAM analysis produced 50 results in the Korean data, 60 in for the Hiragana variant in Japanese, and 10 for the Kanji variant in Japanese. For each variant, I surveyed the range of NormFrequency for cases of each value rounded to the nearest whole number, plotting them in pie charts.
5.1 Korean Results

In the Korean results (Figure 9), we see that more than \( \frac{3}{4} \) of the 50 NGRAMS have a Normalized Frequency of 16807, the lowest, while only 2\% fall at the highest of 50420. This may indicate that the 5GRAM results in the Korean data are not significant, potentially because of inadequate POS tagging and segmenting. However, what may be interesting to note qualitatively is the Top 10 NGRAM results in the Korean data (Figure 10) which thematically mirror the collocate results.

![Figure 9. Korean Cases of Value per NormFreq 5NGRAM](image)

![Figure 10. Top 10 Korean 5NGRAM](image)

5.2 Japanese Results

In the Japanese results we can see a comparison between the Kanji (Figure 11) and the Hiragana (Figure 12). For Kanji, which only produced 10 NGRAMS, we see that the lowest NormFreq is about 90909; This is higher than the majority of NGRAM results for Hiragana which are 15151 (55 cases). The NGRAM results seem to indicate too much diversity.

![Figure 11. Kanji Cases of Value per NormFreq 5NGRAM](image)

![Figure 12. Hiragana Cases of Value per NormFreq 5GRAM](image)
6 Conclusion

This paper shared working results via: (1) collocates from two threshold levels, and (2) 5NGRAM. Japanese Hiragana Collocates show that both p<0.0001 and p<0.05 construct negativity/hostility, and that Hiragana “Grandmother” has seemed to develop a negative semantic prosody. Japanese Kanji Collocates show that both p<0.0001 and p<0.05 seem to have more positive semantic prosody than Hiragana with a victim identity, and that Kanji “Grandmother” has seemed to develop positive semantic prosody. In Korean Collocates, we saw (1) a similar pattern of language use themes; (2) that semantic prosody seems to remain unchanged but that an association with Comfort Woman is very strong; (3) that “Grandmother” may be considered as a synonym to “Comfort Woman” rather than having experienced semantic prosody; and (4) ‘Grandmother’ is synonymous with a ‘Victim Comfort Woman who was used’. The working results of this study can be greatly improved with more reliable Korean POS tagging software.

Acknowledgments

Warmest thanks to my colleague Dr. Yoshi Ono (U of A) and undergraduate RA Giseo (Peter) Lee for their comments and advice on earlier versions, as well as Dr. Yongtaek Kim (Georgia Tech) for sharing resources.

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1 Introduction

This study aims to explore how Korean speakers make use of response tokens in talk-in-interaction. Response tokens refer to brief listener responses, which indicate that “talk by another has been heard, acknowledged, perhaps understood or agreed with or treated as news, or not news” (Gardner 2001: 13). Although what counts as a response token is not uniform across studies,
response tokens typically include minimal verbal responses (e.g., continuers, acknowledgments), brief assessments, repetition of a portion of the prior talk, and so on (Goodwin 1986; Drummond and Hopper 1993; Yeh 2018; Wong and Waring 2020).

Prior research studies have demonstrated that response tokens perform various interactional practices and social actions in conversation. The production of a particular response token, for instance, indicates how the recipient of a turn manages his/her turn-at-talk (e.g., *uh huh*, Schegloff 1982), how s/he positions him/herself regarding knowledge and information (e.g., *oh*, Heritage 1984), or whether and to what extent s/he affiliates with a stance conveyed in the prior turn’s talk (e.g., *no*, Jefferson 2002).

There is a growing body of research that indicates the significant interactional roles and functions of response tokens in Korean conversation (e.g., Kim and Yoon 2019; Ha 2022), however, many areas have not yet been examined or necessitate further exploration. To fill this gap, by adopting the methods of interactional linguistic frameworks, this study intends to examine and identify how the recipient of a turn employs response tokens to accomplish a diverse range of interactional work.

Specifically, this study analyzes the use of the following eight verbal response tokens: *ung, e, ney, yey, kulay, kulehci, kulenikka*, and *maca*, employed in naturally occurring Korean talk-in-interaction. The first four ‘yes’-type response tokens (i.e., *ung, e, ney, and yey*) are translated as ‘yes, yeah,’ while the rest of the tokens (i.e., *kulay, kulehci, kulenikka*, and *maca*) can be translated roughly as ‘(that’s/you’re) right’ in English. A qualitative analysis of the conversational excerpts provided in this study demonstrates how the recipient of a turn utilizes these tokens to address interactional practice (e.g., repair-initiation) or social action(s) (e.g., a request for information/confirmation, informing, assertion, and assessment) implemented in a prior turn.

In this study’s conversational data, the four ‘yes’-type tokens and *kulay* recurrently occur in the organization of turn-taking or a sequence. In addition, the three response tokens, *kulehci, kulenikka*, and *maca*, are regularly deployed in response to an assertion, informing, and assessment, but each has a distinctive use. By examining these eight response tokens, this study seeks to provide a comprehensive picture of the interactional work that the selection and production of a particular response token in a particular sequential environment achieves in Korean talk-in-interaction.

## 2 Data and Methodology

Adopting interactional linguistics as its analytical framework, this study examines the uses of the eight response tokens (*ung, e, ney, yey, kulay, kulehci, kulenikka*, and *maca*) (see Table 1 for each token’s meaning and lexical
components), which appear most frequently in the data, as they are deployed in naturally occurring Korean (1) telephone conversations, (2) face-to-face conversations, and (3) broadcast talk.

The conversational data used in this study were transcribed following conventions developed by Gail Jefferson, which enable precise representation of verbal utterances as well as other embodied dimensions, in particular nonverbal vocalizations (e.g., audible outbreaths, laughter, and sighs) and prosodic details (e.g., a loud voice) (Ochs et al. 1996).

<table>
<thead>
<tr>
<th>tokens</th>
<th>meaning</th>
<th>lexical components</th>
</tr>
</thead>
<tbody>
<tr>
<td>panmal</td>
<td>‘non-honorific’</td>
<td>e</td>
</tr>
<tr>
<td>contaymal</td>
<td>‘honorific’</td>
<td>yey</td>
</tr>
<tr>
<td>kulay</td>
<td></td>
<td>informal ending -e/a</td>
</tr>
<tr>
<td>kulehci</td>
<td>‘right’</td>
<td>connective suffix kulehta ‘be so’ + -nik ‘because’</td>
</tr>
<tr>
<td>kulenikka</td>
<td></td>
<td>committal suffix -(u)ni ‘because’</td>
</tr>
<tr>
<td>maca</td>
<td>macta ‘right’ +</td>
<td>informal ending -e/a</td>
</tr>
</tbody>
</table>

Table 1. The meaning and lexical components of each response token

The specific research questions that this study seeks to answer are as follows: (1) What social actions does the production of a particular response token accomplish, and how is it treated by co-interlocutors? and (2) If a response token is followed or preceded by additional turn component(s) by the same speaker (e.g., additional unit of talk), what do the additional component(s) express, and how do the co-interlocutors treat them?

### 3 Resources for Managing Turns or Sequences

In this study’s data, it is observed that the four ‘yes’-type tokens and the kulehta-type token kulay ‘right’ commonly occur as turn or sequence management resources in a turn responsive to various social actions launched in the
prior speaker’s turn, such as informing, assessing, requesting for information or confirmation, and so on. Specifically, the present section examines how speakers of Korean make use of the four ‘yes’-type tokens and kulay to yield a turn to their co-interlocutor(s) (Excerpt 1) and initiate or close a sequence (Excerpts 2, 3, and 4).

3.1 Turn Yielding

In the data, the two honorific ‘yes’-type tokens, *ney* and *yey*, occur frequently in the turn-final position to indicate that the *ney/yey* producer has finished or withdrawn his/her turn and that the prior speaker should continue speaking as the next speaker. This use of *ney* and *yey* is routinely observed in a responsive turn within a pre-sequence (Schegloff 2007: 28) in which the prior speaker launches a request for confirmation before pursuing the main request for confirmation or information.

Excerpt 1 is a case in point, which is taken from one of the episodes of the television program *My Golden Kids*. In this segment, the hosts and parents of a child discuss the child’s problematic behaviors after seeing a pre-recorded footage.

Excerpt 1. First time [My Golden Kids 091721]

01 Aer: kuntey ape-nim-un sasil:: ilehkey caseyhi by.the.way father-HON-TOP in.fact like.this closely
02 po-si-n ke-n cheum-[i-l] “ke aniey-yo.” see-SH-RL thing-RL first.time-be-RL thing be.not-POL. By the way, for you (father), it should be your first time to see (how your son behaves) this closely.
03 Fat: [cheum-i-cyo yey. first.time-be-COMM;POL yes **First time, right, YEY.**
04 cheum-°i-pnita°. () [yey. first.time-be-DEF yes **First time, YEY.**
05 Aer: [po-si-rika ette-sey-yo? see-SH-because how-SH-POL How do you feel after seeing (the footage of your son)?
06 (( )): [( ) an ha-sy-ess-ul ke-yey-yo. NEG do-SH-PST-RL thing-PRS-POL
07 ku-cyo? be.SO-COMM;POL **I assume that you did not ( ). Right?**
08 Fat: “maum” ((smacks lips)) () maum-i ahu-cyo. heart heart-NOM hurt-COMM;POL **Heart,** It breaks my heart.
Aera, one of the main program hosts, asks a pre-emptive question formulated as a B-event statement (Labov and Fanshel 1977: 100) to the father (‘it should be your first time to see (how your son behaves) this closely’, lines 1-2). Earlier in the episode, the mother described the father as relatively less involved in the upbringing of their son. Aera’s pre-emptive question gets confirmed by the father with the repetition of the word cheum ‘first time’ marked by the committal suffix -ci (Lee 1999) and followed by the contaymal ‘yes’-type token yey (line 3).

However, since the father’s response occurs in overlap with Aera’s question, the father in his subsequent turn provides a repetition of his own statement to reassure that it is his first time observing his son’s problematic behaviors and ends his statement with a yey token again (line 4). That the father places a yey token at the end of his reformulated turn makes it clearer that the use of yey in turn-final position is not accidental.

Finally, this leads Aera to continue with her main request, which gets the father to express how he feels after seeing the footage of his son (line 5). In response to this, the father expresses a feeling of regret or sadness. However, this time he does not produce a yey (or ney) token to conclude his turn. Unlike his prior turns that received an immediate uptake from the host Aera, the absence of a turn-final yey here leads to a 0.5-second gap (line 9) before the other host Youngran produces an elongated um to display affiliation (line 10).

As demonstrated above, the contaymal form of ‘yes’-type token often occurs turn-finally to signal that the producer has finished his/her responsive turn to a request for confirmation in a pre-sequence in which the prior speaker builds common ground before proceeding with the main activity.

3.2 Sequence Closing Third

Another sequential environment in which ‘yes’-type tokens regularly appear, in particular the two panmal forms, ung and e, is the third position in a question-response sequence. The two panmal forms occur when the questioner acknowledges the question-elicited informing in the preceding turn and proposes a sequence closure.

Excerpt 2 shows an occurrence of ung and e utilized as a sequence closure in the third position in a question-response sequence. This segment comes from a telephone conversation between two male friends, Hyunho and Taewoo. Prior to the segment below, Hyunho asked Taewoo to send him the photograph that Taewoo previously promised to send.
Excerpt 2. Photograph [LDC 4582]

01 Hyu: a phillum-ul pat-ass-e?
   DM film-ACC receive-PST-IE
   Ah you received the film?
02 Tae: "e° ani (0.2) sacin-ul ilehkey pwa-ss-e nao-n
   yes no photo-ACC like-this see-PST-IE come.out-RL.
03 ke-lul. =
   thing-ACC
   Yeah, (I mean) no, I saw the photograph that came out.
04 Hyu: = E.
   yes
05 (0.1)
06 >kuntey kwaynchanh-a?<
   but okay-IE
   And it turned out okay?
07 Tae: UNG:. 
   yes
08 Hyu: UNG:. =
   yes
09 Tae: = ((smacks lips)) >ponay-cwu-lkey.<
   send-BEN-will
   (I) will send it to you.

As Taewoo mentions that he has seen the photograph (not shown in the excerpt), Hyunho makes a request for information as to whether Taewoo has received the film (line 1), which is interpreted as a pre-request prior to redoing his request (i.e., sending him a copy of the photograph). In response, Taewoo provides a dispreferred response consisting of two type-conforming responses (Raymond 2003) e ‘yes, yeah’ and ani ‘no’, as well as the elaboration (‘I saw the photograph that came out’, lines 2-3). Hyunho produces an e token (line 4) to acknowledge Taewoo’s dispreferred, question-elicited informing response while also proposing a sequence closure. Following a 0.1-second pause, Hyunho makes another request for information about the photograph (‘and (the photograph) turned out okay?’, line 6). To this request, Taewoo replies with the affirmative ung token (line 7). This receives another ung token by Hyunho (line 8), which also serves as a sequence closing third to close the question-response sequence. Taewoo then goes on to reassure that he will send the photograph to Hyunho (line 9).

As Excerpt 2 demonstrates, ung and e are often utilized by the initiator of a question-response sequence both to acknowledge the question-elicited response and to close the sequence.
3.3 Collaborative Sequence Initiating Action

The occurrence of *kulay* ‘right’ is common in a particular position of a sequence in multiparty interaction. As will be illustrated below, when one participant in a multiparty interaction initiates a sequence, such as offering (Excerpt 3) and teasing (Excerpt 4), their co-interlocutor often produces *kulay* to join the initiating action of a sequence.

In Excerpt 3, three male graduate students discuss the lunch prepared for the day. Earlier in their conversation, the three of them started to talk about the lunch menu for the next day, as well as the need to purchase a new bag for their lunchboxes. The bottom of their bag recently turned red due to some sauce from the food packed in the lunchboxes.

**Excerpt 3. Lunchbox [Friends 01]**

01 Seo: a::: cincca hyeng-un cincca taytanh-ay.  
DM really older.brother-TOP really amazing-IE  
*Ah seriously, hyung (= Yunho), you are so amazing.*

02 kapang hana sa. =  
bag one buy  
*Buy a (new) bag (to contain the lunchboxes).*

03 Jiy: = KULAY.  
be.so:IE  
*Just buy (it), this once.*

04 Seo: kunyang sa ike °han pen.°  
just buy this.thing one time  
*Just buy (it), this once.*

05 Jiy: [=ta sa ta sa< =  
all buy all buy  
*Buy it all, buy it all.*

06 Seo: = ta sa (. ) °e.°  
all buy yes  
*Buy it all. E.*

07 ((clicks tongue))

As Yunho, who is usually in charge of preparing the lunch, informs the others that he prepared the lunch for the day until 2AM the night before (not shown in the excerpt), Seojun produces a compliment in response (*you are so amazing*, line 1). Seojun then goes on to launch an offer sequence, in which he offers Yunho the permission to purchase a new bag for their lunchboxes to replace their current bag (line 2).

Immediately after the end of Seojun’s TCU, Jiying produces a *kulay* token (line 3) to join the offer sequence initiated by Seojun. As the initial offer does not receive any uptake from Yunho, Seojun and Jiying continue to offer further by collaboratively redoing their offer in the subsequent turns. In line 4, Seojun reoffers, and this time makes it clear what he is offering by pointing
toward the lunchbox placed in front of his upper body. Jiyong then upgrades the offer using the extreme case formulation (Pomerantz 1986) *ta* ‘all’ (‘buy it all, buy it all’, line 5) while Seojun joins in Jiyong’s re-offering by partially repeating Jiyong’s utterance (‘buy it all’, line 6).

Excerpt 4 features another occurrence of *kulay* in the same triadic interaction as Excerpt 3. Prior to the segment, the three graduate students started a conversation about one of their colleagues, Bin, who recently had a procedure to have his appendix removed. In this segment, Jiyong and Seojun simultaneously tease Yunho about this incident, as Bin happened to have an acute appendicitis after eating Yunho’s food.

Excerpt 4. Appendectomy [Friends 01]

01  Seo: ani (.) hyung ↑ttaymwuney sa:lam-i
    older.brother   because.of  person-NOM
02  tachy-ess  hyung:: =
    hurt-PST   older.brother
  *Because of you, hyung (= Yunho), someone got hurt, hyung.*
03  Jiy: = KULAY.
    be.so-because
04  Seo: hyung cikum wus-ul il-i
    older.brother now  laugh-ACC matter-NOM
05  ani-[ya::.
    be.not-IE
  *Hyung (= Yunho), you shouldn’t be laughing at this.*
06  Jiy: [°KUNIKKA.
    be.so-because

In lines 1-2, Seojun starts the teasing sequence by pointing toward Yunho and verbally criticizing him. Although Seojun’s turn delivers serious content, the elements used in the design of his turn frames it as recognizably playful teasing rather than a sincere blaming. Specifically, the combination of multiple exaggerated prosodic cues (i.e., *hyung* ‘older brother’, *ttaymwuney* ‘because of’, *sa:lam* ‘person’, *hyung:::) and repetition (i.e., *hyung* ‘older brother’ to call out Yunho) contributes to the jocular frame and thus construes Seojun’s utterance as a laughable one (Ford and Fox 2010: 361).

Moreover, what is noteworthy in this segment is the manner in which Jiyong joins Seojun’s initiation of the teasing sequence. In the middle of Seojun’s teasing turn, Jiyong turns his head toward Seojun and gazes at him. Then, immediately after the end of Seojun’s TCU, Jiyong produces *kulay* while simultaneously furrowing his eyebrows, which has been described as linked to negative emotions, such as anger, disgust, or displeasure (Kaukomaa et al. 2014: 133). Jiyong’s use of eyebrow frowns therefore functions to upgrade his affiliation. As Yunho provides no response to the teasing initially launched by Seojun and conjoined by Jiyong, the teasing sequence becomes
expanded. That is, Seojun launches another teasing in an accusing manner, mentioning that Yunho should not be laughing at this matter (line 5). This receives another kulehta-type response token kunikka ‘right’ from Jiyong, which serves to indicate his affiliative stance toward Seojun’s proposition.

As shown in the two excerpts above, kulay often serves as a resource to indicate that a second speaker wishes to join a first speaker’s initiation of a sequence (e.g., offering and teasing) and to collaboratively accomplish the sequence initiating action.

4 Resources for Expressing Stances

This section analyzes the use of response tokens as interactional devices to express one’s epistemic and/or affiliative stance. In the sections below, I will demonstrate how the three particular response tokens in Korean, kulehci, kulenikka, and maca, are utilized in response to an assertion, informing, or assessment. These three tokens are all translated roughly as ‘(that’s/you’re) right’ in English. The analysis below will also examine the additional turn component(s) (e.g., the same speaker’s additional comment) that each of these tokens routinely co-occurs with.

4.1 Epistemic Stance

In Korean conversation, the selection and production of a particular response token serves to display the speaker’s epistemic position in relation to the matter being discussed, asserted, or informed in the prior speaker’s talk. The two response tokens, kulehci and maca, appear frequently when the recipient of an informing turn claims knowing state, however, each has a distinctive use. As will be demonstrated in the following excerpt, kulehei is used to display its producer’s relatively less knowledgeable status, whereas the production of maca commonly signals its producer’s superior knowledge state. Both kulehci and maca as stand-alone utterances or accompany additional turn components, and the distinction between them is often noticeable in what precedes or follows them.

Excerpt 5 shows an instance in which the same speaker produces kulehci and maca as resources for displaying her epistemic stance to different degrees. Here, Jooan reveals to Chaeyeon what she has heard about the accuracy of prenatal ultrasounds when identifying a fetus as a boy. Jooan and Chaeyeon then discuss that the ultrasound is often inaccurate in predicting a girl.

Excerpt 5. Sonogram [LDC 6783]

01 Joo: ku choumpha-lo hay kaci↑ko, DM ultrasound-withdo because
If (the identification was) done with an ultrasound scan,
02 Cha: **UNG.**
yes
03 Joo: namca-ta kule-↑myen,
   male-DC be.so-if
If it predicts a boy,
04 Cha: **UNG.**
yes
05 Joo: ayey cinca namca-lay-yo.
   at.all really male-HEARSAY-POL
It is a boy for sure.
06 Cha: ku-chi. >kuntey yeca-ay-ta kule-myen-↑un,<
   be.so-COMM but female-kid-DC be.so-if-TOP
   **KUCHI.** But if the ultrasound scan predicts a girl,
07 Joo: **YEY.**
yes
08 Cha: namca-ay-l swu-to iss-cyo¿
   male-kid-can-also exist-COMM:POL
   It can turn out to be a boy¿
09 Joo: yey ku:le-n kanungseng-i khu-{lay-yo.
   yeah be.so-RL possibility-NOM big-HEARSAY-POL
   **YEY, I heard that that is highly possible.**
10 Cha: **[ung::. mac-a°yo°.**
   yes correct-POL
   **Yeah. MACA-yo.**
11 ayki-ka ilehkey (0.4) [ung mwe-ya. wungkhuli-ko iss-nun
   baby-NOM like.this DM DM-IE crouch-PROG-RL
12 wichi-ey ttalathulli-tay-yo poi-nun key::.
   location-by different-HEARSAY-POL seen-TOP thing:NOM
How the fetus curls up affects what can be seen (on the sonogram).
13 Joo: **[UNG.**
   yes
14 **YEY YEY YEY.**
   yes yes yes

As Jooan completes her turn sharing the hearsay information about the accuracy of sonograms in predicting a boy (line 5), Chaeyeon expresses agreement by producing a *kuchi* (a shortened form of *kulehci*) token (line 6). The *kuchi* token is then followed by an additional comment that even if the ultrasound scan predicts a girl, the fetus could still turn out to be a boy (lines 6 and 8). Chaeyeon’s comment here presents the other side (i.e., the case of female fetuses) of the same coin, which can be inferred from the basis of the proposition of Jooan’s turn (i.e., the case of male fetuses). Similar to the *ci*-marked proverb in the prior excerpt, the use of the committal suffix -*ci* in Chaeyeon’s reformulating practice appears to reflect a heightened degree of belief in the validity of the prior turn’s talk.
After Jooan confirms the possibility of incorrect gender prediction in the case of female fetuses (line 9), Chaeyeon produces the ‘yes’-type token ung and then maca marked with the polite ending -yo and goes on to give a new piece of information (‘the posture of a fetus affects what can be seen on the sonogram’, lines 11-12). Unlike Chaeyeon’s comment preceded by kuchi in her earlier turn (lines 6 and 8), her additional unit of talk produced after maca displays her ability to contribute to the discussion of ultrasound scans by adding a new piece of information.

The above excerpt demonstrates clear differences in the additional unit of talk which co-occur with kulehci and maca within the same turn. In sum, kulehci precedes a comment which does not contribute new information or opinions to the ongoing talk, therefore, the kulehci producer remains in a recipient role. On the other hand, maca is followed by a new piece of information or opinion, showing its producer’s ability or rights to elaborate and add something new to the ongoing conversation.

4.2 Affiliative Stance

This section examines the ways in which the two kulehta ‘be so’-type response tokens, kulenikka and kulehci, are employed in a responsive turn to an assessing action, which Couper-Kuhlen and Selting (2018) describes as involving “evaluating persons, objects, states of affairs, and situations positively or negatively (p. 283).” Couper-Kuhlen and Selting (2018) notes that the object being assessed in the talk (referred to as assessable) can be present in the here-and-now of talk-in-interaction or part of a past experience (p. 285).

In the data, the kulenikka tokens mostly occur in response to an assessing action in the context of the former case, in which what is being assessed is here-and-now accessible to all the participants engaged in the conversation. Excerpt 6 illustrates an instance of kunikka (a contracted form of kulenikka). Prior to the segment below, which comes from the three graduate students’ face-to-face conversation, each of them was provided with a cup of Starbucks coffee by the researcher and started drinking the coffee.

Excerpt 6. Coffee [Friends 01]

01 Seo: pyengso-pota nemwu ssu-nty(h) "ike", usual-than too bitter-CIRCUM this.thing (It tastes) so much more bitter than usual, this.

02 an-ya saykkkal-i kunty way (.) khephi-ka i be.not-IE color-NOM but why coffee-NOM this

03 saykkkal-i ani-canh-a wonlay. color-NOM be.not-you.know-IE originally

No, what’s with the color then, the color shouldn’t be like
After tasting his coffee, Seojun goes on to complain about the bitterness of his coffee by making a comparison with the usual taste of an iced americano (‘(it tastes) so much more bitter than usual, this’, line 1), and then proceeds to talk about the color of his coffee which also seems different from that of the usual coffee. However, in his subsequent turn, Seojun expresses uncertainty about what he has just claimed about the color of the coffee (‘maybe not?’) and simultaneously takes a close look at the coffee. This leads the other two co-interlocutors, Yunho and Jiyong, to pay attention to the color of Seojun’s coffee as well as that of Yunho, as it is supposed to have a darker color with extra shots of espresso added. For 1.4 seconds, no additional talk is exchanged, but Yunho lifts his cup and all three of them look back and forth between Yunho’s coffee and Seojun’s coffee to make a comparison.

After taking the time to visually compare the color, Seojun expresses his opinion (line 6), and Jiyong responds to this with a *kunikka* token accompanied by embedded laughter (line 7). Jiyong’s production of *kunikka* here after visually comparing the color of the two coffees indicates his affiliation with Seojun’s opinion about the color of his coffee (i.e., darker than Yunho’s coffee). After this, Jiyong continues to express disbelief that the coffee Seojun drank was Yunho’s customized coffee, which further leads Seojun to request that Yunho taste his coffee.

Unlike *kulenikka*, which was described as mostly deployed to express affiliation with the prior speaker’s assessment of a referent that is here-and-now available to the participants, *kulehci* in most cases is produced to affiliate with how a past situation or event has just been assessed by the prior speaker, of which both the *kulehci* producer and the prior speaker have knowledge. Consider Excerpt 7 as an example, which is taken from another one of the three graduate students’ face-to-face conversations. Yunho, who is in charge
of cooking the meal for their packed lunches, brings up grilled pork belly as an option for the next day’s packed lunch.

Excerpt 7. Pork Belly [Friends 02]

01 Jiy: ku-lay kuttay wuli (. ) hakkyo-ey be.so-IE at that time we school-LOC
02 wa-se hyung-i calla-cwe-ss-ul come-and older.brother-NOM cut-BEN-PST-RL
03 ttay >kuttay-ka ceyil masiss-ess- e.< when at that time-NOM the most tasty-PST-IE

KULAY, that time, when hyung (= Yunho) cut (the grilled whole pork belly) into pieces at school, that time (the pork belly) tasted the best.

04 Yun: a ku(.)-[chi yukcup-i cutaylo iss-u[ni(h)kkak(h) DM be.so-COMM juice-NOM as.is exist-because
Ah KUCHI. Because the juices (of the pork belly) would be preserved inside.

05 Jiy: [E E. yes yes
06 |

The juices (of the pork belly) would be preserved inside.

07 masiss-ess-ki-n hay-ss-e< tasty-PST-NML-TOP do-PST-IE
(The pork belly) tasted the best (that way).
08 (1.1)

As they talk about grilled pork belly, Jiyong recalls a past event and begins to talk about a previous occasion on which Yunho grilled pork belly whole at home and brought it to school for their lunch boxes. As Jiyong initiates the talk about this previous event, he frames the event as a shared one by gazing directly toward Yunho and also pointing toward him while producing the pronoun wuli ‘we’ to refer to himself and Yunho (line 1).

After the proffering of a topic of which both Jiyong and Yunho have knowledge, Jiyong adds an evaluative comment about the grilled whole pork belly that Yunho and Jiyong ate at this prior event (line 3). In response, Yunho produces an a-prefaced kuchi (a contracted form of kulehci) token that expresses his knowledgeable state regarding the event and his affiliation with Jiyong’s comment about the deliciousness of the whole pork belly (line 4). Yunho’s epistemic primacy is further expressed in his additional (unikka ‘because’-marked comment, which retroactively serves to account for Jiyong’s prior comment, explaining why the pork belly they ate at that time turned out to be delicious (‘because the juices (of the pork belly) would be preserved inside’). In the middle of Yunho’s turn, Jiyong produces a duplicated e token (line 5), which serves to display his knowledgeable state, and
proceeds to reinforce his prior assessment by repeating the modifier (ceyil ‘the best’) and descriptor (masiss(ta) ‘delicious’) (lines 6-7).

In this study’s conversational data, it was observed that Korean speakers regularly employ both of the two kulehta-type response tokens, kulenikka and kulehci, to respond to assessing actions of various types in a way that expresses their affiliative stance toward the prior speaker’s stance; albeit each token is used distinctively.

5 Discussion and Conclusion

Adopting an interactional linguistic approach, this study qualitatively analyzes the use of the eight most frequently occurring response tokens (ung, e, ney, yey, kulay, kulehci, kulenikka, and maca) in various interactional environments. The analysis of naturally occurring conversational excerpts has shown how the recipient of a turn utilizes the eight response tokens distinctively to respond to various types of initiating actions implemented in a prior turn. These can include a request for confirmation/information, informing, assertion, and assessment. As has been shown in previous studies on response tokens in the Korean language and other languages, response tokens in this study’s data serve a variety of interactional roles and functions as resources for managing a turn or sequence and/or expressing one’s stances toward the prior turn’s talk.

References


SECTION II
Oral Papers

Part 4
Historical Linguistics and Grammaticalization
Deriving *Mizenkei* in Old Japanese Verbal Morphology*

Qiūshí Chén

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1 Introduction

In (Western) Old Japanese (henceforth OJ), when particular verbal suffixes (those in (1)) attach to a traditional 四段動詞 quadrigrade verb (henceforth a 4G verb; a verb whose root/stem ends in a consonant, e.g. CVC-; holding approximately 75% of attested OJ verbs), an /a/ vowel regularly occurs between the root/stem and the suffix (2a). This /a/ vowel is absent when those suffixes attach to a traditional 二段動詞 bigrade verb (henceforth a 2G verb;
a regular verb whose root/stem ends in a vowel (either /e/ or /ui/), e.g. CV-, CVCV-; around 20% of the OJ verbs are 2G), as in (2b):

(1) Group I, traditional mizen-selecting suffixes:¹
   NEG -(a)zu/- (a)n-; TENT -(a)m-; NEG.TENT -(a)zi; COND -(a)ba;
   DES -(a)na; SUBJ -(a)masi; CAUS -(a)sime-

(2) a. 4G verb + /a/ + suffix:²
   伊岐良受曾久流
   i-kir-a-zu=so  k-uru
   there-cut:A-NEG-INF=FOC come-ADN
   ‘[I] return without cutting [them] there’ (Kojiki Kayō 51)

   b. 2G verb + suffix:
   伊頭礼乃時加吾孤悲射良牟
   idure=no  toki=ka  wa-ga  kwopwi-ar-a-m-u
   which=GEN time=Q  I-GEN love-NEG-INF-exist-A-TENT-ADN
   ‘which time will I not love [her]?’ (Man’yōshū 17.3891)

This /a/ vowel has been considered part of the verb stem, known as 未然形 mizenkei in traditional terminology. The suffixes in (1) are regarded as formally selecting this stem. Thus, the mizenkei of a 2G verb is formally identical to the root (e.g. kwopwi- > kwopwi- ‘to love’), while for 4G verbs, it consists of the root plus the /a/ vowel (e.g. kir- > kira- ‘to cut’). It remains unclear whether the suffixes in (1) form a natural class, which may necessitate viewing mizenkei as a purely morphological object. Frellesvig 2010 simply calls it the ‘a-stem’, but for him, only 4G verbs derive an a-stem equivalent to the traditional mizenkei, while those suffixes are said to directly attach to the root of a 2G verb.

Interestingly, there exists another group of suffixes (3) in OJ that exhibits similar, but not exactly the same pattern:

(3) Group II suffixes (adapted from Vovin 2020):
   PASS -(a)ye-, -(a)re-; CAUS -(a)s/- (a)se-; ITER -(a)p/- (a)pe-;
   HON -(a)s-

¹ Abbreviations: ADN = adnominal; CAUS = causative; CONCL = conclusive; COND = conditional; DES = desirative; EMPH = emphatic; FOC = focus; GEN = genitive; HON = honorific; INCH = inchoative; INF = infinitive; INTR = intransitive; ITER = iterative; NEG = negative; PASS = passive; PERF = perfective; Q = interrogative; SUBJ = subjunctive; TENT = tentative; TR = transitive.
² Most examples in this paper are adapted from Vovin 2020, though the transcription system follows Frellesvig and Whitman 2008.
Most of these suffixes can be safely regarded as voice markers as they often alternate or affect the transitivity of a verb. Like Group I suffixes, when they attach to a 4G verb root, an /a/ vowel automatically occurs in between (4a). But unlike Group I suffixes, (i) these voice makers do not typically occur after a 2G verb, a point which will become important later, and (ii) in the few cases where they do, the /a/ vowel seems to be kept, as exemplified by

\[ \text{nas } \ne+\text{as} \text{ in (4b):} \]

\[ \text{(4) a. 安我古登婆之都} \]

\[ \text{a-ga kwo tob-\text{as}-i-t[}\text{e}]\text{-u} \]

I-GEN child fly-CAUS-INF-PERF-CONCL

‘[I] have let my child fly away’ (Man’yōshū 5.904)

\[ \text{b. 遠登賣能那須夜伊多斗} \]

\[ \text{wotomye=\text{no ni}-\text{as}-u ya ita two} \]

maiden=GEN sleep-HON-ADN house board door

‘board doors of the house, where the maiden sleeps’

(Kojiki Kayō 2)

Another notable difference between the two groups of suffixes is that for Group I suffixes, the vowel between the suffix and the root is invariably /a/, but for Group II suffixes, the preceding vowel varies: after some roots another vowel, in most cases an /o/, is found:

\[ \text{(5) toyom-\text{os} \ ‘to cause to sound’, op-\text{os} \ ‘to cause to carry’, omop-\text{os} \ ‘to cause to think/love’, pokor-\text{op} \ ‘to boast repeatedly’, motopor-\text{op} \ ‘to go around constantly’, omop-\text{oye} \ ‘to be thought/loved’, kik-\text{oye} \ ‘to be heard’, etc.} \]

Traditionally, however, the distinction between the two groups of suffixes is not always clearly made: many Group II suffixes are also analyzed as mizen-selecting. For example, Omodaka 1967: 629 describes -pu (i.e. the iterative -\(\text{(a)p}\)-) as ‘normally’ attaching to the mizenkei of a 4G verb, though exceptions are immediately mentioned. Also, Frellesvig 2010: 112 includes the honorific -(a)s-, the passive -(a)ye-, and the passive -(a)re- as selecting the so-called a-stem.

This study provides a novel generative account of the different behaviors of the two groups of suffixes in OJ. It is not immediately evident how the traditional account can be translated into modern morphological theory. The essence of mizenkei, or the a-stem, is unclear in this respect since the stem has lost its theoretical status in most studies within a Distributed Morphology

\[ ^3 \text{The honorific -(a)s- seems to be an exception, which unfortunately will not be particularly dealt with in this paper. I will simply assume that it is derived from the causative -(a)s-.} \]
The verbal template of OJ

{TR -s-; INTR -r-; ITER -p-; INCH -y-; \( \emptyset \)}

{[[[Root -\( \nu^0 \)] -Voice\( ^{\circ} \)] -Asp\( ^{\circ} \)] the verbal domain (-mizen-selecting suffixes)

-\( a_2 \)}

-\( a_1 \); GET -\( e \)}

We first examine the status of the /a/ vowel found in traditional mizenkei/a-stem in Section 2. It will become clear that its distribution is not conditioned by phonology, and without the notion of the stem, it is better to analyze this /a/ as an independent functional head, labeled as -\( a_1 \) in this paper. Arguments will be given to show that it is located in Asp\( ^{\circ} \). Another Asp\( ^{\circ} \) head -\( e \) will then be identified in Section 3, by revisiting the history and the structure of the traditional 2G verbs. The interaction of 2G verbs and Group II suffixes implies that those voice markers can actually be decomposed, an idea that will be pursued further in Section 4, where the independent status of another head -\( a_2 \) preceding Group II suffixes is also established. A formal explanation will then be given to account for the morphological differences between -\( a_1 \), which is invariably realized as /a/, and -\( a_2 \), which carries great morphological irregularity. Section 5 concludes.

2 The Status of Traditional Mizenkei: Identifying -\( a_1 \)

At first glance, the distribution of /a/ before Group I suffixes seems to be phonologically conditioned (2). Since OJ in general prohibits VV sequences, one could argue that /a/ is inherently part of the suffixes but gets deleted due to a hiatus-breaking rule when a vowel-beginning suffix attaches to a vowel-ending root. However, while this approach does reflect some historical facts, e.g., reconstructed forms like *-an- (> OJ -(a)m-), *-am- (> OJ -(a)am-) are generally accepted for proto-Japanese based on independent reasons (see Frellesvig 2008 and also Frellesvig 2019 for a recent discussion), synchronically, as explicitly pointed out by Frellesvig 2010: 112, regular and productive hiatus-breaking rules in OJ do not match the observed pattern (see Unger
1993[1977]; Russel 2003; Vovin 2020: 55–56); applying the regular (7) to Group I suffixes would lead to incorrect forms (8):

(7) a. polysyllabic element + anything: V1 + V2 > V2
b. monosyllabic + polysyllabic element: V1 + V2 > V1

(8) a. okwi- ‘to rise’ -aba > *okaba (correct form: okwiba)
b. ake- ‘to open’ -aba > *akaba (correct form: akeba)

Another potential analysis is to consider /a/ an epenthetic vowel inserted to avoid possible consonant clusters or codas, both disallowed in OJ. However, there is no good evidence that /a/ is a well-established epenthetic vowel in OJ, where epenthesis is found in loan word from Middle Korean (MK) or Old/Early Middle Chinese (OC/EMC) in which more complex syllable structures are allowed. As shown in (9) (all from Frellesvig 2010: 144–150), only epenthetic /i/ or /u/ is consistently attested in those words and, in a few cases where /a/ appears to be inserted for phonological reasons, it is essentially an echo vowel that follows another /a/ in the preceding syllable (10):

(9) a. kiu ‘silk’ < OC *kwyans (EMC *kjwianh)
b. kun ‘country’ < OC *guns (EMC *gunh)
c. zen ‘money’ (attested in Early Middle Japanese) < EMC *dzian
d. sitogi ‘rice cake for ceremonial purposes’ (EMJ) < MK stek ‘rice cake’

(10) a. kama ‘pot’ < OC *khaam
b. kama ‘sickle’ < OC *gryam
c. pakase ‘expert, authority’ < EMC *pak-dzi
d. para ‘field, plain’ < MK pel
e. kas ‘bamboo hat, umbrella’ < MK kas

It can then be confidently concluded that the distribution of the mizen /a/ is not predictable by phonology. By recognizing this, while still treating /a/ as part of the Group I suffixes, Vovin 2020 in his grammar provides comprehensive lists of all the possible forms of those suffixes, with statements specifying which allomorph occurs in what environments. For example, the description of the tentative -(a)m- is presented as follows (2020: 713–714):^{4}

The tentative suffix has two allomorphs: -am- and -m-. The allomorph -am- is used after consonant verbs, r-irregular verbs, n-irregular verbs, and consonant final auxiliaries and suffixes, and the allomorph -m- after vowel verbs, other irregular verbs, and vowel-final auxiliaries and suffixes.

^{4} Vovin’s 2020 ‘consonant verbs’ correspond to the traditional 4G verbs, and his ‘(regular) vowel verbs’ correspond to the traditional 2G verbs. Irregular conjugations will not be dealt with in the current study.
While it is certainly a possibility to allow some sort of allomorphy in the grammar (cf. Section 4), by doing this for Group I suffixes one has to spell out all the possible forms for each of them, without capturing the evident morphological parallelism among those suffixes, i.e., the generalization seems to be missed. Instead, I would like to propose that this /a/ vowel has its independent status: it is the realization of a functional head, which I will refer to as \(-a_1\). Because well attested sequences like \(-ap-a_1m-'-ITER-A-TENT\), \(-as-a_1m- 'CAUS-A-TENT\), \(-as-a_1ba 'CAUS-A-COND\) indicate that this \(-a_1\) is merged higher than voice markers, I suggest that the OJ verbal domain has the structure as in (11), the highest projection being AspP, where (i) \(-a_1\) is an Asp\(^\circ\) head, (ii) those voice markers (i.e. Group II suffixes) are arguably located in Voice\(^\circ\) (but see Section 3 & 4), and (iii) \(v^\circ\) is a category-defining functional morpheme immediately merged above the root, as usually assumed in the DM literature (Harley 2014, Bobaljik 2017):

(11) \[ [[[ root \(v^\circ\) ] Voice\(^\circ\) ] Asp\(^\circ\) ] \(-a_1\) \]

According to this new account, the concept of mizenkei or mizen-selecting is no longer needed: instead of viewing Group I suffixes as ‘selecting’ a specific stem form of the verbs, they can be seen as selecting an AspP as their complements. It is even not necessary to formally view these suffixes as ‘AspP-selecting’ as a type of c-selection relation, since cases are found where the complement of a Group I suffix is not an AspP:


In (12) \(-na\) and \(-m\) are both traditional mizen-selecting suffixes, the latter attaches to the former, not directly to an AspP. I suggest that the selection relation is purely semantic in nature:

(13) Traditional mizen-selecting suffixes select a proposition.

One potential issue with this approach is that \(-a_1\) does not appear to have an independent semantic interpretation. To address this, I propose that \(-a_1\) functions an ‘elsewhere’ morpheme which does not by itself license any marked aspectual meanings, as stated by the Vocabulary Insertion (VI) rule (14). In Section 3 another Asp\(^\circ\) head with marked semantics, namely \(-e\), will be identified.

(14) \[ [Asp\(^\circ\) \(\Leftrightarrow\) -a\(_1\) ] \]

We have seen in this section that phonology alone fails to account for the absence of /a/ with 2G verbs before Group I suffixes. By identifying the vowel as the instantiation of \(-a_1\), and shifting the question into a morphological one, a rather direct answer emerges: in most cases the final vowel of a
2G verb is also an Asp° head, namely -e- as mentioned immediately above, thus in complementary distribution with -a-. Details of this analysis are discussed in the following section, after which we will also be ready to develop a better understanding of the Group II suffixes.

3 The Bigrade Puzzle and the Group II Suffixes

Most 2G verbs end with an /e/ vowel, around 30 with /wi/. In OJ, one finds a lot of 4G/2G pairs of verbs with closely related meanings (15a–e), a phenomenon which has its reflexes throughout the documented history of the Japonic languages (see Kageyama and Jacobsen 2016). (15f) and (15g) are examples where a 2G verb patterns with an adjective (cf. Section 4):

(15) a. wasur- ‘to forget intentionally’ vs. wasure- ‘to forget unintentionally’
   b. tuk- ‘to attach (intr.)’ vs. tuke- ‘to attach (tr.)’
   c. ap- ‘to meet’ vs. ape- ‘to join’
   d. sak- ‘to split (tr.)’ vs. sake- ‘to split (intr.)’
   e. war- ‘to break’ vs. ware- ‘to be broken’
   f. aka- ‘red (adj.)’ vs. ake- ‘to reddens; to lighten’
   g. sabu- ‘lonely (adj.)’ vs. sabwi- ‘to get desolate; to fade’

It seems natural to propose that the final vowels /e/ or /wi/ in 2G verbs have a functional origin. Indeed, this suggestion has been widely accepted at least since Unger 1993 [1977] (Frellesvig 2008). Following Whitman 2008 (see also Frellesvig and Whitman 2016), I assume that the final -e- of 2G verbs is derived from the verb -e- ‘to get’, with -wi- possibly being an allomorph to it, a point that I will go back to later. It is important to note here that the phonological status of the /e/ vowel in OJ is secondary: it comes from proto-Japanese *ai, or *i after coronals (Whitman 2016), as a result of monophthongization:

(16) a. *ai > e

Note also that the semantics of the pairs in (15) are not that predictable. Sometimes -e- derives a transitive 4G verb form into an intransitive one, sometimes the other way around. In cases like (15a), the nuance of meaning seems to be very subtle. This irregularity in interpretation is somehow expected as far as the historical origin of -e- is taken into consideration, as one can observe a similar multifunctionality of the get-construction in English. Synchronically, assuming that -e- is a functional head at the stage of OJ, I suggest its ‘ambiguous’ meaning can be understood as a case of contextual allomorphy in the sense of Marantz 2013, as the LF counterpart of contextual allomorphy: the
meaning of -e- is root-sensitive in that to get it, one needs to access information of the root. Without going into details, some interpretation rules can be formulated as follows:

(17) a. \[ \text{GET} \Leftrightarrow [\text{TR}] / \sqrt{TUK} \quad \text{(i.e. tuk-e- 'to attach (tr.)' in (15b)} \]
b. \[ \text{GET} \Leftrightarrow [\text{INTR}] / \sqrt{SAK} \quad \text{(i.e. sak-e- 'to split (intr.)' in (15d)} \]

The question is, then, the syntactic position of this element. To answer this, we need to examine the Group II suffixes, i.e. the voice markers. Notice that some voice markers themselves show the 4G/2G alternation. For instance, the so-called causative marker has two allomorphs: -(a)s-, which has a 4G conjugation, and -(a)se-. which is by itself 2G. The same goes for the iterative -(a)p- and -(a)pe-. As for the so-called passive -(a)re-, it is clearly related to the intransitive marker -(a)r-, which in turn might come from the verb ar- ‘to exist’. The intransitive -(a)r- is sometimes not considered a canonical suffix in OJ grammars such as Vovin 2020, but there is actually no good reason to treat it differently from the other suffixes listed in (3). Of course, pairs like -(a)p-/-(a)pe- and -(a)s-/-(a)se- are apparent cases of allomorphy, but -(a)r- and -(a)re- cannot be, because they clearly have distinct semantics, but this does not really matter in the current context, if the final /e/ vowels in those 2G forms point to the same -e- suffix identified in lexical 2G verbs as just discussed, which may have semantics of its own. That is, a form like -(a)se- is in fact not a single element, but can be segmented as -(a)s-e-, with -e- being the GET morpheme. Now the inventory of OJ voice markers can be summarized as in (18). Note that the labels are used only conventionally here and cannot be taken seriously; they do not imply any essence of those elements. For example, the so-called passive -(a)y-e- has three functions in OJ: (i) spontaneous action, (ii) passive, and (iii) potential (Vovin 2020: 747), with the ‘real’ passive meaning (ii) probably being innovative. The different labels used for them can be viewed as an informal way to indicate the fact that the 2G forms of those suffixes do not necessarily have the same meanings as their 4G counterparts. Importantly, the 2G forms are (at least) bimorphemic, because the final /e/ vowels are exactly the realizations of the functional head -e-.

(18) a. Transitive/causative/(hononific) -(a)s-; causative -(a)s-e-
b. Intransitive -(a)r-; passive -(a)r-e-
c. Passive -(a)y-e-
d. Iterative -(a)p-; iterative -(a)p-e-

It is now obvious that -e- can be structurally higher than the voice markers -(a)s-, -(a)r-, -(a)p-. Given that -e- and -a- are in complementary distribution, as illustrated by Group I suffixes in (2), it is reasonable to hypothesize that -e- in such cases is also an Asp head, conditioned by the VI rule (19), but
unlike -a/-, it is a semantically marked one, with its interpretation being context-sensitive as outlined above.

(19) \[ \text{GET}_{\text{Asp}^0} \Leftrightarrow -e\]

As shown in (18), a direct 4G counterpart of -(a)ye-, namely *-(a)y-, apparently is not attested, but this gap is immediately explainable if we consider the phonological history of /e/. As noted in (16), a pre-OJ form *ay would result in /e/ in OJ. Thus, a voice marker *-(a)y- can be reconstructed for proto-Japanese, which has been further grammaticalized into an Asp\textsuperscript{0} head at the stage of OJ, phonologically realized as /e/. Additionally, the passive form -(a)y-e- indicates that the pre-grammaticalized voice marker *-(a)y- might still be present in OJ; it only undergoes monophthongization as a derivational process and results in /e/ when the higher aspectual -e- is not present. Thus synchronically, I would like to suggest that the ending vowel /e/ of 2G verbs is structurally ambiguous: it is either (i) an Asp\textsuperscript{0} head -e-, or (ii) a voice maker, underlyingly -(a)y-, merged lower than Asp\textsuperscript{0}. In the form -(a)y-e- we get both; in other cases where an /e/ occurs immediately above the root, its position is admittedly more difficult to tell (see Section 4 for more comments).

Frellesvig 2008 argues that the 2G conjugation belongs to a younger morphological layer in the language than the 4G. One crucial argument he made is that, without a clear semantic reason, 2G verbs do not normally combine with the Group II suffixes, i.e., forms that can be analyzed as 'root-e-as-' are sparse. Treating 2G verbs as fully lexicalized, what he claims is that the 2G conjugation arises later than the morphologization of the Group II suffixes. Putting the chronology issue aside, it should be clear that the observation that 2G verbs are morphologically more restricted is nicely captured by the current proposal, where the /e/-ending is identified as two diachromically related functional heads. The voice marker -(a)y- (/>e/) competes the same syntactic position with the Group II suffixes and they are thus in complementary distribution. On the other hand, the GET -e- is crucially an Asp\textsuperscript{0} head merged higher than -(a)s-, -(a)r-, -(a)y-, and -(a)p-, they do cooccur, but will result in forms like -(a)s-e-, -(a)r-e-, -(a)y-e-, and -(a)p-e-, not the reversed order.\footnote{Note that apparent exceptions to Frellesvig’s 2008 observation are not that difficult to find. For example, in Vovin 2020: 738, 776 we find forms like nagar-ap- ‘flow-ITER’ and nur-as- ‘wet-CAUS’, where the underlying forms of the roots are claimed to be 2G, namely nagare- and nure-, which are well attested elsewhere. However, although the 4G forms nagar- and nur- are assumed to be non-existent in OJ (nur- ‘to paint’ in fact occurs three times without a following /e/ according to the Oxford-NINJAL Corpus of OJ (Frellesvig and Horn et al. 2023)), one can still say that the root forms are just nagar- and nur-, which can be attached to immediately by either -e- (< -(a)y-) or a Group II suffix, but not both.}
4 Identifying -a\_2-: Why It Varies While -a\_1- Does Not

Notice that all the forms in (18) begin with an /a/, and we have already seen that it behaves quite differently from the /a/ in traditional mizenkei. The former /a/ is certainly not -a\_1- as identified in Section 2. In (20), the root of ‘to sleep’ is traditionally considered ne-, so the underlying form n-as- could be ne-as-, where /e/ is deleted by the regular vowel-deletion rules (7).

(20) 夜周伊斯奈佐農
yasu i si n-as-a-n-u
easy sleep EMPH sleep-CAUS-A\_1-NEG-ADN
‘[you] do not let [me] sleep an easy sleep’ (Man’yōshū 5.802)

One would suppose that this /a/ vowel is part of the Group II suffixes. However, this solution will give us a number of suffixes that share highly parallel phonological shapes, all accidentally beginning with /a/. Such a rather unbalanced picture is of course in principle possible, but one naturally wants to ask if the initial /a/ is a morphological object by itself, and if those voice markers can be further decomposed. At this point it is worthwhile to note that historically, the origin of this /a/ appears to be heterogeneous. On the one hand, as already mentioned, -(a)r- is assumed to be derived from ar- ‘to be’. In this case the /a/ is indeed originally part of the suffixal forms. But on the other hand, the causative/transitive -(a)s- points to the prototypical transitive verb se- ‘to do’, where an original initial /a/ is not found. Thus the /a/ in -(a)s- might have been a root vowel at first, or be added at some point by analogy.

More importantly, it has been mentioned in the beginning of this paper that after certain roots the initial vowel of those suffixes is not /a/. See (5). (21) provides some more examples where an alternative vowel is found between different Group II suffixes and a same root:

(21) a. kik-o-s- ‘hear-HON’; kik-o-y-e- ‘to be heard’
    b. omop-o-s- ‘think-HON’; omop-o-y-e- ‘to be thought’

\(^6\) Ne- ‘to sleep’ has a 2G conjugation, but it appears that the final /e/ etymologically has nothing to do with the functional -e-. Recall that Group II suffixes do not normally attach to 2G verbs. It is synchronically possible to analyze this verb as having a root form n-, which can be extended by either -e- or -as-, without the phonological rules being involved. See also note 5.

\(^7\) The distribution of -o-p- and -o-p-e- is somehow less paralleled (i.e., they are normally attested after roots different from those in (21)). This probably implies that the iterative -(a)p- should be treated in a way different from other Group II suffixes. Although I will not pursue this idea further, one should be aware that -(a)p- sometimes co-occurs with another Group II suffix as in forms like motop-o-r-op- ‘to crawl around’ (cf. 21c), while other Group II suffixes do not co-occur with each other. A more striking fact is that, in Eastern Old Japanese, the iterative marker unexpectedly occurs after the negative -(a)z/-(-a)n- a Group I suffix, as in ap-a-n-ap- ‘meet-A-NEG-ITER’. The peculiarity of -(a)p- is left for further research.
Diachronically, (21a–c) may reflect a pre-OJ Tongue Root harmony system, which is no longer productive at the stage of OJ (see Whitman 2016, this volume). For (21d), the /u/ is normally considered a root vowel, but with this assumption synchronically, we lose the possibility to account for the absence of a regular suffix-initial /a/. Since all the Group II suffixes seem to show a similar behavior with respect, if one treats the /a/ as a suffix-initial vowel, the parallel distribution of those alternative forms is left unexplained. I thus suggest that the /a/ vowel also has its independent status: all the alternative forms of it are a result of the allomorphy of an independent functional head -a₂- merged at v°, i.e., a verbalizer, with the OJ Voice° heads being those in (22). Their labels, again, are used only informally and do not necessarily reflect the essence of those markers, an important issue which I will not discuss any further (see Oseki 2017 for a quite relevant formal discussion on the voice markers in Modern Japanese).

(22) Intransitive -r-; transitive -s-; inchoative -y-; iterative -p-

An advantage of positing a v° head -a₂- is that cases like (15f) and (15g) are now easy to explain, where an /e/ (with the alternative form /wi/) seems to derive an adjective into a verb with an invariable inchoative reading. This /e/ is not the Asp° head -e-, but is the phonological realization of -a₂-y-, in which -a₂- is a verbalizer, which does the category-shifting or category-assigning job, and -y- is a Voice° head which licenses the inchoative meaning.

Recall that a number of 2G verbs end with /wi/, rather than the regular /e/. This pattern in fact fits nicely with the current analysis, because /wi/ historically comes from *oi or *ui (cf. 16). Noting that proto-Japanese *s gives /o/ in OJ, /wi/ can be viewed as underlingly -o-y- or -u-y-, where -o- and -u- are two allomorphs of -a₂-, -y- the inchoative marker identified above. Now the OJ verbal domain can be analyzed as having the following structure:

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8 Or in some cases *oi as reconstructed by Vovin 2011 and Pellard 2013. Note however that the *oi sequence violates the Tongue Root harmony system proposed by Whitman this volume.
It is then predicted that the distribution of the 2G ending /wi/ should be parallel to the alternative forms in (22). The word forms in (24) seem to confirm this. The realization of -a2- is essentially root-sensitive as stated by the VI rules in (25).

(24) a.  

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b. sug-wi- (< sug-u-y-3> ‘to pass time’; sug-u-r- ‘to pass’; sug-u-s- ‘to let pass’

(25) a. [v]  u / Root__ where Root ∈ {√SUG, √KAK, etc.}

b. [v]  o / Root__ where Root ∈ {√OT, √KIK, √OMOP, etc.}

c. [v]  a / Root__ elsewhere

We are finally ready to solve the issue raised in the beginning of this paper, which at the moment can be paraphrased as: why -a1- is invariably realized as /a/, whereas -a2- shows rich allomorphy? The answer seems to be quite direct: -a1-, as an Asp° head, is too ‘far away’ from the root, so that any interaction between -a1- and the root is impossible because no local relations can be established, as it is exactly -a2- that intervenes between -a1- and the root. Since both -a1- and -a2- are ‘elsewhere’ morphemes, they should always be merged in unmarked cases; as for Voice°, I assume that the unmarked value is realized as zero:

(26) [v]  ∅

Therefore, a surface form like kik-a1-m- ‘hear-A-TENT-’ must be underlyingly more complex. This is illustrated in (27) where v° is occupied by -a2- and Voice° by ∅:


Putting the issue of the zero morpheme aside (cf. note 10), it is crucial for us that -a2- will block any possible local relations between the root and Asp°, i.e. -a1-. Recall that OJ does not allow vowel clusters, which are

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9 /wi/ is neutralized to /i/ after coronals.
systematically avoided by the vowel-deletion rules (7). I assume here that (7) applies derivationally and cyclically; that is, (7) only becomes active at the point \(-a_1\) is inserted, which happens after the application of the VI rules (25) that insert \(-a_2\). As a result, whenever an underlying \(a_2-a_1\) sequence emerges, it is invariably the realization of \(-a_2\) that is deleted, in which case a certain VI rule might still apply to it, thus resulting in an irregular vowel, but no surface effect will be observed since it is deleted later in the derivation, and only \(-a_1\) is kept in the surface form.

The same logic would also apply to the Voice° heads (22) and theaspectual \(-e-\), in that they both are predicted not to show root-conditioned allomorphy, due to the blocking effect of \(-a_2\). The former prediction seems to be borne out by the data, but the latter is rather difficult to confirm, since at the moment we do not have a principled way to distinguish \(-e-\) from the \(v^o\)-Voice° cluster \(-a_2-y\), which would also result in /e/. In any case, it is deduced that whenever an /wi/ is attested, it is the alternative form of \(-a_2-y\), not the invariable Asp° head \(-e-\).

5 Conclusion

In this paper I have analyzed in a DM framework the status of the traditional mizenkei in OJ, which in traditional grammar works as a stem being formally selected by specific suffixes (i.e. Group I suffixes), which do not clearly form a natural class. In addition, a number of voice markers (i.e. Group II suffixes) are sometimes also identified as mizen-selecting. This study shows that mizenkei is both theoretically undesirable and empirically unnecessary, in that the so-called stem-final /a/ should be analyzed as two functional heads: an Asp° head \(-a_1\) for the /a/ preceding Group I suffixes, and a \(v^o\) head \(-a_2\) for the /a/ between a Group II suffix and the root. Thus strictly speaking, mizenkei in fact is not derived, but is discarded as a notion, by this study.

First, efforts have been put to provide a reason why traditional 2G verbs (i.e. verbs identified as having a vowel-ending) do not extend an /a/ vowel in their mizenkei. I have argued and put forth the idea that the final vowel of 2G verbs is itself a functional head \(-e-\), which is in complementary distribution

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10 Note that contextual allosemy on the other hand is not predicted to be blocked by \(-a_2\); (17) can still be kept. The principle used here is that only morphemes with a phonological realization can block contextually allomorphy, and likewise, only morphemes that have semantics can block contextual allomorphy; \(-a_2\) seems to have the former but lack the latter. See Marantz 2013 for discussion.

11 The only potential counterexample I am aware of is from the word form panat- ‘to separate’, which seems to be related to pan-a-t- ‘to be expelled’ and pan-a-r-e ‘to be separated’. It might be segmented as pan-a-t-, treating \(-t-\) as an allomorph of the transitive \(-s-\). Unfortunately, we do not have enough data to reach a decisive conclusion.
with -a₁-. Second, a clear distinction is made between the two groups of suffixes. The Group II suffixes are not monomorphemic but are Voice°-v° clusters to which -e- can further attach. A number of Voice° heads are identified within this proposal. It has been explained in terms of locality conditions why -a₁- and -a₂- are morphologically so different in that only the latter shows root-controlled allomorphy. We have thus developed a rather fine-grained structure of the verbal domain of OJ.

Future research will try to extend the current framework out of the verbal domain and eventually develop a better understanding of the full paradigm of OJ verbal morphology. It is noteworthy that 2G and 4G verbs show significant paradigmatic differences also in the clausal domain; more assumptions need to be made to account for all of them. Note finally that the notion of mizenkei is used in grammar of different stages and varieties of the Japonic languages, and the approach presented by this paper does not necessarily apply to other varieties in the language family.

References


Diachronic Change of -key and -tolok to DO-Causatives: A Usage-based Construction Grammar Approach

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1 Introduction

Korean syntactic causatives can be made by combining an adverbial subordinator -key or -tolok with the ‘do’ verb ha as in -key HA and -tolok HA. To date, a large body of literature has examined the semantic and syntactic similarities and differences between the -key HA and -tolok HA causatives, mainly from the formal grammar approach. Within this approach, -key/tolok and ha are treated as discrete syntactic elements. However, how the combination of these syntactic elements ended up denoting the non-compositional
causative meaning has not been fully addressed, and incongruent semantic and syntactic roles of -key and -tolok and ha in the formation of the causatives have been reported.

This study proposes a usage-based (Barlow and Kemmer 2000; Bybee 2001; Langacker 1987) and construction grammar approach (Goldberg 1995; Croft 2001) to better understand the Korean DO-causatives, V-key HA and V-tolok HA. According to the usage-based approach, a speaker’s knowledge of the language is informed by its actual use, and linguistic structures are processed through human domain-general cognitive processes such as categorization, chunking, and rich memory storage (see Bybee 2010). Every usage event determines the representation of grammar in the speaker’s mind. This mental representation of grammar is organized into constructions, which can be words, phrases, or highly abstract schemas. As a symbolic unit of form and meaning, construction is the basic unit of language with its own distinctive meaning. In this sense, V-key HA and V-tolok HA can be considered to form causative constructions.

Following the usage-based construction grammar approach, we would expect that the diachronic co-occurrence of -key and ha and -tolok and ha led to certain changes in the meaning and entrenchment of the combined chunks. From the usage-based construction grammar approach, “grammaticalization is the creation of new constructions” (Bybee 2003: 146) which involves mechanisms such as repetition and increased usage, chunking, autonomy, generalization to new contexts, habituation, and pragmatic inference (see Bybee 2010). The increased subjectification in meaning and the pragmatic inferencing contribute to the semantic change as the language users’ tendency to infer textual relations over time develops meanings (Traugott and Dasher 2002). Language change does not occur radically; rather, it is gradual, and language changes from its actual usage events in communities and contexts (Bybee 2010). Thus, it is imperative to review -key and -tolok from a diachronic perspective to understand the two DO-causative constructions in present-day Korean.

However, compared to the abundant literature on the two DO-causatives from synchronic data of present-day Korean, studies on the diachronic perspective of the two DO-causatives are still limited. Some existing studies include Suk (2006, 2013) for the diachronic change of -tolok and -tolok ha, Kim (2011) for the diachronic change of -key, and Choi (2000) for the causative -key ha. According to Kim (2011), the purposive meaning of -key from Middle Korean led to the emergence of the causative -key ha, which is reported to have already appeared in Middle Korean (Choi 2000). Suk (2006, 2013)
presented that the older meanings of -tolok are tokeup\(^1\) and iksim\(^2\) in Middle Korean while the iksim meaning disappeared in Modern Korean. Suk (2006) noted that a new ‘degree’ and purposive meaning of -tolok originated from the temporal endpoint meaning of -tolok. Those studies offer illuminating findings, however, the mechanism of the semantic change of V-key and V-tolok and their grammaticalization to the causatives have not been fully investigated.

Grounded in a usage-based construction grammar approach, this study aims to examine the semantic change of V-key and V-tolok and their path of grammaticalization to the causative constructions, V-key HA and V-tolok HA.

2 Method

The data were collected from an online historical Korean corpus search engine Etymey, which stores historical Korean corpora collected by the National Institute of Korean Language from the late 15\(^{th}\) century to the early 20\(^{th}\) century. Randomly 200 tokens of -key and -tolok and their allomorphs from target centuries (i.e. late 15\(^{th}\) century for late Middle Korean; 17\(^{th}\) and 18\(^{th}\) centuries for Modern Korean; early 20\(^{th}\) century for early Present-day Korean) were collected by running Python scripts. Among them, tokens that are preceded by verbs were selected and further classified into two categories, whether V-key/tolok is followed by the verb ha or X other than HA.\(^3\) For tokens of V-key/tolok X, the adverbial meaning of -key and -tolok were coded. For tokens of V-key/tolok HA, I coded whether they were compositional, constructional (i.e. causative), or ambiguous.

3 Findings and Discussion

3.1 Diachronic Change of V-key and V-key HA

The findings showed that most tokens of V-key were followed by HA, denoting the constructional meaning (i.e. causative) as shown in Table 1.

\(^1\) It is similar to ‘until’ in English. In this study, I use the term ‘the temporal endpoint’ to refer to this meaning.

\(^2\) It is similar to the comparative correlative (e.g. the Xer, the Yer). In this study, I use the term ‘the parallel intensification’ to refer to this meaning.

\(^3\) Tokens of V-key mal and V-key toy were eliminated to fully focus on the V-key ha construction.
Table 1. Token frequency of V-key

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
<th>15th C</th>
<th>17th C</th>
<th>18th C</th>
<th>Early 20th C</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-key X</td>
<td>Adverbial</td>
<td>6</td>
<td>25</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.9%)</td>
<td>(18%)</td>
<td>(6.3%)</td>
<td>(5.6%)</td>
</tr>
<tr>
<td>V-key HA</td>
<td>Constructional</td>
<td>200</td>
<td>113</td>
<td>134</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(96.6%)</td>
<td>(81.3%)</td>
<td>(93.7%)</td>
<td>(94.4%)</td>
</tr>
<tr>
<td></td>
<td>Ambiguous</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.5%)</td>
<td>(0.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of tokens</td>
<td>207</td>
<td>139</td>
<td>143</td>
<td>89</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Token frequency of V-key

When V-key was followed by X other than HA, various adverbial meanings were conveyed as shown in Figure 1.

The older meanings of V-key X in the late 15th century appeared to denote result events from an event in the main predicate, which can be interpreted as either the expected or natural result meaning as in (1) or the desired result meaning as in (2).

(1) *pwucA* *hAn* *lyang-ul* *cyAhi-yey* *ssa*
*aconite* *one* *a.unit.of.coinage-ACC* *paper-in/with wrap-CONN*

*mul cec-ye tteti-key kwu-e*
*water wet-CONN burst-CONN bask-CONN*

‘wrap a unit of aconite in a paper, soak it in water, and bask it until (it) bursts.’

(1489, *Kwukupkanipang*)
(2) `pwuthye-s ceyca-s wen-ulo sampo-s Him
Buddha-GEN disciple-GEN wish-INS Sampo-GEN strength
nip-e o-key chengha-non mal-i-la
receive-and come-CONN ask-REL word-CP-ENDER
‘It is a word that asks for the power of Sampo so that (he) comes with the wishes of Buddha’s disciples.’ (1496, Samtansisikmwun)

For the tokens of the natural/expected result meaning, the event of the -key clause was semantically highly relevant to the event in the main predicate, as ‘burst aconites’ and ‘bask aconites’ show in (1). In the meantime, the tokens of the desired result meaning of -key showed that the event of the -key clause is the desired event that the event of the main predicate can bring. The desired result meaning of -key appeared from the late 15th century to the early 20th century while the sole expected/natural result meaning only appeared in the late 15th century. Instead, the expected/natural result meaning was mostly found to be ambiguously interpreted as the desired result meaning.

When V-key was followed by the verb HA, the constructional meaning of ‘causative’ was found with a high frequency throughout the centuries as shown below.

(3) uyciha-y se-key hA-myen casik-i cukcay
lean-by stand-CAUS-if baby-NOM immediately
nano-nilu come.out-ENDER
‘If (you) make (the pregnant woman) stand by leaning (during a mealtime), the baby comes out immediately.’
(1489, Kwukupkanipang)

(4) piloso hyokyeng-kwa nonel-Al oyo-key ha-ltini
at.last Hyokeng-and None-ACC memorize-CAUS-CONN
‘At last (you) make (them) memorize Hyokeng and None.’
(1632, Kalyeyenhay)

(5) ney yangkan-uy tolok-a mastangi
you bright.world-LOC return-CONN properly
kamungphyen-ul kac-ye nepi phye-key ha-la
Kamungphyen-ACC have-CONN widely spread-CAUS-IMP
‘Return to the bright world and properly have Kamungphyen and make (it) spread widely.’
(1796, Kyengsinlokensek)
As shown in (3) to (6), when V-key was followed by HA, the compositional meanings of -key and ha were bleached (i.e. generalized) and the function of -key as an adverbial subordinator and ha as a main predicate was lost. Instead, a new meaning of causation emerged. The token frequency of V-key ha was already high in the late 15th century, and its causative meaning was also high as 99.5% of the tokens of V-key HA conveyed the causative meaning in the late 15th century and 100% in the 18th and early 20th centuries.

3.2 Mechanism of the Diachronic Change of V-key and V-key HA

In the late 15th century, the natural/expected result meaning of -key was found, which implicates the temporal meaning and event sequences as the main predicate event leads to the event in the -key clause. In such cases, the events of the two clauses are closely related. This natural/expected result meaning of V-key was also interpreted as the desired result meaning where the main predicate event leads to the event in the -key clause as a desired result, which is not naturally coming out from the event in the main predicate. Such a desired result meaning of V-key was found to be more dominant later in the centuries. The event sequence of the natural/expected result meaning of V-key can be schematically represented as in Figure 2.

![Figure 2. Schematic representation of the natural/expected result meaning of V-key](image)

In the meantime, as early as in the 15th century, a high frequency of V-key HA was found with its constructional meaning of causative. With the increased usage of V-key HA as a unit, V-key HA became a chunk and was automatically processed. As V-key HA became a chunk, we see the semantic bleaching of the verb ha. As noted by Bybee (2003: 152), “the lexical items found in grammaticalizing constructions … are themselves already highly generalized in meaning. […] Among stative verbs, it is “be” and “have” that grammaticalize, and for active verbs, the most generalized, “do” (Bybee et al. 1994).” Such a case is also found in Korean as the verb ha has been “used
in many grammatical constructions of diverse function” (Rhee 2011:766). This generalized meaning of ‘do’ of the ‘do’ verbs cross-linguistically is also known to be relevant to the meaning of ‘perform an action’ (Clark 1978). In this sense, the Korean ‘do’ verb *ha* in *V-key HA* can be considered as conveying the general meaning of performing an action. With this generalized meaning of *ha*, the desired result meaning from -key in *V-key HA* seems to trigger the causee NP referent to be viewed as an agent making the desired result event, which eventually led to the more abstract meaning of causation through *V-key HA*.

### 3.3 Diachronic Change of V-tolok and V-tolok HA

 Tokens of *V-tolok* were mainly found in the form of *V-tolok X* (see Table 2). The string of *V-tolok* and *HA* was found with a low frequency, and their causative meaning was not found until the 18th century.

<table>
<thead>
<tr>
<th>Form</th>
<th>Meaning</th>
<th>15th C</th>
<th>17th C</th>
<th>18th C</th>
<th>Early 20th C</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>V-tolok X</em></td>
<td>Adverbial</td>
<td>156</td>
<td>161</td>
<td>114</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(91.2%)</td>
<td>(90.4%)</td>
<td>(91.2%)</td>
<td>(91.9%)</td>
</tr>
<tr>
<td><em>V-tolok HA</em></td>
<td>Causative</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2.4%)</td>
<td>(7.1%)</td>
</tr>
<tr>
<td></td>
<td>Compositional</td>
<td>15</td>
<td>17</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.8%)</td>
<td>(9.6%)</td>
<td>(6.4%)</td>
<td>(1.0%)</td>
</tr>
<tr>
<td>Total number of tokens</td>
<td></td>
<td>171</td>
<td>178</td>
<td>125</td>
<td>99</td>
</tr>
</tbody>
</table>

Table 2. Token frequency of *V-tolok*

The frequency of the adverbial meaning of *tolok* in *V-tolok X* is shown in Figure 3.

![Figure 3. Frequency of the semantic meaning of *tolok* in *V-tolok X*](image)
The temporal endpoint meaning of -tolok appeared throughout the target centuries as shown in (7) and (8).

(7) panggong-i cwukwum-ey nilu-tAlok swum-e-si-nila
Panggong-NOM death-to reach-CONN hide-and-live-ENDER
‘Panggong hides and lives until (he) reaches death.’
(1481, Twusienhay)

(8) hAn tAl-i nem-tAlok nwue-si-toy
one month-NOM pass-CONN lie-HON-CONN
‘She lay until a month passes’ (1797, Olyunhayngsílto)

In the meantime, another older meaning of -tolok, parallel intensification, was found from the late 15th century to the 18th century as shown from (9) to (10).

(9) manh-i mek-tolok tyohʌ-nila
many-ADV eat-CONN good-ENDER
‘The more (you) eat, the better it is.’ (1489, Kwukupkanípang)

(10) swul-un mek-tolok cosimhA-ye
alcohol-TOP eat-CONN careful-CONN
‘The more you drink alcohol, the more cautious you are’
(1790, Inetayoŋpang)

The two older meanings of -tolok started to denote an ambiguity between the temporal endpoint and degree meanings in the 17th and 18th centuries as in (11), and the sole degree meaning was found in the early 20th century.

(11) kongsim-ey meko-toy puun Kuy
empty.stomach-at eat-CONN swollen Symptom
nas-tolok mek-ula
be.cured-CONN eat-IMP
‘Eat in an empty stomach until the swollen symptom is cured OR up to the degree which the swollen symptom is cured.’
(1608, Enhaythaysancípyo)

Another emerging meaning of -tolok was the purposive result meaning, starting in the 18th century as an ambiguous interpretation with the temporal endpoint meaning, as in (12), and its own purposive result meaning in the early 20th century, as in (13).
(12) mwusoy-kitong-ey kkos phuy-ye Yelumi
steel-pillar-LOC flower bloom-CONN Fruit
yel-e ttaguli-tolok nwuli-s-osye
bear-CONN pick-CONN enjoy-HON-ENDER
‘Enjoy (a long life) until the steel pillar blooms flower and bears fruit and (you) pick (it) up OR so that the steel pillar blooms flower and bears fruit and (you) pick (it) up.’

(13) Kuyhan aneylo ta pokohA-tolok sinmwun-ey
deadline within all report-CONN newspaper-LOC
keycAyhA-la hA-yess-nAnila
publish-QUOT-PST-ENDER
‘(I) told to publish (the information) on the newspaper so that (people) report within the deadline.’

When it comes to V-tolok HA, unlike the tokens V-key HA, the compositionality of -tolok and ha were maintained throughout the target centuries, where -tolok served as the adverbial subordinator denoting the temporal endpoints meaning as in (14), (15), and (16).

(14) yangciho-twAy cyemu-tAlok hA-la
brush.teeth-CONN get.dark-CONN do-IMP
‘Brush (your) teeth but do it until it gets dark.’

(15) wul-ki-lul sangsa mat-tolok ha-ni
cry-NOMI-ACC funeral end-CONN do-CONN
‘(He) does crying until the funeral ends.’

(16) moys-ye syes-ki-lul nal-i mas-tolok ha-ya
serve-and stand-NOMI-ACC day-NOM end-CONN do-CONN
‘(He) does until the day ends.’

However, in the 18th century, 27.3% of tokens of V-tolok HA started to deliver the causative meaning as in (17), and 87.5% of tokens of of V-tolok HA denoted the causative meaning in the early 20th century as in (18).
(17) esti pantAsi kwihyang ponay-tolok hA-lio
   how surely returning one’s hometown send-CAUS-INTR
   ‘How do (I) make (him) return hometown?’
   (1760, Mwumokwangcengchwunglok)

(18) kwanwen-i emha-n mal-no paykyoha-nan mal-ul
    officer-NOM strict-REL word-INST apostatize-REL word-ACC
    ha-tolok ha-na
    do-CAUS-CONN
    ‘The officer made (Andria) say words for apostasy.’
    (1908, Kyenghyangcapci)

In both (17) and (18), the semantic bleaching of -tolok and ha and the emergence of the causative meaning from V-tolok HA were observed. Although the causative meaning of V-tolok HA was found from the 18th century, the frequency was still very low compared to that of the V-key HA construction.

3.4 Mechanism of the Diachronic Change of V-tolok and V-tolok HA

The core older meaning of -tolok, temporal endpoint ‘up to the temporal endpoint,’ implicates the duration of the main predicate event, with another event simultaneously happening to reach an endpoint. These two events are not sequential but parallel and take place in the same temporal domain. However, with metonymy, language users can further draw an assumption that there is an event after passing the temporal endpoint, which is, however, an unknown event from the linguistic expression. (See Figure 4).

Figure 4. Schematic representation of the temporal endpoint meaning of V-tolok

In the meantime, in another older meaning of -tolok, the parallel intensification, a change of the main predicate event takes place along with a change
of the -tolok clause event. Here, the events are also parallel with increased intensity, denoting the parallel intensification meaning of ‘the Xer, the Yer.’ (See Figure 5).

![Figure 5. Schematic representation of the parallel intensification meaning of V-tolok](image)

Starting in the 17th century, we see the new ‘degree’ meaning of -tolok ambiguously interpreted with the temporal endpoint meaning of -tolok. Previously, studies (Suk 2006) argued that the temporal meaning of -tolok led to the emergence of the degree meaning of -tolok. However, I argue that not only the temporal endpoint but also the parallel intensification meaning of -tolok contributed to the appearance of the degree meaning, which is explained through pragmatic inferencing. The temporal endpoint meaning of -tolok implies a durative event (i.e. the main predicate event) up to a temporal endpoint (i.e. the -tolok clause event). In the meantime, the parallel intensification meaning of -tolok suggests a change of an event or state parallel to a change of another event (i.e. the main predicate event). From these two older meanings of -tolok, language users can infer an event that is more intensified (i.e. the main predicate event) or that changes to the degree which it gets to a temporal endpoint (the -tolok clause event). With this inference, the degree meaning ‘X up to the degree’ was made. (See Figure 6).

![Figure 6. Schematic representation of the degree meaning of V-tolok](image)
Later, another new meaning of -tolok, the purposive meaning, was found. The temporal endpoint and the degree meanings of -tolok implicate that there is an event that follows after reaching the temporal and situational endpoint. Thus, the temporal meaning and the intensity meaning from -tolok allow the language users to infer the temporal event as ‘up to the situational point which is the speaker’s purposeful and wishful event.’ Here, the main predicate event and the -tolok clause event do not occur simultaneously, and the fictiveness of the -tolok clause event is unknown. (See Figure 7).

![Figure 7. Schematic representation of the purposive result meaning of V-tolok](image)

This purposive result meaning of V-tolok, when it was followed by HA (V-tolok HA), conveyed compositional meaning throughout the centuries. However, starting in the 18th century, the increased usage of V-tolok and HA led them to become a chunk, V-tolok HA, with the semantic bleaching of ha. Thus, the general verbal meaning of ha remained, appearing in the syntactic position of the main verb while V-tolok appears in the pre-verbal position. This generalized verbal meaning of ha, along with the speaker’s wish for the purposive event, seems to trigger the causee NP referent to be viewed as carrying out an action to lead to the purposive result event, which eventually led to the more abstract meaning, causation.

The findings showed the high token frequency of V-key HA and its strong association with the causative meaning from the late 15th century, which indicates that V-key HA was already entrenched as a causative construction in the late 15th century. On the contrary, the token frequency of V-tolok HA was significantly lower than that of V-key HA throughout the centuries and the compositionality of V-tolok and ha was highly maintained.

Then, what could be the motivation for the emergence of the V-tolok HA causative construction? Although it is speculative, the emergence of the V-tolok HA construction could be attributed to analogy and filling a niche. Language users already had highly entrenched experiences with the V-key HA causative construction. Given the similar semantic meaning (e.g. the desired and purposive result meanings) and the function as a purpose clause that V-tolok shares with V-key, it could be assumed that V-tolok HA started to
follow a similar path as V-key HA. However, the motivation for its grammaticalization seems to fill a functional niche. When the V-tolok HA causative construction emerged in the 18th century, the verbs co-occurring with it were action and process verbs, and in the early 20th century, they were all action verbs. In the meantime, the V-key HA construction co-occurred with action, state, and process verbs from the 15th century where the action verbs were dominantly found. However, starting in the 18th century, the V-key HA construction co-occurred with state verbs at the highest frequency, and its co-occurrence with action verbs decreased. Thus, the emergence of the V-tolok HA causative construction could be associated with the V-tolok HA construction starting to convey an action-oriented causative meaning.

4 Conclusion

The findings of the semantic change of V-key and V-tolok show the gradient and variant nature of language change and how subjectification and pragmatic inferencing play a role in semantic change. Their semantic change also contributed to the meaning of causation of the V-key HA and V-tolok HA constructions. The desired result meaning of V-key and the purposive result meaning of V-tolok along with the ‘do’ verb ha became a construction, which results in the more abstract meaning of causation in the form of V-key HA and V-tolok HA. This study argues for the usage-based construction approach and the relevance of diachronic evidence in the analysis of constructions. This study contributes to the existing bodies of literature on the diachronic study and synchronic analysis of Korean DO-causatives.

Acknowledgments

This paper is part of the author’s dissertation submitted to Oklahoma State University.

References


Some Issues on Contact-Induced Grammaticalization: The Case of ya-ina-ya in Modern through Present Day Japanese*

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1 Overview of the Study

This study investigates the historical development of one conventionalized expression, i.e. ya-ina-ya, with a focus on the functional shift from the complementizer usage ‘whether or not’ to the adverbial-clause-linking usage ‘as soon as’ in terms of grammaticalization. Building on corpus-based survey results, I argue that the functional shift in ya-ina-ya from the complementizer usage to the adverbial-clause-linking usage starts to accelerate around the late nineteenth century, presumably due to language contact, especially with

* This study is financially supported by the following grants: Grant-in-Aid for Scientific Research (C) project (PI: Reijirou Shibasaki, No. 19K00693) and Grant-in-Aid for Scientific Research (C) project (PI: Reijirou Shibasaki, No. 22K00610). I am grateful to Yongtaek Kim, Min-Joo Kim, Nozomi Tanaka and Yuko Higashizumi for their comments on this project and to Sue Browning for her help in formal matters.

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English (see Section 5.1). The findings also tell us that in the late twentieth and early twenty-first centuries, more than 90 percent of occurrences of ya-ina-ya are as the adverbial-clause-linking ‘as soon as’. On the whole, this functional change is found to have proceeded hand-in-hand with the shift of writing forms from the kanji (Chinese characters)-based や否や, i.e. the more contentful form of writing, to the hiragana-written やないや, i.e. the Japanese syllabary, which may dovetail with the general direction of semantic weakening or bleaching along with formal changes in grammaticalization (Hopper and Traugott 2003: 94).

On the other hand, what seems to challenge the tenet of grammaticalization is the fact that ya-ina-ya has undergone this change approximately over the twentieth century, at a relatively rapid rate, despite its long history from the eighth century. Theoretically, such a radical functional change occurring over a short period of time can be considered a case of ‘switch context’ (Heine 2002), triggered by language contact (Heine and Kuteva 2005).

Further, even in the twenty-first century, the adverbialized or grammaticalized ya-ina-ya may still be written in the kanji-based form; more than 40 percent of the retrieved examples are found to be や否や according to the survey shown below (Section 4.1). The reason for this time-lagged development and change can be attributed to a tidal shift in genre; namely, from the late nineteenth century onward, ya-ina-ya came to be used almost exclusively in written discourse genres, because well-known novelists-cum-translators, e.g. Tsubouchi Shōyō, Yamada Bimyō, Ozaki Kōyō, Mori Ōgai, had a liking for using ya-ina-ya almost entirely for the Japanese translation of as soon as in English (Morioka 1999: 250). This sociohistorical aspect of the usage of ya-ina-ya may provide evidence in favor of ‘persistence’ (Hopper and Traugott 2003: 98). These issues have been well discussed in traditional Japanese linguistics (Morioka 1999 and Yagishita 2018 inter alia). What this study lays emphasis on is another aspect that has so far gone unheeded, i.e. the role of writing systems in the process of grammaticalization, and that can be well explored by making best use of corpora.

The present paper is structured as follows. In Section 2, I briefly show the history of ya-ina-ya, while in Section 3, I make brief mention of the corpora and dictionaries used for this study. Section 4 presents the research findings from the corpus-based surveys and Section 5 analyzes the results, with a conclusion in Section 6.

2 History of ya-ina-ya

This section sketches the history of ya-ina-ya based on the descriptions of ina, ina-ya, and ya-ina-ya, all of which rest on Nihon Kokugo Dainiten (2006: s.v. ina-ya, ina; Nikkoku hereafter) unless otherwise noted. In Old
Japanese (OJ), ina began its life as an interjection meaning ‘no’; it was often accompanied by another interjection ya, deriving ina-ya ‘no’. Around the same time, ya-ina-ya appeared. In this formulaic sequence, ya is regarded as a question particle (QP) and the whole clause with ya-ina-ya could be used as an interrogative. While the earliest example of this usage is witnessed in the article (c720) in Nihonshoki, i.e. Chronicles of Japan, we take a look at the following examples, both of which are used in spoken interaction in written discourse texts.¹ Elements in focus are underlined from here on.² Note that in OJ, the first ya is sometimes written separately from the following ina-ya, as in (1), which may imply that the whole phrase is not yet fully grammaticalized at this stage.

(1) ake-te mire-ba, “Omofu besi ya, ina-ya. Fito daitii open-and see-when cherish should QP not-QP human first nara-zu wa ikani” to kak-ase-tamafe-ri be-not TOP how QUOT write-HON-HON-PERF ‘When (I) opened it, (I found that the Empress) wrote (there), “(Is it) good to love yourself or not? What if humans are not given top priority?”’ (Late 10C Makuranosōshi; Nikkoku)

(2) Dōshō me o firaki-te desi ni Buddhist.monk eye ACC open-and apprentice to tuge-te iwaku, “Nanji-ra kono fikari o ba tell-and say you-PL this light ACC PT miru ya-ina-ya” to. see QP-not-QP QUOT ‘The monk Dōshō asked his apprentices with eyes open, “Can you see this light or not?”’ (early 11C Konjaku 11; CHJ)

In these examples, the sequential form ya-ina-ya can be used as a clause/sentence ender indicating a direct question, not as a complement clause.

¹ Among all the examples (35 tokens) of ya-ina-ya found before the nineteenth century in The Corpus of Historical Japanese (CHJ; see Section 4.1), 31 are used in conversational parts, all of which are found in OJ. This implies that ya-ina-ya was spoken-oriented at this stage. Considering the fact that ya-ina-ya was an innovative expression based on the Japanese reading of a Chinese passage, i.e. Kanbun kundoku 漢文訓読, this phenomenon deserves further investigation as a case of contact-induced grammaticalization.

² The glossing conventions for this study are as follows. ACC=accusative; AP=adverbial particle; COMP=complementizer; FP=final particle; GEN=genitive; HON=honorable; NEG=negative; NOM=nominative; PASS=passive; PERF=perfect; PL=plural; PST=past; PT=particle; QP=question particle; QUOT=quotation; TOP=topic; OJ=Old Japanese (8C–late 12C); MJ=Middle Japanese (late 12C–16C); EModJ=Early Modern Japanese (17C–late 19C); ModJ=Modern Japanese (late 19C–1940s); PDJ=Present Day Japanese (1950s to the present).
In Late Middle Japanese (MJ), ya gradually lost its property as a QP, with the result that it began to take on another property, that of a conjunction particle. Accordingly, ya-in-ya started to bear the complementizer function ‘whether or not’, which is attested, albeit sporadically, in Early Modern Japanese (EModJ), but is more frequent in Modern Japanese (ModJ). Here is one example of this complementizer usage from the late EModJ period.

(3) Kono ryōsetsu wa dozoku no kouhi ni this both.opinion TOP folk.habit GEN story in tutauru tokoro, sikaru ya-in-ya o shira zu hand.down COMP.place so QP-not-QP ACC know NEG

‘Both of these opinions are local customs handed down by tradition, so (I) don’t know for sure about whether it is true or not.’
(early 19C Chinsetsu Yumihariduki; Nikkoku)

On the other hand, ya-in-ya shifted to the temporal adverbial function ‘as soon as’ from around the turn of the seventeenth century, as in (4). Nikkoku states that the other formulaic phrase to-in-ya ‘as soon as’ is used in the same way, as in (5), with a note saying that ya ceases to be a QP from around this time in spoken genres.

(4) Kuru ya-in-ya kono.youna akai uo ya kuroi uo o come as.soon.as this.like red fish and black fish ACC idei-te, nani.yara mutukasii ryōri o bring.out-and seemingly difficult dish ACC ii-tuker-are-ta ga say-stick-PASS-PST but

‘As soon as (he) came here, (he) took out such red and black fish, and (he) was asked (to prepare) a difficult-to-make dish but…’
(late 16C/early 17C Souhachi, Torahiroofunkyōgen; Nikkoku)

(5) Ōtugomori no asa.mesi sugiru to-in-ya, New.Year’s.Eve GEN breakfast finish as.soon.as “…” to katabaya.ni ii-sute-te de-te-iku… utterance QUOT quickly say-abandon-and leave-and-go

‘As soon as (a merchant) finished (his) breakfast, (he) said quickly, “SNIP (his long utterance)” and came out…’
(late 16C/early 17C Souhachi, Torahiroofunkyōgen; Nikkoku)

From this stage onward, the adverbial ya-in-ya ‘as soon as’ seems to be on the rise. As shown in Section 4, the adverbial function of ya-in-ya has become predominant in terms of frequency in Present Day Japanese (PDJ). However, the remaining dual function of ya-in-ya, as seen in (6) and (7) from PDJ, attests to the fact that grammaticalization is still ongoing,
specifically in written genres of texts, because no examples of *ya-ina-ya* are found in any spoken-oriented texts and corpora. These examples tend to be written in the kanji form of 否, not only because the phrase is used in written genres but more particularly because it serves to retain the earlier complementizer function that is associated with its more lexical form, kanji (see Section 4.3).

(6) Complementizer function

Jiken o kentō-se-rare yo. Ima, kono ten ni. oite,
case ACC review-do-HON FP now this point about
toki uru ya-ina (否)-ya o kanga-e-rare yo.
solve can PT-not-PT ACC consider-HON FP
‘Please consider the case. Please consider if (we) can break the case on this point now.’
(2003 Kōga Saburō Tantei-shōsetsuseten; BCCWJ, PB39_00677)

(7) Adverbial-clause-linking function

… Shin wa, doa ga hiraku ya-ina (否)-ya mouzen.to
name TOP door NOM open PT-not-PT fierce.AP
hashiri-dashi-ta.
run-start-PST
‘The moment the door opened, Shin rushed fiercely.’
(1986 Hikuni; BCCWJ, LBa9_00019)

3 Corpora and Dictionaries

The following corpora and dictionaries are used for this study. The last access date for BCCWJ and CHJ is March 2, 2023 unless otherwise specified.

    b. CHJ= The Corpus of Historical Japanese, the eighth though the early twentieth centuries, version 2023.3 <http://clrd.ninjal.ac.jp/chj/>

As addressed in Section 1, the majority of the examples of *ya-ina-ya* retrieved from the above corpora and dictionaries are from the late nineteenth century onward. In what follows, I will thus draw a comparison of the

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3 This finding rests on the survey results based on all the corpora available under the name of KOTONOHA at the NINJAL (accessed March 8, 2023).
complementizer-to-adverbial functional shift between 1895–1925 and 1976–2008, for the purpose of clarifying the effects of language contact on the radical change in the function of \textit{ya-ina-ya} within a short period.

4 Research Findings

4.1 A Preliminary Survey

The following is a preliminary survey concerning the general direction of change of \textit{ya-ina-ya} using corpora available at the National Institute for Japanese Language and Linguistics (NINJAL). On the site called KOTONOHA (https://chunagon.ninjal.ac.jp/), one can use eight corpora, written/spoken or synchronic/diachronic, including one learner corpus, at one time with the help of the web application named \textit{Chuunagon} (accessed on March 2, 2023). The result is that only CHJ and BCCWJ, mentioned in Section 3, include the target expressions, i.e. \textit{ya-ina-ya} (や否や) and \textit{ya-ina-ya} (やいなや). These are summarized in Tables 1 and 2, respectively. Raw freq.=raw frequency; rel. freq.=relative frequency.

<table>
<thead>
<tr>
<th>Form</th>
<th>Token (raw freq. [rel. freq.])</th>
<th>Number of words surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{ya-ina-ya} (や否や)</td>
<td>1,268 [98.1%]</td>
<td>18,365,154</td>
</tr>
<tr>
<td>\textit{ya-ina-ya} (やいなや)</td>
<td>25 [1.9%]</td>
<td>18,365,154</td>
</tr>
<tr>
<td>Total</td>
<td>1,293 [100%]</td>
<td>18,365,154</td>
</tr>
</tbody>
</table>

Table 1. The distributional patterns of \textit{ya-ina-ya} in CHJ (8C–early 20C)

<table>
<thead>
<tr>
<th>Form</th>
<th>Token (raw freq. [rel. freq.])</th>
<th>Number of words surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>\textit{ya-ina-ya} (や否や)</td>
<td>183 [45.5%]</td>
<td>104,911,460</td>
</tr>
<tr>
<td>\textit{ya-ina-ya} (やいなや)</td>
<td>219 [54.5%]</td>
<td>104,911,460</td>
</tr>
<tr>
<td>Total</td>
<td>402 [100%]</td>
<td>104,911,460</td>
</tr>
</tbody>
</table>

Table 2. The distributional patterns of \textit{ya-ina-ya} in BCCWJ (1976–2008)

Here I provide supplementary explanations regarding the results in Tables 1 and 2. Firstly, among 1,293 examples of \textit{ya-ina-ya} retrieved from CHJ, 98.1 percent (1,268 tokens) turn out to be kanji-oriented, i.e. や否や. Furthermore, fifteen of the twenty-five hiragana-written やいなや examples are found after the turn of the nineteenth century, while the remaining ten
examples occur sporadically in OJ and MJ. In a nutshell, there is a growing trend toward hiragana instead of kanji in terms of the writing system.

Another point worth mentioning is that 1,250 examples (96.7%) out of 1,293 in CHJ are used from the eighteenth century onward, more specifically after the second half of the nineteenth century, although the corpus covers data up to the early twentieth century (the latest example is from 1941). Figure 1 provides a visual representation of the distributional patterns. Numbers in the bars indicate the tokens of frequency at each stage; for the horizontal axis label, logarithmic scales are used for clarity.

The last point of relevance here is that as far as KOTONOHA is concerned, ya-ina-ya is restricted to use in written genres. Remember that the usage of ya-ina-ya is identified only in BCCWJ and CHJ, the former of which consists only of written documents, as its name shows. To put it another way, none of the spoken-oriented corpora show any examples of ya-ina-ya, regardless of whether it is transcribed/written はいなや or はい・なや.

All things considered, I argue that the choice to use BCCWJ and Taiyo is an appropriate and effective analytical method whereby one can observe how ya-ina-ya has been grammaticalized since the late nineteenth century.

4.2 From Complementizer to Adverbial-Clause-Linking Usage

4.2.1 Modern Japanese: The Case of Taiyo

The outcomes of a Taiyo-based study are as follows. I found 689 examples of the kanji-written ya-ina-ya (はい・なや) and 3 examples of the hiragana-

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4 Among the 10 examples, 7 are attested from works written in kana (i.e. hiragana) in the Heian period (794–1192), i.e. kana literature; one of them is presented in (1), from Makuranooshi (late 10C).

5 The rest of the data, 43 examples (3.4%), are sporadically used in OJ and MJ. However, 37 of these 43 are clearly used in a direct quotation or ‘constructed dialogue’ (e.g. Tannen 1986), because they report or reproduce another person’s words in the process of remembering, in which the complementizer or quotation marker to frequently occurs. In fact, the above-mentioned 37 examples of ya-ina-ya all occur with to, as in (2).
written *ya-ina-ya* (やいなや), i.e. 692 examples in total. In ModJ, *ya-ina-ya* appears to have been kanji-oriented (99.6%). Considering the historical background addressed in Section 4.1, i.e. skewed to written discourse genres, this distributional pattern seems not unlikely.

In addition to the distribution of written forms, the classification of *ya-ina-ya* into complementizer and adverbial-clause-linking functions deserves attention. The complementizer function of *ya-ina-ya* can be attested in 616 examples in total (89%), all of which are written や否や. This finding supports the correlation that the older function tends to be preserved in its older and more frequently used form (cf. ‘persistence’ in Hopper and Traugott 2003: 96–7).

The rest of the data turns out to consist of the adverbial-clause-linking function of *ya-ina-ya*, i.e. 76 examples in Taiyo (11%), including 3 examples of the hiragana-written やいなや. Two points can be mentioned with respect to this finding. One is that, infrequent though it is, the newer function indicating ‘as soon as’ gradually appeared at this stage. The other concerns the idea that the relatively infrequent form やいなや may have been utilized to reflect the relatively newer function ‘as soon as’ at this stage, supposedly due to both intensive and extensive contact with English (see Section 5.1).

### 4.2.2 Present Day Japanese: The Case of BCCWJ

In PDJ, the functional shift in the use of *ya-ina-ya* has accelerated. To begin with, the adverbial usage ‘as soon as’ accounts for more than 90 percent of all the examples of *ya-ina-ya* (364 out of 402 tokens, 90.5%), while less than 10 percent are the complementizer usage ‘whether or not’ (38 out of 402 tokens, 9.5%). In other words, the complementizer-to-adverbial ratio has reversed over the twentieth century. Of course, it is necessary to scrutinize some intermediate stages, roughly speaking between the 1930s and the 1960s, in order to elucidate the exact nature of the change, i.e. whether there was a gradual increase up to the present or a drastic rise in number at some time in these periods. However, this particular change from complementizer to adverbial clause linker seems not to have been well documented, especially from a diachronic perspective (e.g. Kuteva et al. 2019; cf. Croft 2001: Chap 9), so this finding can qualify as a pilot study for further research (see Section 5.1 below).

What deserves further mention is a drastic increase in the number of the hiragana-written *ya-ina-ya* やいなや from 0.4 percent in ModJ to

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6 For this purpose, I made my own corpus consisting of data from the 1930s to the 1940s (see Shibasaki 2023 for details) and also used the Showa Speech Corpus (SSC) available at the NINJAL site that provides data from the 1950s to the 1970s. However, I could not obtain a sufficient quantity of related examples.
45.5 percent in PDJ. On the other hand, ya-ina-ya has become oriented toward written genres, as addressed in Sections 2 and 4.1. Therefore, while ya-ina-ya is grammaticalized mostly as an adverbial-clause-linker ‘as soon as’, the erstwhile more frequent kanji-form is retained to a certain degree (54.5%), even for such an adverbially grammaticalized function.

4.3 Role of Writing Systems in Grammaticalization

The following point should be recapitulated: the rapid pace of change in the functions of ya-ina-ya from complementizer to adverbial-clause-linker over a relatively brief span of time (which will be discussed in Section 5.2). This finding is potentially more important in the following respect. As shown in Section 4.2.1, 99.6 percent of all the ya-ina-ya examples retrieved from Taiyo are kanji-based や否や, and 89 percent of these turn out to be the complementizer function, while the remaining three examples of ya-ina-ya are hiragana-written forms やいなや serving an adverbial-clause-linking function. Setting such infrequent hiragana-written examples aside for now, we can see a strong correlation implied between form and function: the kanji form や否や has a high propensity for the complementizer function ‘whether or not.’ It thus follows that in ModJ, albeit limited to the data included in Taiyo, form and function are strongly associated with each other.

In PDJ, however, the form–function correlation has changed, to a certain extent in tandem with the progress of grammaticalization toward the adverbial-clause-linking function ‘as soon as’. As shown in Table 2, BCCWJ includes 183 examples of the kanji-based や否や, out of which only 34 examples (18.6%) serve a complementizer function. Conversely, the grammaticalization of ya-ina-ya has advanced to the extent that the newer adverbial-clause-linking function ‘as soon as’ can be expressed in the kanji form (81.4%) and to the extent that the form–function correlation becomes weakly correlated in terms of kanji. These are visually represented in Figure 2.

At first glance, the erstwhile strong correlation between form and function has weakened over time. However, I interpret this change as meaning that ya-ina-ya has been changing at a faster rate in function than in form; similar observations have been included in a wide range of related studies even from different perspectives (e.g. Brinton 2017; Heine and Kaltenböck 2021). On the other hand, one reason why a small portion of the kanji-written ya-ina-ya (18.6%) is still used in PDJ in its earlier complementizer function
is that *ya-ina-ya* is now found only in written discourse genres (Sections 2 and 4.1).

Figure 2. The form–function correlation of the kanji-written *ya-ina-ya*

Once formally changed and conventionalized, albeit from the viewpoint of the writing systems, it seems that a form is not inversely correlated with its function. One piece of evidence for this view is shown in Figure 3 pertaining to the hiragana-written form of *ya-ina-ya*.

Figure 3. The form–function correlation of the hiragana-written *ya-ina-ya*

Obviously, the hiragana-written form is strongly associated with the adverbial-clause-linking function. In ModJ, there are only three examples of the hiragana-written *ya-ina-ya*; however, they all show their adverbial ‘as soon as’ meaning from the beginning, which appears to have paved the way for the other side of the strong form–function correlation, i.e. the hiragana-to-adverbial usage in this particular case of grammaticalization. The exceptional uses of the hiragana-written *ya-ina-ya* in its complementizer function in Figure 3 (1.8%, 4 out of 219 examples) are all found in those texts that are written in an old-fashioned style. All these findings and interpretations provide a fresh insight into the principles of grammaticalization.7

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7 As mentioned in Note 1, *ya-ina-ya* arose out of language contact with Chinese in OJ. Interestingly, it is found to have often been used in a direct quotation, although it is assumed that *ya-ina-ya* is likely to have been a written language product. Further, *ya-ina-ya* is found exclusively
5 Discussions

5.1 A Potential Case of Contact-Induced Grammaticalization

As mentioned elsewhere in the current study, *ya-ina-ya* was created very early on through language contact with Chinese in OJ, as a clause/sentence ender that indicates a direct quotation, as in (1) and (2), but not as a complement clause.\(^8\) This is because, at that stage, *ya* retained its QP property. From MJ onward, *ya-ina-ya* started to take on a new role as a conjunction due to the gradual loss of the earlier QP property of *ya*. One example from a later stage is shown in (3).

The adverbial-clause-linking function of *ya-ina-ya* ‘as soon as’ began to emerge, slowly, from around the turn of the seventeenth century, as in (4). At this incipient stage, one variant *to-ina-ya* presented in (5) could be attested, presumably because *ya-ina-ya* was still only weakly grammaticalized. The adverbial usage showed a gradual increase around the end of the nineteenth century, although the complementizer usage was still much more frequent. However, the situation changed dramatically toward the close of the twentieth century: the adverbial usage now has an undisputed lead in frequency, as summarized in Section 4.3, which has much influence on the permeation of hiragana in the writing of *ya-ina-ya*, i.e. やいなや.\(^9\)

The radical change in the function of *ya-ina-ya* from complementizer to adverbial-clause-linker is likely to have been triggered by language contact with English, specifically around the turn of the twentieth century. Language contact issues in the emergence of innovative grammatical forms and functions have been briefly examined in traditional Japanese linguistics (Morioka 1999 and Yagishita 2018) and were pointed out early on by well-known novelist-cum-essayist Hisashi Inoue (Inoue 1981: 220). What is referred to in these preceding works is stochastically verified in this study through the use of corpora.

More interestingly, the functional shift from complementizer to adverbial-clause-linker, as seen in the case of *ya-ina-ya*, has, to the best of my

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\(^8\) See Note 5 on this issue. The creation of the construction *ya-ina-ya* with the quotation particle *to* in clause/sentence-final position under the influence of contact with Chinese may have something to do with the clause/sentence-final evidential use of *to* in PDJ (Shibasaki 2007).

\(^9\) The downward trend of the complementizer use of *ya-ina-ya* ‘whether or not’ may be associated with the upward trend of a newer counterpart *ka-dō-ka* ‘whether or not’ that appeared from the eighteenth century onward.
knowledge, gone unnoticed in grammaticalization studies (see Heine and Kuteva 2005; Kuteva et al. 2019). It is true that types of clauses cannot always be clearly differentiated, as addressed by Croft (2001: Chap 9), who mentions one (well-known) example in Japanese as a piece of evidence.

NR=nominalizer (following Croft 2001).

(9) [ Yoogisya-ga heya -kara dete.kita ] tokoro -o
suspect -NOM room -from came.out NR -ACC

tukamae -ta
catch -PST

a. ‘As the suspect came out of the room, (X) caught (him/her).’
   =Adverbial clause
b. ‘(X) caught the suspect who came out of the room.’
   =Relative clause (Ohori 2001: 280; cited in Croft 2001: 324)

In (9), the interpretation of the nominalizer tokoro varies according to the given context. Theoretically as well as descriptively, this type of functional versatility is significant. That said, language contact seems not to have a direct bearing on the case of tokoro, unlike the case of ya-ina-ya.

To recap, the grammaticalization of ya-ina-ya turns out to be important in two ways: diachronically, it is a case of contact-induced grammaticalization, while cross-linguistically, it has been quite neglected and accordingly warrants further discussion, because it is hard to draw any firm conclusion just from one case study.

5.2 Rapid or Gradual: On the Pace of Change

Finally, we reconsider the pace of change seen in the process of this specific grammaticalization, i.e. whether it exhibits a case of rapid or gradual change. To come right to the point, the newer function of ya-ina-ya seems to have replaced its older function fairly suddenly, albeit relatively, between the periods in Taiyo and BCCWJ. In what follows, I illustrate the point using what has been uncovered in my related studies (Shibasaki 2023) as a standard of comparison.

The comparative adverb yori ‘more’ is another case of contact-induced (de)grammaticalization. In OJ, yori acted mainly as an ablative marker ‘from’ and sporadically as a comparative standard usage ‘than’; yori is thus considered to have expanded its function from ablative to comparative standard marker, which fits well with a well-known process of grammaticalization (Stassen 1985: 39–45; Kuteva et al. 2019: 36–7). Further, the comparative adverb usage ‘more’ was derived through contact with western languages in the late EModJ and ModJ periods, especially with English. However, the rate of change seen in yori and ya-ina-ya are contrastive, as summarized in Table
3. Note that Table 3 shows the degree of penetration of newer functions of yori and ya-ina-ya, which means that the figures are not calculated to be 100 percent for each period. For example, the newer comparative adverb usage of yori ‘more’ was 0.6 percent in Taiyo (1895–1925) and 9.9 percent in BCCWJ (1976–2008) in total, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Taiyo (1895–1925)</th>
<th>BCCWJ (1976–2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ya-ina-ya ‘as soon as’</td>
<td>11.0%</td>
<td>90.5%</td>
</tr>
<tr>
<td>yori ‘more’</td>
<td>0.6%</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

Table 3. The degree of penetration of newer functions in ya-ina-ya and yori

If one uses terms introduced by Heine (2002), the adverbial-clause-linking function of ya-ina-ya ‘as soon as’ can be considered to have reached the stage called ‘switch context’ in terms of frequency, presumably close to the stage called ‘conventionalization’, in which new meanings (and maybe new forms too) are ‘freed from the contextual constraints’ (Heine 2002: 86). On the other hand, the comparative adverbial function of yori ‘more’ may still be at the stage named ‘initial stage’ or ‘bridging context’ (Heine 2002) at best, as the frequency shows (see Shibasaki 2021 for other related cases).

I carried out careful research on these phenomena, qualitatively and quantitatively, by making best use of corpora along with texts, reference grammars and period dictionaries of OJ through PDJ where possible. Contrary to (my) expectation, however, the pace of change varies considerably in each case, reinforcing the value of a reconsideration of contact-induced grammaticalization.

Nevertheless, I treat any cases of contact-induced grammaticalization with due caution, partly because the situation might be different if more data were available, and, more importantly, because some of the mechanisms underlying the rise of new functions in language contact situations are likely to vary, probably to an unpredictable extent, depending on each respective case. Examining a wide range of cases on the rise of discourse markers, Heine et al. (2021: 213) say honestly that contact-induced replication ‘is notoriously difficult to reconstruct’. Undoubtedly, further careful studies are required.\footnote{Examples of yori in the 1970s in BCCWJ are extremely small in number and thus excluded.}

\section{Conclusion}

In this study I have shown one case of contact-induced grammaticalization with a focus on the history of ya-ina-ya. Two intensive and extensive...
language-contact situations, respectively, with Chinese in OJ and with English around the late nineteenth century, are closely tied to the emergence and development of *ya-ina-ya*, and this study probed into the latter contact situation that accelerated the functional shift from the complementizer usage to the adverbial-clause-linking usage. The rapidity of change turned out to be obvious because, around the turn of the twentieth century, the complementizer-oriented usage ‘whether or not’ was reversed to the adverbial-clause-oriented usage ‘as soon as’ within less than a century. On the other hand, such a rapid change is not always witnessed, as addressed in Section 5.2, which leaves open the possibility that the mechanisms of change behind language contact should be considered on an individual basis.

In addition, I investigated the role of writing systems in this particular case of grammaticalization. The finding is that the degree of grammaticalization is reflected somewhat later in the form of writing. The survey result may lend support to a common view that semantic change comes first, subsequently followed by formal changes.

The role of writing systems, as well as the pathway of change from complementizer to adverbial clause linker, have gone unnoticed in grammaticalization studies. What this study contributes here thus deserves a fuller investigation.

**References**


Corpora and Dictionaries

BCCWJ=Balanced Corpus of Contemporary Written Japanese 1976-2008
<https://chunagon.ninjal.ac.jp/bccwj-nt/search> last access: March 2, 2023

CHJ=The Corpus of Historical Japanese, the eighth though the early twentieth centuries, version 2023.3 <http://chrd.ninjal.ac.jp/chj/> last access: March 2, 2023


A Historical and Morphosyntactic Analysis of Japanese Epistemic Markers (Dearoo/Daroo and -Oo)

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1 Introduction

The epistemic modal marker in Early Middle Japanese (EMJ) is pronounced -amu, which is considered to be a suffix, for it is preceded by a be-support (ar-support) if it is not adjacent to a verb, as seen in (1)a (cf., Watanabe 2009, 39). Likewise, its historical descendent in Contemporary Japanese (CJ), -oo, also requires an ar-support, as seen in (1)b, and is also considered as a suffix.

(1) a. [atsu k] *(ar-)amu. hot PRED be-EPI ‘(It) will be hot.’
   b. [atsu k] *(ar-)oo. hot PRED be-EPI ‘(It) will be hot.’

CJ also has another epistemic modal expression dearoo (daroo), which is etymologically derived from three morphemes de, ar- and -oo, as in (2).

(2) atsu i de *(ar-)oo. hot PRED.PRS DE be-EPI ‘(It) will be hot.’
(3) atsu i dearoo. hot PRED.PRS EPI ‘(It) will be hot.’
When examining the gloss in (2), one may find this construction to be similar to (1)b in that -oo triggers an ar-support, thus proposing that dearoo is decomposed into three morphemes in the CJ grammar. However, this paper argues that the sequence of de, ar, and -oo underwent a diachronic reanalysis, and they serve as a lexicalized/unanalyzable unit in CJ, as indicated by the gloss in (3).

Although dearoo (daroo) has been actively discussed in the existing literature, previous studies in most cases concern the semantics and pragmatics (Hara 2018 amo.). A few syntactic studies discuss the classification of modal expressions/projections (e.g., genuine-modals and quasi-modals, or E-modals and U-modals; Inoue 2007; Ueda 2008; Haraguchi and Shuhama 2011), but they do not provide a finer-grained analysis as to how they interact with morphosyntactic operations, let alone the historical change.

This paper attempts to fill this gap. After reviewing the fundamentals of Japanese copular and epistemic modal constructions (Section 2), a morphosyntactic analysis is provided for epistemic modal constructions in both EMJ and CJ (Section 3). Then in Section 4, we discuss how the old system was replaced by the new system; we argue that the unification of the conclusive and adnominal form (i.e., the syusi and reintai-kei) facilitated the reanalysis, causing a domino effect in language change. This hypothesis is empirically supported by a survey of historical corpus data (Section 5).

2 Copular Sentences and Epistemic Modal Markers in Japanese

2.1 Distribution of Copular Markers

Japanese has two copular elements (Nishiyama 1997, 1999; Yamada 2023). Since the understanding of these elements is indispensable for the investigation of epistemic modals, let us first examine their distributions in CJ and EMJ.

Contemporary Japanese. Compare the small clauses in English (4) and CJ (5). Although the English small clause contains no overt copula, the Japanese sentence obligatorily pronounces one even in a non-tensed environment, and this boldface element is called the PREDICATIVE COPULA.

(4) Bernie considers [Alex smart].

(5) Contemporary Japanese (CJ)

a. *Bernie-ga* [Alex-o *{gakusya/siawase}* ni] *si-ta.*
   Bernie-NOM Alex-ACC scholar/happy PRED do-PST
   ‘Bernie made Alex a scholar/happy.’

b. *Bernie-ga* [Alex-o *utukusi* ku] *si-ta.*
   Bernie-NOM Alex-ACC beautiful PRED do-PST
   ‘Bernie made Alex beautiful.’
The predicative copula is pronounced either \textit{ni} or \textit{ku} in CJ. This choice is solely dependent on the category of the preceding element; a noun always takes \textit{ni}, but adjectives are split into two types: (i) the one that takes \textit{ni} is called the \textsc{nominal adjective} (NAP, e.g., siawase ‘happy’), (ii) while the one with \textit{ku} is the \textsc{canonical adjective} (CA, e.g., utukusi ‘beautiful’). In the affirmative, tensed-environment, \textit{ni} and \textit{ku} are pronounced \textit{de} and \textit{ku}, as in (6), and they can be optionally contracted with the following element \textit{at-} (at- is its allomorph) to be pronounced \textit{dat-} and \textit{kat-}, respectively, as in (7).

\begin{itemize}
  \item (6) \texttt{a. Alex-ga \{gakusya/siawase\} \textit{de} at-ta.} \hfill \textsc{NP/NAP}
  \item \texttt{b. Alex-ga utukusi \textit{ku} at-ta.} \hfill \textsc{CAP}
\end{itemize}

(7) \texttt{a. Alex-ga \{gakusya/siawase\} \textit{dat-ta.} \hfill \textsc{NP/NAP}
\item \texttt{b. Alex-ga utukusi \textit{kat-ta.} \hfill \textsc{CAP}}

This contraction is only permitted when the two elements are adjacent. For example, when a particle is attached to the PredP, no contraction is triggered:

\begin{itemize}
  \item (8) \texttt{a. Alex-ga \{gakusya/siawase\} \textit{de}-wa \textit{at-ta.} \hfill \textsc{NP/NAP}
  \item \texttt{b. Alex-ga \{utukusi\} \textit{ku}-wa \textit{at-ta.} \hfill \textsc{CAP}}
\end{itemize}

The second type is the \textsc{dummy copula} (\textit{ar-} and its allomorph \textit{at-}), and it is the element that precedes the past tense marker in (6) and (8), and the element that the predicative copula is fused with. This is akin to the English \textit{do}-support: it appears when a suffix needs morphological support. The negation marker also triggers this dummy element (cf., \texttt{I *(do)-ed not run}):

\begin{itemize}
  \item (9) \texttt{a. Hasit-ta. \hfill \texttt{b. hasir-anak *\texttt{(at-ta.}\hfill \texttt{run-NEG be-PST}
  \item \texttt{‘(S/he) ran.’ \hfill \texttt{‘(S/he) did not run.’ \hfill \texttt{VP}}
\end{itemize}
EMJ. The predicative and dummy copular is also observed in EMJ:

(10) a. Hasiri-keri run-PST '(S/he) ran.'
    b. hasir-az *(ari-)keri. run-NEG be-PST '(S/he) did not run.'

(11) a. \(\text{[PredP} \{\text{yama/apare}\} \text{ni-zo *(ari-)keru.}\)
    mountain/amazing PRED-PRT be-PST ADN
    '(It) was a mountain/amazing.'
    b. \(\text{[PredP} \text{asa ku-zo *(ari-)keru.}\)
    shallow PRED-PRT be-PST ADN
    '(It) was shallow.'

It is clear that the \(\text{ar-}\) support is triggered when the past tense suffix is not immediately preceded by a verb. PRED and be can be contracted, as in (12).

(12) a. \(\{\text{yama/apare}\} \text{nari-keri.}\)
    mountain/amazing PRED.be-PST
    '(It) was a mountain/amazing.'
    b. \(\text{asa kari-keri.}\)
    shallow PRED.be-PST
    '(It) will be shallow.'

Table 1 summarizes the findings so far. Whether -amu/-keri locally lowers to V/v (but not to A), or a verb (but not an adjective) head-moves to T, we can explain the distribution in the same way as the English data are explained.

2.2 Distribution of Epistemic Modal Markers

First, the distribution of -amu is the same as that of -tal-keri, as shown in (13) through (15): it involves an \(\text{ar-}\) support, unless it is adjacent to a verb.

(13) a. hasir-amu. run-EPI
    b. hasir-az ar-amu. run-NEG be-EPI
    '(S/he) will run.' '(S/he) will not run.'

(14) a. \(\text{[PredP} \{\text{yama/apare}\} \text{ni-ya *(ar-)amu.}\)
    mountain/amazing PRED-PRT be-EPI
    'Will (it) be a mountain/amazing?'
b. \[\text{PredP } \text{asa shallow }^*\text{(ar-)}\text{amu.}\]
   \[\text{PRED-PRT be-EPI}\]
   ‘Will (it) be shallow?’ \[\text{CAP}\]

(15) a. \{\text{yama/apare}\} \text{nar-amu.}
   \text{mountain/amazing PRED.be-EPI}
   ‘(It) will be a mountain/amazing.’ \[\text{NP/NAP}\]
b. \text{asa kar-amu.}
   \text{shallow PRED.be-EPI}
   ‘(It) will be shallow.’ \[\text{CAP}\]

Second, being a historical descendent, -oo also shows a similar distributional pattern. Just like -ta and -keri, it is a suffix requiring ar-support:

(16) a. *\text{hasir-oo.} \text{run-EPI}
   ‘(S/he) will run.’ (intended) \text{VP}

(17) a. \[\text{PredP } \{\text{yama/aware}\} \text{de-wa }^*\text{(ar-)}\text{oo.}\]
   \text{mountain/pathetic PRED-PRT be-EPI}
   ‘Will (it) be a mountain/pathetic?’ \[\text{NP/NAP}\]
b. \[\text{PredP } \text{asa shallow }^*\text{(ar-)}\text{oo.}\]
   \text{PRED-PRT be-EPI}
   ‘Will (it) be shallow?’ \[\text{CAP}\]

(18) a. \{\text{yama/aware}\} \text{dar-oo.}
   \text{mountain/pathetic PRED.be-EPI}
   ‘(It) will be a mountain/pathetic.’ \[\text{NP/NAP}\]
b. \text{asa kar-oo.}
   \text{shallow PRED.be-EPI}
   ‘(It) will be shallow.’ \[\text{CAP}\]

But there is an important exception: the epistemic reading (e.g., *s/he will run) is unavailable in (16)a: although the sequence itself is a possible Japanese sentence, it only has the volitional reading, unlike the other examples.

Finally, consider the distribution of daroo (dearoo). As shown below, it can be used with a VP, NP, NAP, and CAP, without an ar-support.

(19) a. \text{hasir-u }\{\text{dearoo/dearoo}\}.
   \text{run-PRS EPI}
   ‘It may be the case that (s/he) runs.’ \[\text{VP}\]
b. \{\text{yama/aware}\} \text{(*ad-)}\{\text{dearoo/dearoo}\}.
   \text{mountain/pathetic be-EPI}
   ‘(It) will be a mountain/pathetic.’ \[\text{NP/NAP}\]
3 Proposal

I argue that the similarities and differences of -amu and -oo are best explained, by inheriting the following commonly-accepted views from the literature:

(20) a. Epistemic modality is represented by EpiP (not CP/TP), which appears in a position higher than Vol(ition)P (Cinque 1999).
   b. When we fail to establish a head chain (head movement/lowering), do/be-support is triggered (Arregi and Pietraszko 2019).
   c. There are postsyntactic morphological operations (vocabulary insertion, fusion, linearization etc.; Halle and Marantz 1993).
   d. Head displacement is subject to historical change (Roberts 2007).

   (i) V-to-T (T-Lowering): EMJ (√), CJ (√)
   (ii) T-to-Epi: EMJ (√), CJ (*)
   (iii) A/N/Pred-to-T: EMJ (*), CJ (*)

3.1 The Morphosyntax of -Amu and -Oo

Consider the EMJ sentence in (13)a. In EMJ, the underlined heads in (21) form a head-complex via head movement (or lowering). The T-suffix is combined with V, so no ar-support is triggered; I use a dagger to indicate a suffix.

(21) \[ \text{EpiP} \quad \text{TP} \quad [\text{VP} \ldots V \ldots T^\dagger] \quad \text{Epi}^\dagger ] \]

\[ \text{hasir-amu} \]

When V-to-T movement (or T-lowering) is hindered, the underlined head chain in (22) is now split (Arregi and Pietraszko 2019), and ar- is inserted to support the suffix -amu, as in (13)b and (14). For example, (22) represents how (13)b is derived. When Pred is adjacent to this ar-support element, a fusion is triggered to yield nar and kar, as in (15).

(22) \[ \text{EpiP} \quad \text{TP} \quad [\text{NegP} \quad [\text{VP} \ldots V \ldots Neg] \quad T^\dagger ] \quad \text{Epi}^\dagger ] \]

\[ \text{hasir} \quad a\bar{z} \quad ar-amu \]

The CJ sentences are derived in the same fashion save for (16)a. Unlike EMJ, CJ does not allow T-to-Epi movement (or Epi-to-T lowering). Thus, (16)a is illicit, for the suffix -oo remains stranded, as in (23)a. But a verb can move to the head of Vol(ition)P, as in (23)b; hence, the volitional reading.
Our analysis makes a good prediction about the contrast between EMJ and CJ in the past epistemic form. Since there is no T-to-Epi head movement, *-oo cannot be immediately preceded by T, as in (24)a. So the sentence should require an ar-support. This prediction is borne out in (24)b, by inserting ar-, which is reduced to r- due to the sequence of the same vowels. The otherwise ill-formed sentence is now grammatical.

run-PST  EPI

b. hasit-ta r-oo.  
run-PST be-EPI

‘It may be that (s/he) ran.’  (intended)  ‘It may be that (s/he) ran.’

Compare this sentence with the EMJ counterpart. In EMJ, the epistemic inference about a past event is marked by a single morpheme -kemu ‘PST.EPI’ (not keri-amu ‘PST-EPI’). Since a fused form is considered possible iff two heads appear in single terminal node forming a head-complex, the existence of a fused form indicates the presence of T-to-Epi movement.

(25)  a. hasiri-kemu.  
run-PST.EPI

b. hasir-az ari-kemu.  
run-NEG be-PST.EPI

‘It may be that (s/he) ran.’  ‘It may be that (s/he) did not run.’

3.2 The Morphosyntax of Dearoo and Daroo

Now let us turn to the last epistemic modal marker, namely daroo (dearoo). One might have noticed that the sequence of de, ar- and -oo and its contracted form daroo are already seen in (17)a and (18)a. Therefore, one may propose that the other epistemic modal expression dearoo (daroo) is, in fact, not a single morpheme, but is decomposable into three independent morphemes.

This analysis, however, makes a number of erroneous predictions. First, it predicts that daroo (dearoo) can only be used with an NP or an NAP. However, this prediction is not borne out; it can also be used with a VP and a CAP:

(26)  a. [TP hasir-u]  
run-PRS

{daroo/dearoo}.  
EPI

‘It may be the case that (s/he) runs.’

b. [TP asa i]  
shallow PRED.PRS

{daroo/dearoo}.  
EPI

‘It may be the case that (it) is shallow.’
Second, it predicts that the element preceding *daroo* (*dearoo*) must not be preceded by a tensed element. These predictions also fail:

(27) a. \[ TP \{ \{yama/aware\} \{de\}-wa \{at-ta\} \} \{daroo/dearoo\} \]
    mountain/pathetic PRED-PRT be-PST EPI
    ‘It will be the case that (it) was a mountain/pathetic.’

b. \[ TP \{ asa \{ku\}-wa \{at-ta\} \} \{daroo/dearoo\} \]
    shallow PRED-PRT be-PST EPI
    ‘It will be the case that (it) was shallow.’

c. \[ TP Hasit*(-ta) \{daroo/dearoo\} \]
    run-PST EPI
    ‘It may be the case that (s/he) ran.’

(28) a. \[ TP \{yama/aware\} \{dat-ta\} \{daroo/dearoo\} \]
    mountain/pathetic PRED.be-PST EPI
    ‘It will be the case that (it) was a mountain/pathetic.’

b. \[ TP asa \{kat-ta\} \{daroo/dearoo\} \]
    shallow PRED.be-PST EPI
    ‘It will be the case that (it) was shallow.’

Third, unlike the predicative copula, the *de* in *dearoo* can be coordinated:

(29) a. \*[kaze-ga \{tsuyo \i\ \de\} \{katsu \at\ \de\} \ar-oo. \]
    window-NOM strong PRS \de\ \at\ \be\-EPI
    ‘(It) will be windy and hot.’ (intended)

b. \*[zyuudai \de\ \{katsu \\konnan \de\} \ar-oo. \]
    serious PRED and \{difficult\} PRED be-EPI
    ‘(It) was serious and difficult.’

Given these observations, we must conclude that *daroo* and *dearoo* are distributed in a position higher than TP, and that the *de* in *dearoo* is distinct from the predicative copula. The entire expression *daroo* (*dearoo*) occupies the Epi position, the same as *-oo*. The difference between *daroo* (*dearoo*) and *-oo* should rather be attributed to their suffixal status: unlike *-am* or *-oo, daroo* (*dearoo*) is a free morph. Consider the derivation below.

(30) CJ: derivation for (27)a

a. \[ EpiP \{ TP \} \{ T\} \{ Epi \} \]

b. \[ EpiP \{ TP \} \{ be \ \T \} \{ Epi \} \]

c. \[ EpiP \{ TP \} \{ ar \ \T \} \{ daroo \} \]

First, the only suffix-marked head is T (= (30)a). The *ar*-support is, thus, needed only for T (= (30)b). Second, the vocabulary items are plugged in each
terminal node (= (30)c). Third, after the hierarchical structure is linearized, phonological operations are applied to yield the sequence in (27).

4 Historical Changes in the Epistemic Modal Construction

If all the discussions so far are on the right track, we need to ask how the new forms emerged in a context where only -oo (and -amu) had been used. To answer this, one may wish to propose that people in the past could replace an NP (e.g., \[NP konnan \] in (31)a) with a TP (e.g., \[TP hasir-u \], as in (31)b). As a result of this substitution, the bold-face elements in (31)b are reanalyzed as being a single morpheme, encoding the epistemic modal meaning.

(31) a. \[PredP [NP konnan ] de ] ar-oo].
   difficult PRED be-EPI
   ‘(It) will be difficult.’

b. \[TP hasir-u ] de-ar-oo.
   run-PRS PRED-be-EPI
   ‘(S/he) will run.’

This naïve replacement analysis, however, runs into problems. First, if an NP can be freely replaced by a TP, it predicts that (32)b is as grammatical as (31)b, which is contrary to fact. Second, if the sister node of Pred can be replaced by a TP, it is unclear why this does not hold with ku, as in (33).

(32) a. \[PredP [NP konnan ] de ] at-ta].
   difficult PRED be-PST
   ‘(It) was difficult.’

   run-PRS PRED-be-PST
   ‘(S/he) ran.’

(33) *\[TP hasir-u ] ku-ar-oo.
   run-PRS PRED-be-EPI
   ‘(S/he) will run.’

Despite these apparent challenges, this paper assumes that the basic insight of replacement analysis is essentially correct, and shows that these problems are solved when the details are fleshed out. To this end, we discuss how predicative copulas are derived first in Section 4.1, and then consider how the reanalysis proceeded during the transition from EMJ to CJ (Section 4.2).

4.1 Markedness in Pred

We saw that the distribution of de is much wider than that of ku: while ku is limited to a CA, de can be used with an NP and an NAP. This means that the
vocabulary insertion for Pred is sensitive to the category with which Pred is externally merged, and de is the unmarked, elsewhere vocabulary item. For these reasons, this paper proposes the following rules (cf., Yamada 2023):

(34) a. Pred \( \leftrightarrow \) de (CJ), ni (EMJ)
    b. Pred\(_{\text{Sel}}\langle CA,1 \rangle \) \( \leftrightarrow \) ku
    c. #Pred + dummy # \( \leftrightarrow \) dar (CJ), nar (EMJ)
    d. #Pred\(_{\text{Sel}}\langle CA,1 \rangle \) + dummy # \( \leftrightarrow \) kar

To see how these rules work, consider the sentences in (8), and their derivations in (35) and (36). When vocabulary items are inserted, different items are selected on the basis of the category of the phrase with which Pred is externally merged. In (8)b, it is a CAP; hence the more specific rule in (34)b is chosen, as in (35). In (8)a, it is not a CAP; hence the more general rule in (34)a is utilized, as in (36).

(35) a. \[ TP [PredP CAP \text{Pred}-\text{PRT}] T^\dagger \].
    b. \[ TP [PredP CAP \text{Pred}-\text{PRT} \text{[be-T]}] \].
       utukusi ku wa ar ta

(36) \[ TP [PredP NP \text{Pred}-\text{PRT} \text{[be-T]}] \].
     gakusya de wa ar ta

For the fused form, as in (7), the following derivations are assumed. Predicative copulas are fused with the dummy copula; k-ar is the marked form, because it is used only with a CAP, as shown below; n.b., the underline indicates that they form a head complex via head-movement (or lowering).

(37) a. \[ TP [PredP CAP \text{Pred}_{\text{Sel}}\langle CA,1 \rangle] T^\dagger \].
    b. \[ TP [PredP CAP \text{Pred}_{\text{Sel}}\langle CA,1 \rangle] \text{[be-T]} \].
       asa kar ta

4.2 Reanalysis

With the distinction of Preds in mind, let us consider the aforementioned questions, repeated below:

(38) a. What licenses the reanalysis in (31)?
    b. Why is the reanalysis not triggered with a CAP (= (33))?  
    c. Why is there no reanalyzed form for the past tense (= (32)b)?

Reanalysis in the Epistemic Modal Construction. When a CAP is used with a predicative copula, the EMJ grammar has two different strategies:
The patterns in (39) are the same as (14)b and (15)b, where a CAP is followed by a predicative and dummy copula. The patterns in (40) are new examples we have not yet discussed. Here, the bracketed region is nominalized, and is followed by another predicative and dummy copula.

The derivation of these sentences in (40) is analyzed as shown in (41). First, the CAP is merged with a predicative copula (= (41)a), and is combined with a T (= (41)b). Second, this TP is merged with a nominalizer (the morpheme that results in the adnominal form, or the rentai-kei) (= (41)c). Third, since the syntactic object in (41)c serves as a noun phrase, a predicative copula is merged, again, to form a PredP, which is then combined with a T (= (41)d). Fourth, due to its suffix status, an ar-support is triggered (= (41)e). Fifth and finally, after a lowering or head-movement, head-complexes are created in terminal nodes, as in (41)f.

Note that the Pred introduced in (41) is realized as nar, not kar, despite the

\[ (39) \]
\[
\begin{array}{ll}
  a. & asa\text{ ku-ya } ar-amu. \\
  b. & asa\text{ kar-amu.}
\end{array}
\]
\[
\text{shallow PRED-PRT be-EPI} \quad \text{shallow PRED.be-EPI}
\]
\[
\text{‘(It) will be shallow.’} \quad \text{‘(It) will be shallow.’}
\]

\[ (40) \]
\[
\begin{array}{ll}
  a. & \text{[ } asa\text{ } ki\text{ ] } ni-ya\text{ } ar-amu. \\
  b. & \text{[ } asa\text{ } ki\text{ ] } nar-amu.
\end{array}
\]
\[
\text{shallow PRED.PRS.NMLZ PRED-PRT be-EPI} \quad \text{shallow PRED.PRS.NMLZ PRED.be-EPI}
\]
\[
\text{‘Will (it) be shallow?’} \quad \text{‘(It) will be shallow.’}
\]

1 The real-life examples for (40) taken from CHJ are as follows.

\[ (i) \]
\[
\begin{array}{ll}
  a. & nigori\text{ huka } ki\text{ ni-ya } ar-amu. \\
  b. & yume-mo\text{ sawagasi } ki\text{ nar-amu } kasi
\end{array}
\]
\[
\text{vexation deep PRED.PRS.NMLZ PRED-PRT be-EPI} \quad \text{dream-also uncomfortable PRED.PRS.NMLZ PRED be-EPI SFP}
\]
\[
\text{‘Would I be deeply vexed?’ (lit. Would the vexation be deep?)} \quad \text{‘It would be that dreams are uncomfortable’ (Genji Monogatari)}
\]
presence of a CAP. This is because the sibynode with which it merges is an NP, not a CAP; hence the elsewhere form is selected.

The reanalysis in question is now seen as the simplification of these complex heads (indicated by the two underlined segments in (42)a) into single terminal nodes, as shown in (42)a and (42)d.

(42) a. \[
[\text{EpiP}\{\text{TP}\{\text{PredP}\{\text{NP}\{\text{TP}\{\text{CAP}\{\text{Pred}\}\{\text{T}\}\{\text{NMLZ}\}\{\text{Pred}\}\{\text{be}\}-\text{T}\}\{\text{Epi}\}\}}\}}\}}\]
\]

b. \[
\text{asa} \quad \text{ki} \quad \text{ni ar (nar) amu}
\]
c. \[
\text{asa} \quad \text{i} \quad \text{de ar (dar) oo}
\]
d. \[
[\text{EpiP}\{\text{TP}\\{\text{CAP}\{\text{Pred}\}\{\text{T}\}\}\}\{\text{Epi}\}\}]
\]

That is, in EMJ, the structure in (42)a generates the sequence in (42)b, and its historical descendants in (42)c. However, later generations exposed to a sequence of this kind abductively inferred that these sentences were generated from the structure in (42)d (cf., Roberts 2007), where dearoo and daroo were analyzed as the realization of the head of EpiP.

An important change that enabled the reanalysis which took place in the LMJ (Late Middle Japanese) was the loss of the distinction between the conclusive and adnominal form (Frellesvig 2010, 404, amo). That is, in EMJ, the adnominal form, for example, \textit{ki} in (42)b, prevented the reanalysis, because the morphology clearly guarantees that the sequence of \textit{asa ki} ‘shallow PRD.PRS.NMLZ’ is unambiguously a nominalized phrase. However, the unification of the adnominal and conclusive form, as in (42)c, made it possible for the sequence to be analyzed not only as an NP (under the interpretation that \textit{i} is the adnominal form), but also as a TP (under the interpretation that \textit{i} is the conclusive form), and this secondary interpretation allowed the bracketing structure in (42)d. Thinking this way, we can answer the questions posed in (38)a and (38)b. The trigger of the reanalysis is the loss of distinction in conjugation morphology, and the reason why \textit{ku aroo} did not evolve into a full-fledged epistemic marker is that it involves a nominalization, and the predicative copula used for an NP, is \textit{de}, not \textit{ku}.

The Past-Tense Construction. Now let us turn to the last question in (38)c. If the reanalysis is, in this way, triggered in the epistemic modal construction, why does an equivalent change not happen with a past-tense construction (= (38)b)? Certainly, the nominalized construction is fine with the past tense:

(43) \[
mizu-no \quad kokoro-no \quad asa \quad ki \quad nari-keri.
\]
\[
\text{water-GEN} \quad \text{heart-GEN} \quad \text{shallow PRD.NMLZ PRD.PRED.be-PST}
\]
\‘The water in the river is not what I want it to be.’ (lit. The water’s sympathy for me is shallow: Tosa Nikki, 934)
The derivation of this sentence is analyzed as follows, in much the same way as in (41). The only difference is that Epi is not present, so the head-complex of *nari keri* does not include Epi in its internal structure.

\[
\text{(44) a. } \left[ \text{PredP} \right] \quad \text{[PredP CAP Pred]}
\]
\[
\text{b. } \left[ \text{TP} \right] \quad \left[ \text{PredP CAP Pred} | T \right]
\]
\[
\text{c. } \left[ \text{NP} \right] \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{CAP Pred} | T \right] \quad \left[ \text{NMLZ} \right]
\]
\[
\text{d. } \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{NP} \right] \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{CAP Pred} | T \right] \quad \left[ \text{NMLZ} \right]
\]
\[
\text{e. } \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{CAP Pred} | T \right] \quad \left[ \text{NMLZ} \right]
\]
\[
\text{f. } \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{NP} \right] \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{CAP Pred} | T \right] \quad \left[ \text{NMLZ} \right]
\]
\[
\text{g. } \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{NP} \right] \left[ \text{TP} \right] \left[ \text{PredP} \right] \left[ \text{CAP Pred} | T \right] \quad \left[ \text{NMLZ} \right]
\]
\[
\text{h. } \quad \text{asa ki ni ari (nari) keri}
\]
\[
\text{i. } \quad \text{asa i de at (dat) ta}
\]
\[
\text{j. } \quad \left[ \text{TP} \right] \quad \left[ \text{TP} \right] \quad \left[ \text{PredP} \right] \quad \left[ \text{CAP Pred} | T \right] \quad \left[ T \right]
\]

Notice that the reanalysis from (44)g to (44)j is not as justified as before, because it does not make any sense to have a double TP structure. Arguably, there should be no language that redundantly uses two TPs one above the other. Hence, the reanalysis only emerged when there is an overt Epi suffix, which does not permit the sentence in (44)i.

5 Verifying the Hypothesis: A Corpus Survey

Our analysis is falsifiable, making several testable predictions. For example, by examining corpus data, we can empirically verify whether the emergence of new forms (*dearoo* and *daroo*) are preceded by the unification of the conclusive and adnominal form. To this end, this study conducted a survey using the Corpus of Historical Japanese (CHJ). With the search formulae below, instances of *-amu*, *dearoo* and *daroo* were extracted (last accessed Mar 2, 2023). Their distribution over time is shown in Figure 1. (Since instances with NP and NAP are ambiguous, we only examine the uses with CAP and VP.)

\[
\text{(45) } \text{-amu/-oo: POS LIKE "(CA%|V%)" AND FOLLOWING WORDS: LEXEME mu ON 1 WORDS FROM KEY}
\]
\[
\text{(46) } \text{dearoo: POS LIKE "(CA%|V%)" AND FOLLOWING WORDS: WRITTEN FORM de ON 1 WORDS FROM KEY AND FOLLOWING WORDS: (LEXEME aru AND CONJUGATED FORM LIKE volitional/inferential form% ON 2 WORDS FROM KEY}
\]
\[
\text{(47) } \text{daroo: POS LIKE "(CA%|V%)" AND FOLLOWING WORDS: (LEXEME da AND CONJUGATED FORM LIKE volitional/inferential form% ON 1 WORDS FROM KEY}
\]
The unification of the conclusive and adnominal forms is known to have started around the LME period (Okimori 2010; Frellesvig 2010). If our analysis is on the right track, it is predicted that the emergence of dearoo (daroo) should be found only after the unification had been completed. As clearly shown in Figure 1, this prediction is borne out. The new forms came into use after the LMJ period was over.

Yet it must be acknowledged that the data in CHJ are limited, and mostly restricted to written texts. So, the initial examples of dearoo and daroo are likely to appear in much earlier days in colloquial registers. Nonetheless, even though they started being used 100 or 200 years earlier than the earliest examples in Figure 1, our prediction would not be seriously challenged.

6 Conclusion and Future Directions

The paper has proposed an analysis not only of the way the old and new grammars differ, but also of the transition from the former to the latter. First, as for the difference among the epistemic modal constructions, we have made the following claims:

(48) a. The underlying structure of epistemic modal constructions is the same.
   b. But -amu and its descendent -oo are both suffixes in the head of EpiP, while dearoo and daroo are free morphs.
   c. The loss of T-to-Epi movement makes it impossible for VP+-oo to express the epistemic modal meaning, unlike VP+-amu.

Second, as for the transition, it is shown that the unification in the conjugation system caused the reanalysis, creating a new vocabulary insertion rule (Epi ↔ dearooldaroo).

This change is also a change in the do/be-support system. In English, too, there is a great number of studies discussing the change in the status of be (Lightfoot 2006). It is, thus, fruitful to cross-linguistically compare the change in such dummy elements in future research to reveal commonalities over languages.
Acknowledgments

This research has been supported by The JSPS Grant-in-Aid for Scientific Research (C) (#22K00507) and The JSPS Core-to-Core Program (A. Advanced Research Networks “International Research Network for the Human Language Faculty” #JPJSCCAJ221702004).

References


SECTION III
Poster Papers

Part 1
Phonetics, Phonology, and Morphology
On the Domains of Japanese Verbal Compounds: Su-insertion, Sequential Voicing and Compound Ellipsis

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1 Introduction
This paper investigates two types of verbal compounds in Japanese, thematic V-Vs (Kageyama 2016) and adjunct X-Vs (Sugioka 2002). Relevant examples are given in (1) and (2).

(1) kane-o nuki-tor-u
money-ACC pull-takePRS
‘to skim money’

(2) kane-o yoko-dori-su-ru
money-ACC side-take-doPRS
‘to steal money’

Thematic V-Vs consist of a non-head verb stem in its conjunctive form (i.e., nuki) and a head verb stem (i.e., tor). Adjunct X-Vs are formed with a non-head stem (i.e., yoko) and a head verb stem that appears in its conjunctive form (i.e., dori). Although the non-head stem of adjunct X-Vs in (2) is nominal, various elements can be in the non-head stem position in adjunct X-Vs, as exemplified in (3).
These two types of verbal compounds function as verbal predicates in that they can license an accusative object, as shown in (1) and (2). However, they show different behaviors in terms of the insertion of the verbal morpheme su and sequential voicing (SV) (a.k.a. rendaku), as we will see below. In this paper, I propose that these differences can be explained through a difference in the spell-out domains of the two compound structures. In particular, I argue that the non-head elements in thematic V-Vs are independently spelled out (Piggott and Travis 2013), but the ones in adjunct X-Vs are spelled out together with the head elements (Harðarson 2021). It is also shown that the present proposal is further supported by the possibility of compound ellipsis between the two verbal compounds.

2 Two Types of Verbal Compounds in Japanese

This section examines different behaviors between thematic V-Vs and adjunct X-Vs in terms of su-insertion and SV.

First of all, adjunct X-Vs cannot be directly followed by grammatical morphemes such as tense, negative, modality, and aspektual markers. In order for them to be followed by such grammatical markers, the verbal morpheme su must be located to the right of the adjunct X-Vs. This is evidenced by (4a), where the X-V yoko-dori cannot be followed by the past tense marker -ta, the negative marker nai, the modality marker sooda, and the aspektual marker tuzuke without the interposition of si, the conjunctive form of su, between them.

(4) a. kane-o yoko-dori(-*(si)-)*{ta / nai / sooda / tuzuketa} money-ACC side-take-*{PST / NEG / seem / continued} ‘[stole / not to steal / seem to steal / continued stealing] money’
   b. kane-o nuki-tori(-*(si)-)*{ta / anai / sooda / tuzuketa} money-ACC pull-take-*{PST / NEG / seem / continued} ‘[skimed / not to skim / continued skimming] money’

This restriction is not observed in thematic V-Vs, however, as shown in (4b), where the V-V niki-tor can be directly followed by the grammatical markers and does not allow the interposition of su between the V-V and the grammatical morphemes.

Next, it has been observed that adjunct X-Vs undergo SV (Ito and Sugioka 2002; Sugioka 2002). As shown in (5), the first consonants of the head verb
stems are voiced.

(5) X-Vs undergo SV
   a. yoko-dori ‘sidel-take’ (cf. *yoko-tori)
   b. mae-daosi ‘front-topple’ (cf. *mae-taosi)
   c. ne-gatame ‘root-harden’ (cf. *ne-katame)
   d. nori-zuke 'glue-attach' (cf. *nori-tuke)

On the other hand, thematic V-Vs resist SV with very few exceptions, as illustrated in (6), where the same verb stems are used as the adjunct X-Vs in (5) but they are never voiced.¹

(6) V-Vs never undergo SV
   a. *nuki-dor ‘pull-take’ (cf. nuki-tor)
   b. *osi-daos ‘push-topple’ (cf. osi-taos)
   c. *fumi-gatame ‘step-harden’ (cf. fumi-katame)
   d. *hari-zuke ‘paste-attach’ (cf. hari-tuke)

The question that immediately arises is why the thematic V-Vs and the adjunct X-Vs behave differently with respect to su-insertion and SV, even though their second head stems are both verbs. One might argue that this is due to the categorical difference between them: thematic V-Vs are categorically verbs, whereas adjunct X-Vs are categorically nouns and verbalized by the suffixation of su. Actually, adjunct X-Vs can function not only as predicates but as nouns, followed by case markers:

(7) a. Seifu-ga keikaku-o mae-daosi-si-ta.
    government-NOM project-ACC front-topple-do-PST
    ‘The government has moved the project forward.’
   b. Seifu-ga [keikaku-no mae-daosi]-o kimeta.
    government-NOM project-GEN front-topple-ACC decided
    ‘The government has decided an advance on the project.’

In (7a), the X-V mae-daosi can be used as a predicate, while in (7b), it serves as a nominal object marked with accusative case and takes the genitive complement keikaku ‘project’, which is marked with accusative in (7a). However, it is dubious to consider the adjunct X-Vs in the predicative use to be nominal as well, based on (at least) two aspects.

¹ One of the examples of thematic V-Vs undergoing SV is ki-gae-ru (wear-change) ‘to change one’s clothes’. This compound consists of two verb stems ki(ru) and kae(ru) with the second verb stem being voiced. Since such compounds have their nominal counterparts (i.e., ki-gae-ru(V) ↔ ki-gae(N)), Ito and Sugio (2002) propose that V-V compounds with SV are derived from their nominal counterparts by way of back-formation.
First, nominal adjectives in Japanese, when used as modifiers, are followed by either -ni, the adverbial form of the copula, or -na, the adnominal form of the copula. As (8a) indicates, for the nominal adjective *nyuunen* ‘careful’ must appear in the adverbial form to modify the verb *araw* ‘wash’. What is of importance here is that the same pattern holds for (8b), where the X-V *te-arai* ‘hand-wash’ is construed as a predicate, but not for (8c), where the X-V functions as a nominal followed by the case particle *ga*.

(8) 

a. Sono fuku-wa *nyuunen*-[ni/*na] *araw*-u hityoo-ga aru.  
   that cloth-TOP carefully/careful wash-PRS need-NOM be  
   ‘It is necessary to {carefully/*careful} wash that cloth.’

b. Sono fuku-wa *nyuunen*-[ni/*na] *te-arai*-su-ru  
   that cloth-TOP carefully/careful hand-wash-do-PRS  
   hityoo-ga aru.  
   need-NOM be  
   ‘It is necessary to {carefully/*careful} hand-wash that cloth.’

c. Sono fuku-wa *nyuunen*-[na/*ni] *te-arai*-ga hityoo-da.  
   that cloth-TOP careful/carefully hand-wash-NOM need-COP  
   ‘That cloth needs {careful / *carefully} hand washing.’

Still, the fact that (8b) patterns with (8a), not with (8c), may be a result of the verbalization by the suffixation of *su*. But this is not the case.

(9)  

irui-o (*nyuunen*-[ni/*na]) *te-arai*-no-sai / tyuu  
   clothes-ACC carefully/careful hand-wash-[GEN-when / while]  
   ‘{when / while} hand-washing clothes carefully …’

As (9) shows, the adjunct X-V can be followed by temporal suffixes such as *-no-sai* ‘GEN-when’ and *-tyuu* ‘while’ without the interposition of *su.* In spite of this, it can take the accusative object and be modified by the adverbial form of nominal adjectives. I take these facts to suggest that adjunct X-Vs are nominal when followed by case markers but verbal predicates on their own.

3 Proposal

In the previous section, I pointed out the following two peculiarities of Japanese verbal compounds in terms of *su*-insertion and SV.

(10) 

a. Thematic V-Vs resist *su*-insertion and SV.

b. Adjunct X-Vs allow both *su*-insertion and SV.

---

2 The reason why *su* is not inserted in this case might be due to the nominal status of temporal suffixes. I leave for future research how *su*-insertion can be blocked under our proposal that will be given in Section 3.
I argue that this difference can be explained through a difference in the spell-out domains of the two compound structures.

### 3.1 Compound Structure and Spell-Out Domains

This study adopts a version of Distributed Morphology (Halle and Marantz 1993) for the structure of compounds, assuming that compounds are formed by two categorized stems (i.e., the combination of a √ROOT and a categorizer) (see Harðarson 2016, 2021). As such, both V-Vs and X-Vs in question consist of two categorized stems. I propose, however, that they differ in terms of spell-out domain, as schematized in (11a) and (11b): in V-Vs, a non-head element is spelled-out independently (Piggott and Travis 2013); in X-Vs, non-head and head elements are spelled-out together (Harðarson 2021).

\[
\begin{align*}
\text{a. Thematic V-Vs} & : V \text{ Voice} \\
& : v_2 \text{ Voice} \\
& : v_1 \sqrt{X} \\
& \text{Spell-out domain} \\
\text{b. Adjunct X-Vs} & : V \text{ Voice} \\
& : v \text{ Voice} \\
& : x \sqrt{X} \\
& \text{Spell-out domain}
\end{align*}
\]

In the following sections, I demonstrate how the difference in spell-out domains can account for the difference in the availability of su-insertion and SV.

### 3.2 su-insertion

To begin with, I identify the morpheme su that follows adjunct X-Vs is the light verb on the basis that adjunct X-Vs can take an internal argument without su, as in (12a), and that su cannot license the internal argument without the X-V (Grimshaw and Mester 1988).

\[
\begin{align*}
\text{a. } \text{irui-o te-araï{-nosai(-wa) / tyu-(ni)}} & \ldots \\
& \text{clothes-ACC hand-wash{-when-TOP / while-in}} \\
& \text{‘[when / while] hand-washing clothes ...’} \\
\text{b. } \text{irui-o *(te-araï) su-ru} \\
& \text{clothes-ACC hand-wash do-PRS} \\
& \text{‘to {hand-wash/*do} clothes’}
\end{align*}
\]
The question is why it is that the light verb *su* is preceded by adjunct X-Vs, but not by thematic V-Vs. I attribute this difference to the morphological realization of the Voice head in Japanese. Specifically, I propose the following vocabulary insertion rules for Voice.

(13)  
   a.  Voice $\leftrightarrow$ $\varnothing$ / √ROOT  
   b.  Voice $\leftrightarrow$ *su* (elsewhere)

These rules say that Voice is realized with $\varnothing$ in the context of a verbal √ROOT being ‘visible’ from Voice, but otherwise with -su as an elsewhere form.

Before going into an explanation of *su*-insertion in adjunct X-Vs, not in thematic V-Vs, I show how the above vocabulary insertion rules explain the fact that *su*-insertion is not allowed in Japanese native verbs, as given in (14a).

(14)  
   a.  Taroo-ga ringo-o tabe(*-su)-ru.  
       T.-NOM apple-ACC eat-do-PRS  
       ‘Taro eats an apple.’
   b.  

A basic structure of VoiceP for Japanese native verbs is given in (14b), where √TABE is verbalized by a merger with v, and the √TABE-v complex head-moves to Voice. I assume with Embick (2010) that a categorizing head is a phase/cyclic head but the spell-out of its complement is not triggered until a second cyclic head merges. As such, in (14b), the verbal root √TABE is visible from Voice, which leads Voice to be realized with $\varnothing$ by (13a).

Let us then move on to an explanation of the presence or absence of *su*-insertion in V-Vs and X-Vs. In the structure of thematic V-Vs proposed in (11a), the non-head V1 (i.e., √X) is independently spelled-out, which means it is invisible from Voice. However, √Y is visible from Voice since $v_2$ does not trigger the spell-out of √Y (Embick 2010), which results in the realization of $\varnothing$ on Voice and correctly predicts the absence of *su*-insertion in V-Vs.

In the structure of adjunct X-Vs proposed in (11b), on the other hand, both the non-head √X and the head √Y are spelled-out simultaneously, which suggests that Voice can no longer see either. Therefore, Voice in X-Vs is realized with *su* by (13b), which leads to the *su*-insertion.
3.3 Sequential Voicing

We then consider the fact that adjunct X-Vs can, but thematic V-Vs cannot, undergo SV. In order to explain this difference, I follow Tatsumi (2022) in assuming that SV is subject to a locality restriction (see also Nishiyama and Nagano (2020) for a similar proposal). The gist of Tatsumi’s analysis is that when two √ROOTs constituting a compound are separated by an intervening phase head (i.e., categorizers; Arad (2003)), compounds with such a structure are non-local and cannot exhibit SV. Although his analysis can explain the distribution of SV in N-V compounds, it is too restrictive to account for a wider range of data. Taking the V-N compound nemu-ri-gusuri (sleep-medicine) for instance, SV is possible even if two √ROOTs are intervened by an intervening phrase head v, which is realized as ri. Thus, I depart from Tatsumi’s analysis and propose a more moderate condition for the locality of SV, as in (15).

(15) a. A compound is local iff its non-head and head elements are in the same locality/spell-out domain.
   b. SV is allowed in local compounds.

In this proposal, SV is conditioned not by whether an intervening head is located between two √ROOTs or not, but by whether they are in the same spell-out domain or not. Recall here that thematic V-Vs and adjunct X-Vs differ in terms of spell-out domain: in V-Vs, a non-head element is spelled-out independently, while in X-Vs, a non-head and a head are spelled-out together (see (11a) and (11b)). This means that thematic V-Vs are non-local compounds and adjunct X-Vs are local compounds by the definition of (15). Thus, SV is allowed in local adjunct X-Vs, but not in non-local thematic V-Vs.

4 Compound Ellipsis

This section shows that the current proposal in (11a) and (11b) is further supported by the availability of compound ellipsis, which traces back to Yatabe (2001) and is recently discussed by Tatsumi (2019). As Yatabe points out, when two thematic V-Vs are coordinated by a particle such as to and ka, the first verb stem of the V-V in the second conjunct can be elided. This is illustrated by (16), where the first verb stem of the V-Vs kui-tome (eat-stop) and tati-kir (sever-cut) can be elided with their meanings unchanged.

   ‘The problem is whether (we) will stop (it) or not.’
    sever-cut or [[sever-cut / Δ-cut]-NEG or-NOM problem-COP
    ‘The problem is whether (we) will cut off (it) or not.’

By contrast, this compound ellipsis is never applied in adjunct X-Vs:

(17) a. [kuti-dome-suru] ka [[kuti-dome / *Δ-dome / Δ]-si-nai]
    mouth-stop-do or [[mouth-stop / Δ-stop / Δ]-do-NEG
    ka-ga mondai-da
    or-NOM problem-COP
    ‘The problem is whether (we) buy someone silence or not.’
b. [son-giri-suru] ka [[son-giri / *Δ-giri / Δ]-si-nai] ka-ga
    loss-cut-do or [[loss-cut / Δ-cut / Δ]-do-NEG or-NOM
    mondai-da
    problem-COP
    ‘The problem is whether (we) will cut our losses or not.’

(17) suggests that when two adjunct X-Vs are coordinated by the particle *ka,*
only the first stem of the X-V in the second conjunct cannot be elided, but
rather the whole X-V must be elided.

I will not address in this paper how the compound ellipsis like (16) is
derived, but given that ellipsis targets spell-out domains (Bošković 2016), the
stark contrast between (16) and (17) suggests that the first non-head element
of thematic V-Vs undergoes spell-out independently, but that of adjunct X-
Vs does not, which is a further piece of evidence for the present proposal of
different spell-out domains for two types of verbal compounds.\(^3\)

5 Concluding Remarks

I have examined two types of verbal compounds in Japanese, thematic V-Vs
and adjunct X-Vs, and proposed that the non-head elements in thematic V-
Vs are independently spelled out, while the ones in adjunct X-Vs are spelled
together with the head elements. I have shown that the availability of *su-
insertion and SV between thematic V-Vs and adjunct X-Vs can be explained
through the present proposal. Furthermore, the availability of compound ell-
ipsis is taken to be another piece of evidence for different spell-out domains
in V-Vs and X-Vs.

Before concluding, I briefly discuss a remaining issue in the present anal-

---

\(^3\) Tatsumi (2019) discusses two possible approaches to the V-V compound ellipsis: (a) head ex-
corporation followed by VP-ellipsis and (b) across-the-board movement of VP. Whichever ap-
proach is taken to the analysis, it must be the one that can explain the contrast between (16) and
(17), which I assume is closely related to the difference in spell-out domains.
ysis: why it is that the spell-out domains of the two types of verbal compounds are different. A possible direction to pursue is regarding the argument structure of the head verb stem. I proposed in Akimoto (2023) that the compounding of thematic V-Vs takes place after the second verb stem introduces its internal argument, on ground that the first verb stem is inert to select the V-V’s object (see also Nishiyama and Ogawa 2014). On the other hand, the internal argument of an adjunct X-V seems to be selected by the entire compound, not just the head verb stem, as illustrated in (18).

(18) a. keikaku-o \{mae-daosi-su-ru / #taos-u\}  
    project-ACC front-topple-do-PRS / topple-PRS  
    ‘to {bring forward/#topple} the plan’

b. uwasa-ga \{hitori-aruki-su-ru / #aruk-u\}  
    rumor-NOM one.person-walk-do-PRS / walk-PRS  
    ‘The rumor {is spreading on its own / #walks}.’

Given this, I speculate that for compounds derived after the head verb stem introduces an internal argument, the non-head stem is spelled out independently. This hypothesis has a consequence for the analysis of argument N-Vs. In this type of N-Vs, the noun stem serves as the internal argument of the head verb stem, so it is not unreasonable to assume that argument N-Vs are derived after the head verb stem introduces an internal argument, which undergoes noun incorporation to the head (Baker 1988). If so, the non-head stem is spelled out independently, and argument N-Vs are predicted to resist SV on par with thematic V-Vs. This prediction is borne out. Ito and Sugioka (2002) report that argument N-Vs may resist SV (e.g., isi-keri vs. *isi-geri (stone-kick ‘kicking rocks’)). This hypothesis, if correct, would shed new light on the relationship between verbal compounding and argument structure, but I will leave a detailed discussion of this issue for future research.

Acknowledgments

This study was supported by the Grants-in-Aid for Scientific Research (KAKENHI) Grant Number JP22K13104. I express my gratitude to all the audience at the 30th conference on Japanese/Korean linguistics.

References


Double Allomorphy in Korean Nominative Pronouns? Evidence from Demonstrative and Interrogative Proforms for a Floating Segment Analysis and Derivation by Phase*

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1 Introduction

In Korean, only some words are subject to variation in the environment of the nominative marker. For instance, the first person singular non-honorific pronoun is [nɛ] when -ka ‘nominative’ is suffixed to it, but [na] in isolation or when followed by any other particle of the language (Yeon and Brown 2019). Common and proper nouns, on the other hand, never change: [pada] ‘sea’

* This work was supported by the Centre for Research on Brain, Language and Music (CRBLM) and by the Faculty of Human Sciences at UQAM.
stays the same no matter the morphological context. Only a subset of vowel-final pronouns undergoes similar alternations.

Cho (2016)’s analysis does not consider the changes in bases. I will suggest an alternative to her allomorphic approach according to which the nominative has two forms (1). Her arguments are that -ka appeared much later than -i in the history of Korean (Sohn 1999) and that these forms are phonologically unrelated. I contend that an analysis in synchrony can account for the facts better if the marker has a single underlier.

(1) a. -i after Cs: paɾam-i → ‘wind’
   wind-NOM
   (2) b. -ka after Vs: pada-ka → ‘sea’
   sea-NOM

In Section 2 I lay out the theoretical assumptions that underlie my novel analysis: Phases (Chomsky 2001), CVCV phonology (Scheer 2004) and Element Theory (Backley 2011).

Section 3 demonstrates how getting the underlying representation of the nominative marker right allows us to derive the relevant alternations in the phonology, without appealing to allomorphy. I will show that a derivation by phase can predict the surface alternations not only in the nominative marker, but also in the bases it attaches to. The derivation follows naturally from the underlying representation of the marker if it comprises three floating segments but only two syllabic positions, in line with Scheer’s analysis (2016).

We will see that hiatus resolution proceeds differently within and across phases (Newell 2017; Newell and Piggott 2014), which is why function-word bases ending in a vowel may have alternating surface forms in the environment of -ika, while lexical words do not.

The current approach is argued to have more explanatory power than positing allomorph alternating for both the pronouns and -ika. It is also compatible with the observation that the marker can surface as [ika] in some limited contexts. Additional evidence from free variation of demonstrative and interrogative proforms brings forth that some bases can also have floating segments. While these pronouns might have allomorphs, the variation they display is compatible with -ika having a single underlier.

Section 5 concludes and offers a brief discussion of what future research on this topic might look like.
2 Allomorphy or Conspiracy?

The nominative marker commonly surfaces as -i after a base ending with a consonant and as -ka after a vowel. The following examples show this alternation with common noun bases (3) and pronominal bases (4).

(3) a. pada-ka → ‘sea’ b. param-ı → ‘wind’

(4) a. uri-ka → ‘we’ b. taŋın-i → ‘you (intimate)’

However, there are a few contexts where the nominative marker surfaces as -ika rather than just -i or -ka. In (5), we see that it is possible for a proper noun to be followed by -ika under the conditions that i) it ends in a consonant and ii) it refers to a human. This can only be done when talking to someone one is close to in informal situations.

(5) a. /kajɔŋ-ika/ → [kajɔŋ-ika], [kajɔŋ-i], *[kajɔŋ-ka] ‘Kayoung’
   Kayoung-NOM

   b. /sɔnwu-ika/ → *[sɔnwu-ika], *[sɔnwu-i], [sɔnwu-ka] ‘Sunwoo’
   Sunwoo-NOM

Speakers sometimes also pronounce the full nominative marker as three segments after the gender neutral third person pronoun ki, as in (6).

(6) /ki-ika/ → [ki-ika], [ki-ka], *[ki-i] ‘he or she’

3SG-NOM

What we are especially concerned with in this current paper is that the last vowels of some pronouns change quality in the environment of the nominative marker. Table 1 illustrates these alternations for all of the relevant personal pronouns. It also shows that the accusative and topic markers do not trigger the same changes.

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1 Thanks to the audience at the Japanese/Korean Linguistics Conference (JK 30) for bringing the facts in (5) and (6) to my attention. However, more research is needed since -i might also precede the accusative marker: [ki-i-ɾɨl] ‘he or she (accusative)’.
Table 1. Personal pronouns with irregular nominative forms

<table>
<thead>
<tr>
<th>Pronoun</th>
<th>Nominative</th>
<th>Accusative</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>na ‘1SG’</td>
<td>nɛ-ka</td>
<td>na-ɾɨl ~ na-l</td>
<td>na-nin ~ na-n</td>
</tr>
<tr>
<td>nɔ ‘2SG’</td>
<td>n-i-ka ~ nɔ-ka</td>
<td>nɔ-ɾɨl ~ nɔ-l</td>
<td>nɔ-nin ~ nɔ-n</td>
</tr>
<tr>
<td>cɔ ‘1SG HON’</td>
<td>cɛ-ka</td>
<td>cɔ-ɾɨl ~ cɔ-l</td>
<td>cɔ-nin ~ cɔ-n</td>
</tr>
</tbody>
</table>

Cho (2016) considers that the different forms of the accusative and topic markers ([ɾɨl] ~ [ɨl] ~ [l] and [nɨn] ~ [ɨn] ~ [n] after nouns) can be derived phonologically by a ɨ-deletion rule and a coda-copy rule, but it is taken for granted in the literature that the nominative variants -i and -ka need to be memorized, and that their alternation is therefore allomorphic (Lee 2009). Importantly, the allomorphy analysis does not explain why only the latter alternation brings about changes in the surface forms of some bases.

The pronouns in Table 1 have something in common: They represent all of the personal pronouns ending in [a] or [ɔ]. Crucially, proforms with other final vowels do not behave the same way: [ɯɾi] ‘1PL’ and [kɨdɛ] ‘2SG (poetic)’, for instance, do not exhibit any idiosyncrasies when affixed with the marker.

Finally, two pronouns exhibit free variation in the environment of -ika. The first one is a demonstrative pronoun (7a) and the second one is interrogative (7b). Note that the variants [ikɔka] and [mwɛ] are not acceptable in the standard Seoul dialect, hence the asterisk.

(7) a. /ikɔs-ika/ → [ikɔʃ-i], [ikɛ], *[ikɔ-ka] ‘this (proximal)’
   DEM.PROX-NOM

b. /mwɔs-ika/ → [mwɔʃ-i], *[mwɛ], [mwɔ-ka] ‘what’
   what-NOM

I propose below that the underlying form of the nominative marker can account for the patterns presented in this section. Rather than positing allomorphs for both -ika and the personal pronouns in Table 1, I will show that we can predict all surface forms in the phonology. The next section will introduce the theoretical tools needed for the analysis to come in Section 4.

3 Theoretical Tools

To shed new light on the data reported in the previous section, I propose an analysis within the frameworks of Phase Theory (Chomsky 2001), Element Theory (Backley 2011) and CVCV Phonology (Scheer 2004). I argue that

---

2 [ni-ka] is less formal whereas [nɔ-ka] is more common in contemporary Korean, even though the latter is sometimes not mentioned in grammar books such as Yeon and Brown (2019).
these tools will allow us to specify the syllabic and elemental structure of the morphemes involved in a way that accounts for the alternation phonologically, rather than allomorphically.

In a CVCV framework (Scheer 2004), the syllabic structure to which melodies can attach consists of a sequence of consonants and vowels. If two consonants follow each other, there is an empty nucleus in between. By definition, a coda precedes such empty vocalic positions. In languages where words can end with a consonant, there is a final empty nucleus (FEN). This FEN is further parametrized cross-linguistically. In Korean, I will assume it is not accessible in the sense that no floating segments can attach to that position. Therefore, FENs are greyed in the representations.

(8)

\[\text{'you (intimate)'}\]

Once the association of melodies to syllabic positions is completed, governing and licensing relations are delivered by every vowel from right to left. These lateral relations respectively weaken and strengthen the segments they affect. A non-final empty vocalic position is always governed (weakened), as represented in (8) with the blue arrow. Strengthening is done via licensing, which will not be shown in the following representations since it is not relevant to the present analysis.

To account for the changes in bases with a final vowel, I will appeal to Element Theory (Backley 2011) to detail the representation of each segment. This monovalent trait system uses only three elements, represented between vertical lines, to distinguish all vowels of a phoneme inventory (9).

(9)

|I| belongs to high front vowels, |U| is for high back vowels and |A| is associated with low vowels. The representation of schwa, like Korean \(\text{ɨ}\\), is empty, meaning this vowel has no element. Elements can combine to yield mid-vowels and can be headed to differentiate high-mid from low-mid vowels. In these cases, the head is underlined. This framework will be used to illustrate coalescence in terms of combination of elements.
Based on vowel harmony phenomena, Lee (1996) established the representation of the Korean vowel inventory in Element Theory. It has been slightly modified in (10) considering the recent merge of /ɛ/ and /ɛ/ in Korean (Yeon and Brown 2019).

(10) Korean vowel inventory

<table>
<thead>
<tr>
<th>a</th>
<th>o</th>
<th>e</th>
<th>i</th>
<th>o</th>
<th>u</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A]</td>
<td>[A]</td>
<td>[A]</td>
<td>[A]</td>
<td>[I]</td>
<td>[AU]</td>
<td>[U]</td>
</tr>
</tbody>
</table>

Finally, to account for the different behaviour of lexical and functional bases affixed with -ika, I will propose a derivation by phase (Chomsky 2001). Once syntactic cycles are sent to the phonology and computed, they are no longer accessible to some operations. Vowel coalescence can only take place within a phase. It has already been shown that hiatus resolution proceeds differently within and across such cycles for a wide variety of languages (Newell 2017; Newell and Piggott 2014). I will assume that lexicalizing heads, like little n for nouns, are phase heads (Marantz 2007). The next section will show how these theoretical tools combine to predict the surface forms of the nominative marker and its bases.

4 Analysis

I will show that the data presented in Section 2 can be explained by the underlying representation of -ika.

4.1 Vowel Alternations via Coalescence

I propose that the lexical entry of the nominative marker is comprised of three floating segments but only two skeletal positions (CV). This was shown in (2) repeated in (11) below.

(11) C V i k a

The association of melodies to available positions proceeds from left to right from the perspective of the melodic tier. Association lines do not cross, and unlinked segments are not pronounced. Recall that FENs are greyed because they are not accessible in Korean. No floating segment can attach to

---

3 The two front-mid vowels have since merged completely (Yeon and Brown 2019). For this reason, the low-mid vowel /ɛ/ does not figure here, and the headedness of /ɛ/ and /i/ has been removed as it is superfluous.
these empty final Vs. Finally, empty VC sequences are deleted at the end of a cycle (Gussmann and Kaye 1993).

Lexical nouns never change form in the environment of the nominative marker. If the nominal base ends in a consonant, /i/ links first to the V position in its own lexical entry because it cannot associate to the greyed FEN of its base. The subsequent linkage of /k/ and /a/ is blocked, since it proceeds from left to right and association lines cannot cross. This is illustrated with the word *param* ‘wind’ in (12).

(12) Nouns C#

<table>
<thead>
<tr>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>a</td>
<td>r</td>
<td>a</td>
<td>m</td>
<td>i</td>
</tr>
</tbody>
</table>

‘wind NOM’

After a nominal base ending in a vowel, /k/ links first followed by /a/. This time, /i/ remains floating since it cannot coalesce with the last vowel of a noun as will be demonstrated below. Hence, it is not pronounced. This is represented with the word *pada* ‘sea’ (13). Melodic material and syllabic positions are computed in independent modules of the phonology (Scheer 2022). Association of segments is sensitive to neighbouring melodies.

(13) Nouns V#

<table>
<thead>
<tr>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>a</td>
<td>d</td>
<td>a</td>
<td>i</td>
<td>k</td>
</tr>
</tbody>
</table>

‘sea NOM’

Pronouns ending in a consonant follow the same pattern: /i/ associates first, blocking /k/ and /a/ from surfacing. The greyed FEN is still inaccessible.

(14) Pronouns C#

<table>
<thead>
<tr>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
<th>C</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>a</td>
<td>n</td>
<td>j</td>
<td>i</td>
<td>n</td>
<td>i</td>
<td>k</td>
</tr>
</tbody>
</table>

‘2SG NOM’

To account for the alternating pronominal bases in Table 1, I propose that the final vowels of these roots undergo coalescence with the initial /i/ of *-ika*. In (15), the coalescence of [A] or [Å] and [l] yields [ɛ] ([Ål] ~ [Ai]).
The second person singular pronoun in (16) requires some more attention since coalescence does not yield the expected \[ \varepsilon \].

\[
(16) \quad /n\alpha-\text{i}k\alpha/ \rightarrow [n\varepsilon-k\alpha]
\]

Note that \(|A|\) is not headed in the representation of /\varepsilon/. I propose that unheaded (weak) \(|A|\) cannot coalesce with \(|I|\) in this pronoun since this would make it indistinguishable from the first person pronoun in (15a). The only remaining element is \(|I|\), resulting in the form \([n\varepsilon k\alpha]\) ‘2 SG NOM’ instead of \*\([n\varepsilon k\alpha]\). An alternative is to delete the \(|I|\), giving the alternative form \([n\varepsilon k\alpha]\).

Recall that some vowel-final pronouns behave the same way as any other noun, with no vowel alternations, which may seem to pose a challenge for the above analysis. However, I argue that vowel coalescence takes place in such contexts even though no effect is observed.\(^4\) The addition of \(|I|\) to the elemental representation of /\i/ and /\varepsilon/ does not provoke any surface effect, because these vowels already contain this element (17).

\[
(17) \quad \text{Pronouns V#}
\]

\(^4\) Further evidence that the pattern analyzed henceforth involves coalescence comes from the genitive particle in Korean, which can take the form \(i\varepsilon\) or \(\varepsilon\) in isolation but also coalesce with the previous vowel of pronouns it attaches to: /\text{na-i}\i/ \rightarrow [\text{nu}] ‘my’.
4.2 Phases Block Coalescence

We now must explain why the vowel of the suffix coalesces in the derivation of pronouns, but not in the derivation of nouns. The differing behavior of nouns and pronouns is due to their syntactic structure. Functional categories like pronouns do not contain a lexical head in their syntactic structure, whereas lexical nouns contain a root dominated by a little \( n \) head (Marantz 2007). These phase heads influence the derivation since they are responsible for sending syntactic structure to the phonological module. Once a cycle is computed by the phonology, it can no longer be altered (Chomsky, 2001). Vowel coalescence only takes place within a cycle in Korean, like in Ojibwe (Newell and Piggott 2014) and many other languages (Newell 2017).

Pronouns have the structure \([X -ika]_{DP}\). Brackets indicate phases, in this case DP (Chomsky 2001). Nouns have two cycles. A lexical head triggers a cycle of interpretation before \(-ika\) is introduced: \([X \; \emptyset_n]_{nP} -ika]_{DP}\).

The case of demonstrative and interrogative pronouns is intriguing since they exhibit some unusual free variation, repeated in (18).

(18) a. /ikɔs-ika/ → [ikɔʃ-i], [ikɛ], *[ikɔ-ka] ‘this (proximal)’
DEM.PROX-NOM

b. /mwɔs-ika/ → [mwɔʃ-i], *[mwɛ], [mwɔ-ka] ‘what’
what-NOM

The first variant is straightforward: /i/ links because the base ends in a consonant and the remaining floating segments are unpronounced.

(19) ikɔʃ-imwɔʃ-i
\[
\begin{array}{ccc|ccc|ccc|ccc}
C & V & C & V & C & V & C & V & C & V \\
i & k & o & s & i & k & a & m & w & o & s & i & k & a \\
\end{array}
\]

‘this (NOM)’ ‘what (NOM)’

The two other variants are more mysterious. One would expect [ikɛka] to be possible instead of [ikɛ], since it would mirror the behavior of personal pronouns in (15). The only explanation is that the final /s/ of the base is still present in the underlying representation of [ikɛ] while there is no /s/ at all in the underlying form of expressions such as [mwɔka].

The final /s/ of the former is responsible for triggering the association of /i/. But this consonant must be floating since it does not block coalescence with the preceding vowel. The FEN in these pronouns governs the floating /s/, leaving it unlinked. After unpronounced segments are erased, coalescence can take place, as in (15) above.
As for the derivation of [mwɔka], no final /s/ is involved. The floating /k/ and /a/ link to the available syllabic positions because the nominative marker is attached to a base ending in a vowel.

The absence of coalescence in this last case requires more investigation. The syntactic structure of the pronoun might be in cause. Demonstratives are multimorphemic: ikɔs contains the demonstrative determiner i ‘this (proximal)’ and the bound noun kɔs ‘thing’, which might be dominated by a little n head, triggering a phase. The decomposition of the interrogative form is less clear.

5 Conclusion and Discussion

I have shown that there is no need to posit allomorphs for the nominative marker in Korean since all surface forms can be derived from a single underlier. The underlying representation of -ika comprises three floating segments but crucially only two syllabic positions as shown in (11).

To derive all surface forms of the nominative marker and its bases, both phonological and syntactic factors need to be considered. Coalescence can only take place within a phase, which is why only pronouns with final vowels display idiosyncrasies. The subsegmental structure of this last vowel also plays a role, as it needs to be compatible with |I| to coalesce.

More research is needed to thoroughly explain the behavior of demonstrative and interrogative proforms, since some of their variants in the environment of -ika are unusual under the current analysis.

References


1 Introduction

Adjectives in Japanese are generally classified into two types: One is called canonical adjectives and the other is called nominal adjectives (Nishiyama 1999). They do not have apparent semantic difference (Uehara 1998).

1The terminological distinction ‘canonical adjective / nominal adjective’ is equivalent to: ‘true adjective / nominal adjective’ (Yamakido 2009), ‘adjective / nominal adjective’ (Kuno 1973),

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Nevertheless, there is morphological difference between them, which lies in their endings: When they appear in non-past predicative position, canonical adjectives end in \(-i\) whereas nominal adjectives end in \(-da\). Previous studies have reported that simple canonical adjectives (e.g. \(taka-i\) ‘high’) and simple nominal adjectives (e.g. \(shizuka-da\) ‘quiet’) are morphologically different by presenting various types of empirical support. In contrast, there has been little discussion about the morphological difference between compound canonical adjectives (e.g. \(boro-yowa-i\) ‘shabby and vulnerable’) and compound nominal adjectives (e.g. \(boro-yowa-da\) ‘shabby and vulnerable’). In this paper, we argue that compound canonical adjectives and compound nominal adjectives have different morphological structures and present three different kinds of empirical evidence for our morphological structures.

This paper is organized as follows. Section 2 reviews the previous studies dealing with simple canonical adjectives and simple nominal adjectives. Section 3 proposes morphological structures of compound canonical adjectives and compound nominal adjectives, and Section 4 presents three different types of empirical support for them. Section 5 concludes this paper.

2 Background

Previous studies have claimed that simple canonical adjectives and simple nominal adjectives have morphological difference based on the observation that stems of simple canonical adjectives and a present tense inflection \(-i\) are closely bound together while stems of simple nominal adjectives are independent of a copula \(-da\) (cf. Martin 1975; Backhouse 1984; Namai 2002; Uehara 2002). This difference is called the difference in morphological boundness (Martin 1975; Uehara 1998; Kato 2003). The difference in morphological boundness between them is supported by the following four pieces of empirical evidence.

First, simple canonical adjectives and simple nominal adjectives have different iterative forms (Uehara 2002: 86). In the case of simple canonical adjectives, the full form (1b), not the stem (1a), is iterated. In the case of simple nominal adjectives, on the other hand, both the stem (2a) and the full form (2b) are iterated.

(1) a. *‘\(\tilde{A}, taka\ taka\).’ ‘Oh, high! high!’

In the case of canonical adjectives, in predicative or attributive position, \(-i\) is attached to the stem. In the case of nominal adjectives, when they appear in attributive position, \(-na\), the allomorph of the copula \(-da\), is attached to the stem.
b. ‘Alright, *taka-i taka-i.*’ ‘Oh, high! high!’

(2) a. ‘Alright, *raku raku.*’ ‘Oh, easy! easy!’
   b. ‘Alright, *raku-da raku-da.*’ ‘Oh, easy! easy!’

(Uehara 2002: 86, Translated by us)

Second, modal auxiliaries such as *-darō ‘seem’*, *-deshō ‘seem in polite form’*, *-mitai ‘seem’*, *-kamo shirenai ‘may’*, and *-ni chigainai ‘must’*, sentence-final particles such as *-kashira ‘I wonder’*, and markers for indirect interrogative sentences such as *-ka dōka ‘whether’* attach to the different parts of the words (Uehara 2002: 86; Miyagawa 1987: 44). Selected examples are given in (3) and (4). Regarding simple canonical adjectives, *-darō* is attached to the full form (3b), not to the stem (3a), while regarding simple nominal adjectives, *-darō* is attached to the stem (4a), not to the full form (4b).

(3) a. *Sono fuku wa taka darō.* ‘The clothes seem to be expensive.’
   b. *Sono fuku wa taka-i darō.* ‘The clothes seem to be expensive.’

(4) a. *Sono heya wa shizuka darō.* ‘The room will be quit.’
   b. *Sono heya wa shizuka-da darō.* ‘The room will be quit.’

(Uehara 2002, Translated by us)

Third, the difference lies in their acceptance of the negative emphatic suffix *-nanka ‘at all’* (Namai 2002: 345). *-Nanka* fails to be inserted between the stem of simple canonical adjectives and *-k* (5) while it is successfully put between the stem of simple nominal adjectives and *-de* (6).

(5) *taka-nanka-k(u) nai*
   high-at.all-k(u) not
   ‘not high at all’

(6) *shizuka-nanka-de nai*
   quiet-at.all-de not
   ‘not quiet at all’

(Namai 2002: 345)

---

[^3]: As will be seen in (9), *-k* appears right after the stem of a canonical adjective except for canonical adjectives in the present form ending in *-i*.

[^4]: As will be seen in (10), *-de* is a predicative copula.
Fourth, there is difference in syntactic operation of *so-replacement*. The stem of simple canonical adjectives cannot be replaced by the pro-form -sō (7) while that of simple nominal adjectives can (8).

\[(7) \quad \text{taka-k(u)} \rightarrow *\text{sō-k(u)} \quad \text{high-k(u)} \rightarrow \text{sō-k(u)} \]

\[(8) \quad \text{shizuka-de} \rightarrow \text{sō-de} \quad \text{quiet-de} \rightarrow \text{sō-de} \quad \text{(Namai 2002: 345)} \]

The evidence given in this chapter support that simple canonical adjectives and simple nominal adjectives show different morphological boundness.\(^5\) Considering the difference in morphological boundness observed in simple words, we explore the case of compounds in the next chapter.

### 3 Proposal

We propose within the framework of Distributed Morphology (Halle and Marantz 1993, hereafter DM) that compound canonical adjectives and compound nominal adjectives in Japanese have different morphological structures. In our analysis, we adopt the following ideas from previous studies:

\[(9) \quad \text{Except for present forms, all other forms in Japanese modern canonical adjectives contain -k right after stems (Nishiyama 1999).} \]

\[(10) \quad -\text{da is the contracted form of -de aru (Nakayama 1988; Urushibara 1993). -de is a predicative copula. -u in aru is a present tense form (Nishiyama 1999).} \]

\[(11) \quad -\text{ar, a dummy copula, appears in both canonical and nominal adjectives (Nishiyama 1999).} \]

\[(12) \quad -\text{ta, a past tense form, appears in both canonical and nominal adjectives (Nishiyama 1999).} \]

\[(13) \quad \text{Stems of canonical adjectives are dependent on -k while stems of nominal adjectives are independent of -de (Namai 2002).} \]

\(^5\) Other than empirical support presented in this chapter, there is difference in lexical strata between them: Stems of simple canonical adjectives are restricted to Yamato lexemes, while simple nominal adjectives can accommodate Sino-Japanese lexemes and foreign words in their stems (cf. Backhouse 1984: 177-82).
Our analysis builds on Nishiyama’s (1999) claim that all canonical adjectives contain -k. We analyze -k as a category-assigning head which creates adjectives (hereafter, category-assigning head a).

Based on these ideas, we first propose the morphological structure of compound canonical adjectives in Figure 1. We claim that a compound canonical adjective boro-yowa-k is derived as follows: First, √yowa is merged with a category-assigning head a, creating a simple canonical adjective yowa-k. Then, √boro is merged with the simple canonical adjective yowa-k, yielding a compound canonical adjective boro-yowa-k.

![Figure 1. Morphological Structure of Compound Canonical Adjective](image)

Next, we propose the morphological structure of compound nominal adjectives in Figure 2. We argue that a compound nominal adjective boro-yowa-de is derived as follows: First, √boro is merged with √yowa, deriving a compound root √boroyowa. Next, the compound root √boroyowa is merged with a category-assigning head n, yielding a noun boro-yowa. Then, the noun boro-yowa is merged with a category-assigning head a, yielding an adjective boro-yowa. After that, the adjective boro-yowa is merged with a predicative copula -de, creating a compound nominal adjective boro-yowa-de.

In the next chapter, we will present three different kinds of empirical evidence for our morphological structures.
Figure 2. Morphological Structure of Compound Nominal Adjective

4 Empirical Support

4.1 Modification by Degree Modifiers

Compound canonical adjectives and compound nominal adjectives are different in modification by degree modifiers. Predicative modifiers (e.g. *kanari ‘fairly’) are for modifying verbs and adjectives. Regarding adjectives, both canonical adjectives (e.g. *kanari taka-i ‘fairly high’) and nominal adjectives (e.g. *kanari shizuka-da ‘fairly quiet’) can be modified. On the other hand, attributive modifiers (e.g. *kanari no ‘fair’) are for modifying nouns (e.g. *kanari no akunin-da ‘quite a bad person’) (Kato 2003). They can modify neither canonical adjectives (e.g. *kanari no taka-i ‘fair high’) nor nominal adjectives (e.g. *kanari no shizuka-da ‘fair quiet’).

We try this test on words that have both compound canonical adjective form and compound nominal adjective form. Compound canonical adjectives can be modified by predicative modifiers (14a) but cannot modified by attributive modifiers (14b). On the other hand, compound nominal adjectives can be modified by both predicative modifiers (15a) and attributive modifiers (15b).
This result suggests that in compound canonical adjectives, no elements are merged with the category-assigning head $n$, while in compound nominal adjectives, a compound root is merged with the category-assigning head $n$ as well as $a$ as shown in Figure 2.

4.2 *B-de aru / AB-de aru

Regarding compound nominal adjectives, there are some cases where AB-de aru is acceptable though B-de aru is unacceptable (16).

4.3 Emphatic /Q/ Insertion

In this section, we discuss emphatic /Q/ insertion patterns. When native speakers of Japanese emphasize canonical adjectives, they often insert the special mora /Q/ in these words (e.g.atsu-i ‘hot’ → a-Q-tsu-i ‘hot in emphatic form’). If they attempt to emphasize compound canonical adjectives and compound nominal adjectives, the different insertion positions are chosen.

The insertion position pattern of /Q/ in compounds can be elegantly captured by combining the insertion position pattern of /Q/ in simple words (17) and the principle of DM (18).
(17) /Q/ is likely to be inserted between the 1st and the 2nd morae of simple canonical adjectives (e.g. a-Q-tsu-i vs. *atsu-Q-i). According to previous studies, when real simple canonical adjectives and meaningless coined words similar in shape to simple canonical adjectives (e.g. akaza-i) were emphasized, /Q/ was inserted between the 1st and the 2nd morae (Kaneko 2015; Tomiyama et al. 2002).

(18) The first category-assigning head merging with the root defines the phase (cf. Chomsky 1999). Phase is a closed domain, so once the phase is defined, the interpretation of the output is fixed phonologically and semantically (Marantz 2000; Arad 2003).

The observation described in (17) can be captured in the framework of DM by the notion of the domain defined in (18). Thus, we are led to presume (19).

(19) /Q/ is inserted between the 1st and the 2nd morae of a domain which is determined by merge with a category-assigning head.

In the case of compound canonical adjectives, our morphological structure predicts that /Q/ is inserted in the 1st and the 2nd morae of yowak; for example, when a compound canonical adjective boro-yowa-i is emphasized, an emphatic form boro- yo-Q-wa-i would be most preferable. It is because yowak, where the root √yowa and a category-assigning head are merged, constitutes the domain for /Q/ insertion (Figure 1). On the other hand, in the case of compound nominal adjectives, our morphological structure predicts that /Q/ is inserted in the 1st and the 2nd morae of boroyowa; for example, when a compound nominal adjective boro-yowa-da is emphasized, an emphatic form bo-Q-ro-yowa-da would be most preferable. It is because boroyowa, where the compound root √boroyowa and a category-assigning head are merged, constitutes the domain for /Q/ insertion (Figure 2).

Regarding compound nominal adjectives, native speakers of Japanese can certainly judge that /Q/ inserted between the 1st and the 2nd morae of the first element (bo-Q-ro-yowa-da) is much preferable than /Q/ inserted between the 1st and the 2nd morae of the second element (boro-yo-Q-wa-da). On the other hand, regarding compound canonical adjectives, it is difficult for native speakers of Japanese to judge which emphatic form is preferable, /Q/ inserted between the 1st and the 2nd morae of the first element (bo-Q-ro-yowa-i) or /Q/ inserted between the 1st and the 2nd morae of the second element (boro-yo-Q-wa-i). Kondo (2021) conducted experiments and showed that the acceptability of /Q/ between the 1st and the 2nd morae in the second element...
was statistically higher than that of /Q/ between the 1st and the 2nd morae in the first element. This result suggests that our analysis is on the right track.

5 Conclusion

The aim of this paper was to propose the morphological structures of compound canonical adjectives and compound nominal adjectives in Japanese within the framework of DM. The difference in morphological structure between them was supported by three different types of empirical evidence. First, compound canonical adjectives and compound nominal adjectives were different in how they were modified by two types of degree modifiers, predicative modifiers and attributive modifiers. Second, only in compound nominal adjectives, there were some cases where AB-de aru was acceptable though B-de aru was unacceptable. Third, we showed that compound canonical adjectives and compound nominal adjectives are different in insertion positions of emphatic /Q/.

Three pieces of evidence presented in this paper support different aspects of our morphological structures: Modification by degree modifiers is support for the categorial status of compound nominal adjectives (i.e. the existence of the category-assigning head n), while the other two pieces of evidence support the difference in constituenthood between compound canonical adjectives and compound nominal adjectives (i.e., the two elements (e.g. boro and yowa) make up a constituent in the morphological structure of nominal adjectives, but not in that of canonical adjectives). In order to confirm that the morphological structure of compound nominal adjectives contains category-assigning head n, more empirical evidence is needed. We leave this issue to our future study.

Acknowledgments

This study was supported in part by JSPS KAKENHI Grant Number 21J12221 (PI: Morine Kondo). Our gratitude also goes to the organizing committee, three anonymous reviewers, and all the visitors to our presentation at the conference.

References


An Interaction of Mutually Bleeding Processes: Voicing of Intervocalic Plosives and Vowel Devoicing in Tohoku Japanese

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1 Introduction

Traditional phonology has paid considerable attention to the interactions of phonological processes. One pattern of the interaction is *mutual bleeding* (Baković 2011, Kiparsky 1971). Rules A and B are mutually bleeding if both these situations are present: (i) Rule A bleeds a later-ordered Rule B. (ii) If Rule B were ordered before A, B would bleed A.

Tohoku dialects are spoken in the northern part of Honshu (mainland), Japan, where intervocalic voiceless plosives /t, k/ undergo voicing. In addition, Eastern Japanese dialects, including Tohoku dialects, tend to devoice high vowels between voiceless consonants. These two processes, consonant voicing (Cvoi) and vowel devoicing (Vdev), are formulated in (1a) and (1b), respectively.

\[
\begin{align*}
(1a) & \quad C \rightarrow [+\text{voice}] / V_V \\
(1b) & \quad V[+\text{high}] \rightarrow [-\text{voice}] / C[-\text{voice}]_C[-\text{voice}]
\end{align*}
\]

These two processes have a mutual bleeding relationship in the sequence of C[-voice] V C[-voice] V. When voicing rule (1a) is first applied to the consonant, either side of the environment for (1b) is lost. In contrast, when (1b) is applied first, the conditional environment for (1a) is not satisfied. Therefore, the contradicting rules in (1) may result in variable realizations. For example, /kita/ may be realized as [kita] if neither is applied, [kida] if only (1a) is applied, [ki̊ta] if only (1b) is applied, and [ki̊da] if both are applied.

Previous studies have attempted to clarify whether one rule takes over the other in certain situations, but these studies relied on aurally described data. Moreover, research on this issue was conducted a few decades ago, and the current situation may have changed because of language change. Therefore, this study addresses the issue based on acoustic measurements of new data. The following sections review previous key studies.

1.1 Consonant Voicing (Cvoi) in Tohoku Japanese

In Tohoku dialects, the voiceless plosives /t/ and /k/ are voiced intervocally. Over the last few decades, research has demonstrated that Cvoi is diminishing among younger generations, but older adult speakers still maintain it (Saito 1990, Ohashi 2002). In addition, a recent study has shown that even speakers between the ages of 33 and 85 do not have a high Cvoi rate (33% maximum) (Noguchi et al. 2022).

1.2 Vowel Devoicing (Vdev) in Tohoku Japanese

In Tokyo Japanese, vowel devoicing frequently occurs in devoicing environments and is often claimed to be obligatory (Fujimoto 2015 and references therein).
Research on vowel devoicing in Tohoku Japanese is limited, but Byun (2012) reported regional and generational variations based on two large speech databases. According to her study, Tohoku speakers’ devoicing rates change abruptly at a certain age. For example, speakers born between 1900 and 1940 in the Tohoku region showed a low devoicing rate (40–60%), whereas speakers born between 1950 and the 1990s showed a devoicing rate of over 80%.

1.3 Interaction of Consonant Voicing (Cvoi) and Vowel Devoicing (Vdev)

Previous studies on the interaction between Cvoi and Vdev were based on aurally described data (Saito 1990, Ohashi 2002). These studies state that Cvoi is preferred over Vdev when both the Cvoi and Vdev conditions are met and the vowel after the intervocalic plosive is [+high] (e.g., /kiku/ ‘chrysanthemum’). In contrast, Vdev is preferred over Cvoi when the vowel after the intervocalic plosive is [-high] (e.g., /kita/ ‘north’). For clarity, the basic descriptions in previous studies are summarized in Table 1, and we refer to three different patterns as Types A, B, and C, respectively.

<table>
<thead>
<tr>
<th>Phonological context</th>
<th>Example</th>
<th>Realization</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only the Cvoi condition is met.</td>
<td>/neko/ ‘cat’</td>
<td>Cvoi</td>
<td>A</td>
</tr>
<tr>
<td>Both Cvoi and Vdev conditions are met, and the vowel after /t, k/ is [+high]. (C[-voi] V[+high] /t, k/ V[+high])</td>
<td>/kiku/ ‘chrysanthemum’</td>
<td>Cvoi</td>
<td>B</td>
</tr>
<tr>
<td>Both conditions are met, and the vowel after /t, k/ is [-high]. (C[-voi] V[+high] /t, k/ V[-high])</td>
<td>/kita/ ‘north’</td>
<td>Vdev</td>
<td>C</td>
</tr>
</tbody>
</table>

Table 1. Description of the interaction of Cvoi and Vdev in previous studies

Saito (1990) calculated the Cvoi rate in Types A, B, and C. For Type A and Type B words, the Cvoi rate was over 90% in the older age group. However, Type C words had a Vdev rate of approximately 100%. These results indicate that the three patterns in Table 1 occur categorically, especially in the older age group.
We will address the following limitations of previous studies: (1) We report our results based on acoustic analysis, not aural description. (2) To the best of our knowledge, research on this issue was conducted a few decades ago, and it may have changed in recent years due to language standardization. (3) Few studies have examined a sufficient number of words in several prefectures.

2 Method

2.1 Participants

Speech data were initially collected for a large-scale project (Hashimoto 2019). A total of 23 Tohoku Japanese speakers (33–85 years old) participated in an elicited production task.

2.2 Recording and Material

The speech data were collected at six sites (Aomori, Akita, Ichinoseki, Morioka, Tsuruoka, and Aizu-Wakamatsu) in five prefectures in the Tohoku region with a SONY ECM-MS957 microphone on a SONY PCMD50 recorder (16bit, 44kHz). One author from the Tohoku region elicited target words using picture-naming tasks and riddle-like questions. Participants were instructed to name the objects displayed in the pictures or objects described by the researcher. Even when participants produced a word different than expected, the words were included in the analysis if they contained intervocalic /t/ or /k/.

2.3 Acoustic Analysis

The audio files were resampled to 16kHz for semi-automatic segmentation using Julius (Kawahara and Lee 2005). Trained phoneticians checked the annotations with Praat (Boersma and Weenink 2022) and fixed the results wherever necessary. Subsequently, the first author confirmed these changes.

Voice onset time (VOT) was measured by marking the onset of a release burst and the voicing onset based on the visible concentration of energy below the 1kHz range. As Abramson and Whalen (2017) proposed, if voicing continued from the end of the preceding segment, the closure duration where voicing persisted was measured as VOT. Tokens where VOT could not be measured, were excluded from the analysis. Many of these were cases where (1) the voice onset could not be determined because the vowel after the plosive was devoiced, or (2) the onset of a release could not be determined because the burst was not visible. We also examined vowel devoicing. Vowels without visible periodic cycles in the waveform were de-
terminated to be devoiced. Four speaker tokens were excluded from the analysis because the number of tokens was approximately half the number for other speakers. Nineteen speakers were analyzed (11 males, eight females), of which 16 were born after 1940, and the number of tokens was 1445.

3 Results

3.1 Interaction of Cvoi and Vdev

We first checked whether consonant voicing occurred in words where only the condition for Cvoi was met, as some studies report that Cvoi is diminishing in the younger generation (Saito 1990, Ohashi 2002). Table 2 lists the number of occurrences of Cvoi and Vdev in tokens that fulfill only the Cvoi condition. For example, the /k/ in /neko/ ‘cat’ fulfills the Cvoi condition, as it is in an intervocalic position, but neither the vowel /e/ nor /o/ fulfills the Vdev condition.

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
<th>N</th>
<th>Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>/neko/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No application</td>
<td>[neko]</td>
<td>720</td>
<td>86.7</td>
</tr>
<tr>
<td>Cvoi applied</td>
<td>[neg0]</td>
<td>98</td>
<td>11.8</td>
</tr>
<tr>
<td>Vdev applied</td>
<td>[neko]</td>
<td>12</td>
<td>1.4</td>
</tr>
<tr>
<td>Both applied</td>
<td>[neg0]</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>830</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Number of occurrences of Cvoi and Vdev in tokens fulfilling only the Cvoi condition.

Whereas neither Cvoi nor Vdev occurred in 86.7% of the tokens, Cvoi occurred to some extent (11.8%).

The left columns show the results for Type B words. In some cases, neither Cvoi nor Vdev occurred (11.3%), and in others, Cvoi occurred (7.8%); however, in many cases, only Vdev occurred (80.3%). Interestingly, there were some tokens in which both Cvoi and Vdev occurred, although the percentage was low (0.5%). Note that the high Vdev rate (80.3%) in Type B has not been observed in previous research.

Table 3 shows the number of occurrences of Cvoi and Vdev in tokens fulfilling both the Cvoi and Vdev conditions. The right columns show the results for Type C. In 2.0% of tokens, neither Cvoi nor Vdev occurred. Following previous studies, consonants were not voiced (0%), and vowels were devoiced in most cases (98.0%).
<table>
<thead>
<tr>
<th>Type B</th>
<th>Type C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vowel after /t, k/ is [+high]</td>
<td>Vowel after /t, k/ is [-high]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example</th>
<th>N</th>
<th>Ratio</th>
<th>Example</th>
<th>N</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>/kiku/</td>
<td>69</td>
<td>11.3</td>
<td>/kita/</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>No application</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cvoi applied</td>
<td>48</td>
<td>7.8</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Vdev applied</td>
<td>243</td>
<td>80.3</td>
<td>247</td>
<td>98.0</td>
<td></td>
</tr>
<tr>
<td>Both applied</td>
<td>3</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>363</td>
<td>252</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Number of occurrences of Cvoi and Vdev in tokens fulfilling both Cvoi and Vdev conditions.

3.2 Geographical Variation

Figure 1 shows the distribution of Vdev rates against Cvoi rates for each prefecture in different colors. Each dot represents a speaker. The number in parentheses in the legend indicate the number of speakers in each prefecture. The Vdev and Cvoi rates were calculated in tokens fulfilling both the Cvoi and Vdev conditions (Types B and C). For example, in Akita and Fukushima, the Cvoi rate was almost zero, and the Vdev rate was over 80%, whereas both Cvoi and Vdev occurred in Iwate and Yamagata.

Figure 1. Vdev rate against Cvoi rate
3.3 Statistical Analysis

We conducted a statistical analysis using a linear mixed effect model with *lmerTest* package (Kuznetsova et al., 2017) in R (R Core Team, 2019: version 4.1.3). The dependent variable was VOT. The optimal model was determined using backward selection. Fixed factors of the selected model include *phonological context* (Types A, B, or C in Table 1), *segment* (/t/ or /k/), and an interaction term between *phonological context* and *prefecture*. The random factors were the *speaker* and *item*.

The results showed that the main effect of *phonological context* was not significant. The VOTs of /t/ were significantly shorter than those of /k/ (estimate = -10.8, s.e. = 3.73, \(p<.005\)). The interaction effect between *phonological context* and *prefecture* was significant, depending on the combination, indicating that the effects of *phonological context* varied by prefecture.

Pairwise comparisons were performed using the *emmeans* (Lenth et al., 2019) function with Bonferroni corrections to examine the interaction effect between phonological context and prefecture in more detail. Comparisons were performed for all prefectures, but significant results were obtained only for Yamagata. Table 4 presents the results.

<table>
<thead>
<tr>
<th>Prefecture</th>
<th>Phonological context</th>
<th>Estimate</th>
<th>SE</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamagata</td>
<td>Type A - B</td>
<td>-1.116</td>
<td>4.25</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>Type A - C</td>
<td>-8.294</td>
<td>4.02</td>
<td>&lt;.05</td>
</tr>
</tbody>
</table>
|            | Type B - C           | 9.411    | 2.11| <.0001  | **

*Table 4. A part of the results of the pairwise comparisons*

The difference between Types B and C in Yamagata was significant; VOTs of intervocalic plosives in Type B words (e.g., /kiku/) were shorter than that of Type C (e.g., /kita/), which is consistent with the description in Table 1. Moreover, the difference between Types A and C in Yamagata reached slight significance, which indicates that the VOTs of plosives in Type A (e.g., /neko/) were shorter than that of Type C (e.g., /kita/). This is consistent with the results in Table 1. In summary, the statistical analysis revealed that the tendencies described in Table 1 are strong in Yamagata.

4 Discussion

4.1 Interaction of Cvoi and Vdev and Its Diachronic Changes

The current study examined the interaction between Cvoi and Vdev in Tohoku Japanese. First, we confirmed that Vdev is almost always preferred over Cvoi if the vowel after the intervocalic plosive is [-high], such as /kita/,
consistent with previous studies (Saito 1990, Ohashi, 2002). However, if the vowel after the plosive is [+high], such as /kiku/, the Cvoi rate was not as high as reported in previous studies. Instead, the Vdev rate was high.

Table 5 compares Saito (1990), Ohashi (2002), and this study. In reports published a few decades ago, Cvoi was maintained; Cvoi rates were 90–100% among older adult speakers, and Vdev rates were low in Type B. In contrast, this study shows that the Cvoi rate is low, and the Vdev rate is high in Type B. This might be because Cvoi is currently decreasing due to language standardization. Thus, the gradual decrease in Cvoi over the past few decades, creating Vdev environments, may have led to a higher rate of Vdev in Type B.

<table>
<thead>
<tr>
<th>Phonological context</th>
<th>Example</th>
<th>Saito (1990)</th>
<th>Ohashi (2002)</th>
<th>This study (2023)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only the Cvoi condition is met.</td>
<td>/neko/</td>
<td>Cvoi</td>
<td>Cvoi: 12%</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Both conditions are met and the vowel after /t, k/ is [+high].</td>
<td>/kiku/</td>
<td>Cvoi</td>
<td>Cvoi: 8%</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Both conditions are met and the vowel after /t, k/ is [-high].</td>
<td>/kita/</td>
<td>Vdev</td>
<td>Vdev: 98%</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Table 5. A comparison of previous reports and this study

4.2 Geographical Variation

Geographical variation was found. Vdev was almost always preferred over Cvoi in Akita and Fukushima, whereas Cvoi and Vdev were preferred in Yamagata and Iwate. Further research is needed to determine the reason for this variation.

5 Conclusion

This study aimed to test how vowels and intervocalic plosives are realized when Cvoi and Vdev are used. We confirmed that these two processes bleed each other. Moreover, vowel devoicing occurred even in an environment where prior research reported that intervocalic voicing was preferred over vowel devoicing. This finding suggests that the gradual decrease in intervocalic voicing over a few decades due to diachronic changes, which have created vowel devoicing environments, may have led to a higher devoicing rate.
Acknowledgments
This work was supported by JSPS KAKENHI (Grant Numbers JP24520438 and JP22K00516).

References
SECTION III
Poster Papers

Part 2
Syntax, Semantics, and Pragmatics
1 Introduction

Saito (1984) and Hoji (1985) convincingly argue that unlike NP topicalization, PP topicalization in Japanese (1) must involve syntactic movement:

(1) [PP Mary-ni]-wa John-ga [Bill-ga gakkoo-de e atta to] Mary-to-Top John-Nom Bill-Nom school-at met C omoikondeiru think
    Lit. ‘Mary, John thinks that Bill met e at school.’
In (1), the PP Mary-ni ‘Mary-Dat’, which is base-generated in the object position of atta ‘met’, undergoes topicalization to the sentence initial position. This paper deals with multiple PP topicalization, which until now has received little attention (cf. Takeda 1999). In multiple PP topicalization (2), the two PPs gakkoo-de ‘school-at’ and Mary-ni ‘Mary-to’ are topicalized, being marked by the topic marker wa. We propose that multiple PP topicalization should be derived not by syntactic movement but by movement in phonology of a phonological constituent, what we call prosodic topicalization:

(2) ((Gakkoo-de) (Mary-ni))-wa John-ga [Bill-ga e e atta to] school-at Mary-to-Top John-Nom Bill-Nom met C omoikondeiru think Lit. ‘At school, Mary, John thinks that Bill met e e.’

The organization of this paper is as follows. Section 2 presents evidence against a syntactic movement analysis of multiple PP topicalization. It is shown that our analysis is supported by the fact that multiple PP topicalization neither obeys syntactic constraints nor has LF effects. Section 3 proposes multiple PP topicalization should be derived by movement in phonology via prosodic topicalization, which accounts for the immunity of multiple PP topicalization from syntactic constraints and LF effects. Section 4 makes some concluding remarks.

2 Against a Syntactic Movement Analysis of Multiple PP Topicalization

This section presents evidence to show that multiple PP topicalization is not derived by syntactic movement, being blind to syntactic constraints and lacking LF effects.

2.1 Island Constraints

First, single PP topicalization obeys syntactic island constraints like the Complex NP constraint and the Adjunct Condition as shown in (3a, 4a) (see, among others, Satoo 1984; Hoji 1985). Multiple PP topicalization, on the other hand, does not exhibit any syntactic island constraints as shown in (3b, 4b):
In (3b), *gakko-de* ‘at school’ and *Mary-ni* ‘to Mary’ undergo multiple PP topicalization out of the complex NP. In (4b), they undergo multiple PP topicalization out of the adjunct. Both (3b) and (4b) are acceptable. If multiple PP topicalization were syntactic, (3b) and (4b) should be worse than (3a) and (4a), where only one constituent undergoes PP topicalization out of an opaque domain. The result, however, is the opposite of what any syntactic analysis of multiple right dislocation predicts. This immunity to island constraints indicates multiple PP topicalization does not undergo syntactic movement.

### 2.2 Idiom Chunks

Second, when part of an idiom chunk undergoes single PP topicalization, it loses its idiomatic meaning as shown in (5a). In (5a), the idiomatic meaning of *te-ni hairu* ‘get’ is lost. Under multiple PP topicalization, however, the idiomatic reading is maintained as shown in (5b):

(5) a.*?Te-ni-wa* John-ga [zyoohoo- kantanni _hand-to-Top* John-Nom information-Nom easily
netto-kara _e hairu to] itta
network-from come.in C said
This contrast indicates that unlike single PP topicalization, multiple PP topicalization lacks LF effects. Multiply topicalized PPs are interpreted in-situ at LF; the idiom chunk remains intact for the purposes of LF interpretation.

2.3 Reconstruction Effects with Condition C

The third piece of evidence against a syntactic movement analysis of multiple PP topicalization comes from an argument/adjunct asymmetry involving reconstruction effects with Binding Condition C. As pointed out by, among others, van Riemsdijk and Williams (1981), Lebeaux (1988), Chomsky (1995), and Ishii (1997), there is an argument/adjunct asymmetry regarding reconstruction effects with Binding Condition C in English wh-movement as exemplified by (6):

(6) a.*?[Which pictures of John] do you think that he likes best?
   b. [Which pictures near John] do you think that he likes best?

While John and the pronoun he can be coreferential in (6b), they cannot be coreferential in (6a). The difference between (6a) and (6b) resides in the fact that while John is the complement of the noun in (6a), it is within the adjunct modifying the noun in (6b). Although there are various approaches to this argument/adjunct asymmetry with reconstruction effects, we assume the late Merge approach to adjuncts advocated by, among others, Lebeaux (1988) and Ishii (1997) for expository purposes. Under the late Merge approach to adjuncts, John in (6a), which is the argument of pictures, is merged when pictures is introduced. The copy of John is visible in the base position of the wh-phrase, which results in a Condition C violation. In (6b), on the other hand, John is within the adjunct modifying pictures. John may be late-merged after wh-movement has taken place. Due to late Merge of John, there is no Condition C violation.

Such an argument/adjunct asymmetry with reconstruction effects also appears with single PP topicalization as shown in (7). While John and kare ‘he’ can be coreferential in (7b), they cannot be in (7a). The R-expression John is
an argument of the noun *hihan* ‘criticism’ in (7a), whereas it is within the adjunct modifying *hihan* ‘criticism’ in (7b).

(7) a. *(7a)* [Minna-kara-no John-no hihan]-ni wa kare1,ga
everyone-from-Gen John-Gen criticism-to-Top he-Nom
[Suzy-ga e kaigi-de hantai sitekureta to] omoikondeiru
Suzy-Nom meeting-at objected C think
Lit. ‘Everyone’s criticism of John, he1 thinks that Suzy objected to *e* at the meeting.’

b. *(7b)* [John-ni abiserareta hihan]-ni wa kare1,ga [Suzy-ga e
John-to faced.with criticism-to-Top he-Nom Suzy-ga
kaigi-de hantai sitekureta to] omoikondeiru
meeting-at objected C think
Lit. ‘The criticism that John was faced with, he1 thinks that Suzy objected to *e* at the meeting.’

The contrast in (7) can be accounted for under the late Merge approach to adjuncts. In (7a), *[minna-kara-no John-no hihan]-ni* ‘to everyone’s criticism of John’ undergoes single PP topicalization. Since *John* is the argument of *hihan* ‘criticism’, it is merged when *hihan* ‘criticism’ first appears. The copy of *John* is visible in the base position, which results in a Condition C violation. In (7b), on the other hand, *[John-ni abiserareta hihan]-ni* ‘to the criticism that John was faced with’ undergoes single PP topicalization. Since *John* is within the adjunct modifying *hihan* ‘criticism’, it may be late-merged after PP topicalization has taken place; there is no Condition C violation.

Such an asymmetry, however, disappears with multiple PP topicalization as shown in (8):

(8) a. *(8a)* [Minna-kara-no John-no hihan]-ni kaigi-de]-wa
everyone-from-Gen John-Gen criticism-to meeting-at-Top
kare1,ga [Suzy-ga e e hantai sitekureta to] omoikondeiru
he-Nom Suzy-Nom objected C think
Lit. ‘Everyone’s criticism of John, at the meeting, he1 thinks that Suzy objected to *e e*.’

b. *(8b)* [John-ni abiserareta hihan]-ni kaigi-de]-wa kare1,ga
John-Dat faced.with criticism-to meeting-at-Top he-Nom
[Suzy-ga e e hantai sitekureta to] omoikondeiru
Suzy-Nom objected. C think
Lit. ‘The criticism that John was faced with, at the meeting, he1 thinks that Suzy objected to *e e*.’
In (8b), John-ni abiseraretari hihan-ni ‘to the criticism that John was faced with’ undergoes multiple PP topicalization with kaigi-de ‘at the meeting’. Although John is within the adjunct, John and kare ‘he’ cannot be coreferential. This indicates that the multiply topicalized PPs are interpreted in-situ at LF, which cannot be accounted for by any syntactic movement analysis of multiple PP topicalization.

2.4 Parasitic Gaps

Finally, while single PP topicalization can license a parasitic gap (PG), multiple PP topicalization cannot. Abe and Nakao (2009) and Abe (2011) claim that although Japanese does not seem to have parasitic gaps at first sight, there are instances of real parasitic gaps in Japanese as exemplified by (9):

\[
(9) \quad \text{[PG]} \text{mita [subete-no hito]-ga [Mary]-ga e kiniitteiru to] saw every-Gen person-Nom Mary-Nom like C itta no]-wa [zibun-2/-3 no donna syasin-o] desu ka said Comp-Top self-Gen what picture-Acc be Q Lit. ‘What kind of pictures of self were it that everyone [who saw e] say that Mary liked e,’ (Abe 2011: 206)
\]

(9) is an instance of a subject PG in the cleft construction with a case-marked focused element, which has been assumed to involve empty operator A’-movement, as argued by, among others, Hoji (1985). In (9), the reflexive pronoun zibun ‘self’ can refer to subete-no hito ‘everyone’ but not to Mary. In other words, (9) allows Condition A reconstruction into the parasitic gap but not into the real gap.

Abe and Nakao present the following evidence for their claim that (9) is an instance of PG. First, the Condition A reconstruction pattern is also observed in the English subject PG construction as shown in (10). While himself can refer to every boy in (10a), herself cannot refer to Mary in (10b) (Munn 1994: 407):

\[
(10) \quad \text{a. [Which picture of himself] did [every boy who saw e] say Mary liked it?}
\]
\[
(10) \quad \text{b.*[Which picture of herself] did [every boy who saw e] say Mary liked it?}
\]

---

\[1\] There is some speaker variation, however, with respect to the availability of the reading in (10a), as observed by Agbayani and Ochi (2023).
Second, such cases as (9) show the case-matching effect, which is one of the properties of the PG construction. In (9), both the real and parasitic gaps carry accusative Case, since *miru* ‘see’ and *kiniiru* ‘like’ both require accusative objects. When the Case of the parasitic gap matches that of the real gap, PG is available (9). (11), however, is ruled out by the Case-matching requirement (Abe 2011: 207):

(11)*?[[PG\textsubscript{1} mita [subete-no hito]\textsubscript{2}-ga [Mary-ga t\textsubscript{1} kisusita to] itta
  saw every-Gen person-Nom Mary-NOM kiss C said
  no]-wa zibun\textsubscript{2}-no donna syasin-ni\textsubscript{1} desu ka
  C-Top self-Gen what picture-Dat be Q
  Lit. ‘[What kind of pictures of self\textsubscript{2}] was it that everyone\textsubscript{2} [who saw
  e\textsubscript{1}] say that Mary kissed t\textsubscript{1}?’

In (11), the parasitic gap carries accusative Case, since the predicate *miru* ‘see’ requires an accusative object. The real gap, on the other hand, carries dative Case, since the predicate *kisusuru* ‘kiss’ requires a dative object. The Case of the parasitic gap does not match that of the real gap, so (11) is deviant.

Adopting Abe and Nakao’s view that examples like (9) are parasitic gap constructions in Japanese, (12) indicates that single PP topicalization can license a parasitic gap:

(12) [Zibun\textsubscript{2/3}-no zyooosi-ni\textsubscript{1}-wa [hazimete kaisya-de \textit{PG\textsubscript{1}} atta
  self-Gen boss-to-Top first.time firm-at met
  [subete-no hito]\textsubscript{2}-ga [zinzitantoosya\textsubscript{3}-ga sonoba-de e\textsubscript{1}
  every-Gen person-Nom recruiter-Nom there
  syookaisitekureru to] omotteiru
  be.introduced C think
  Lit. ‘[To self\textsubscript{2/3}’s boss], everyone\textsubscript{2} [who met \textit{PG\textsubscript{1}} at the firm for the first time] thinks that the recruiter\textsubscript{3} will introduce her/him e\textsubscript{1}
  there.’

Multiple PP topicalization, on the other hand, cannot license a PG as shown in (13). (13) cannot have the PG interpretation, i.e., ‘[everyone who met her/his boss at the firm for the first time] thinks that the recruiter will introduce her/him to her/his boss at the firm’: 


Given that a parasitic gap is licensed by overt syntactic movement, the unacceptability of (13) indicates that multiple PP topicalization does not involve syntactic (A-bar) movement. It should be noted that PP can license a PG in Japanese, as pointed out by Takahashi (2006). It should also be noted that multiple parasitic gaps are allowed in Japanese as shown in (14) (cf. Nissenbaum 2000):

(14) [[[PG1 seirisiteiru utini] PG1 kizutukerareru maeni] e1 filing while being.damaged before jukudokusitai no]-wa sono kobunsho-o da want.to.peruse C-Top that ancient.manuscript-Acc be Lit. ‘It is that ancient manuscript that I want to peruse e [before PG being damaged [while filing PG]].’

3 A Proposal

Hoji (1985) argues that unlike NP topicalization, PP topicalization always involves a contrastive interpretation. Since a topic cannot occur in a relative clause, (15) with an NP topic is deviant with normal intonation. (15) only becomes acceptable when the NP topic is interpreted as contrastive with heavy stress on the topic marker wa. In (15), the double underline represents heavy stress. In contrast, (16) with a PP topic is acceptable even with normal intonation; the PP topic is always contrastive, changing Information Structure (Hoji 1985: 147):

(15) John-ga [[Bill-WA/*-wa Mary-ga sasotta] baa]-e itta John-Nom Bill-Top Mary-Nom invited bar-to went Contrastive interpretation: ‘John went to the bar where Mary invited Bill.’ Topic interpretation: *‘John went to the bar where, as for Bill, Mary invited him.’
(16) John-ga [[Bill-ni-wa Mary-ga koe-o kaketa] baa]-e itta  
John-Nom Bill-to-Top Mary-Nom approached bar-to went  
Contrastive interpretation: ‘John went to the bar where Mary approached Bill.’

We argue that the effects induced by Information Structure in (multiple) PP topicalization are not limited to syntax but apply in phonology as well. Material for (multiple) PP topicalization is targeted/marked within syntax and moved either in syntax or phonology. We then propose the following: (i) if the target of topicalization is *a single syntactic XP*, it undergoes *syntactic topicalization*; (ii) if the targeted material is not *a single syntactic XP*, then that material is packed into *a prosodic constituent* and undergoes *prosodic topicalization* to the left edge of an intonational phrase ι in phonology. It then follows that *syntactic topicalization* bleeds *prosodic topicalization*, which is given a principled account if syntax derivationally precedes and feeds phonology, and Topicalization is subject to the derivational principle of Earliness (17) (Pesetsky 1989):

(17) Earliness Principle
Satisfy principles as early as possible on the hierarchy of levels  
(DS) > SS > LF > LP.

Note that our proposal works only in a theory where there is a one-way feeding relation from syntax to phonology, and where information from phonology does not flow back into the syntax (contrary to Richards 2016).

We argue that the targeted prosodic constituent is a Major Phrase (MP), consisting of multiple phonological phrases Φs (cf. Itô and Mester 2013). Multiple PP topicalization (2) is analyzed in (18):

(18) a. ... X ... [school-at]PP [Mary-to]PP ... Y... (Syntax)  
b. ( ... X ... ( ( ...... )Φ ( ...... )Φ )MP ... Y... )ι (Phonology)

In (18a), suppose that the two PPs are targeted/marked for topicalization within syntax. Since they do not form a single syntactic XP, they cannot undergo *syntactic topicalization*. In the phonology, the PPs are mapped to Φs, and the two Φs are packed into a Major Phrase, a single phonological constituent.² It is this Major Phrase which undergoes *prosodic topicalization* (18b), which is blind to syntactic constraints and lacks LF interpretive effects.

² Agbayani, Golston and Ishii (2015) show that tonal downstep occurs within the fronted constituent, consistent with general observations for MPs noted by Martin 1952, McCawley 1968, Poser 1984, and Selkirk and Tateishi 1988. Itô and Mester (2013) argue that this prosodic domain
4 Conclusion

This paper has proposed that multiple PP topicalization should be derived not by syntactic movement but by phonological movement via prosodic topicalization. We have argued that our analysis is supported by the fact that unlike single PP topicalization, multiple PP topicalization neither obeys syntactic constraints nor has LF effects.

References


should be analyzed as a recursive phonological phrase. We note that our analysis only requires that the material undergoing multiple topicalization forms some prosodic constituent.
The Strong Minimalist Thesis (SMT): Form Copy (FC) and the Serial Verb Construction (SVC)*

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1 Introduction
Serial Verb Constructions (SVCs) occur in many languages, e.g. Japanese (and Korean). In an SVC, the two verbs must share Tense. SVCs in Japanese are productive. They have compositional and non-compositional (idiomatic) meanings across transitive and intransitive verb types, as shown in Table 1.

* This research is supported by a Japan Society for the Promotion of Science Grant-in-Aid for Scientific Research: #20K00664.
Table 1. Japanese SVC types (Tr. = Transitive, Unacc. = Unaccusative, Unerg. = Unergative)

<table>
<thead>
<tr>
<th>Verb Types</th>
<th>SVCs</th>
</tr>
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<tbody>
<tr>
<td>(a) Tr.-Tr.</td>
<td>home-tataeru ‘admire-praise’</td>
</tr>
<tr>
<td></td>
<td>tate-naosu ‘stand-fix’ (idiomatic: gather oneself together)</td>
</tr>
<tr>
<td>(b) Tr.-Unacc.</td>
<td>suki-sasaru ‘poke-get.stuck’</td>
</tr>
<tr>
<td>(c) Tr.-Unerg.</td>
<td>ii-yoru ‘say-come close’ (idiomatic only: ‘make advances, hit on’)</td>
</tr>
<tr>
<td>(d) Unacc.-Tr.</td>
<td>yoi-tbusu (get.drunk-crush) ‘get wasted’</td>
</tr>
<tr>
<td>(e) Unacc.-Unacc.</td>
<td>yake-kogeru (burn-char) ‘burn’</td>
</tr>
<tr>
<td>(f) Unacc.-Unerg.</td>
<td>nare-sitasimu (get.used.to-contact) ‘familiarize oneself (with)’</td>
</tr>
<tr>
<td>(g) Unerg.-Tr.</td>
<td>odori-akashu ‘dance-stay awake’</td>
</tr>
<tr>
<td>(h) Unerg.-Unacc.</td>
<td>nige-okureru ‘flee-be.late’</td>
</tr>
<tr>
<td></td>
<td>yuki-todoku ‘go-reach/arrive’ (idiomatic only: be well-organized/be satisfying)</td>
</tr>
<tr>
<td>(i) Unerg.-Unerg.</td>
<td>tobi-haneru ‘fly-jump’</td>
</tr>
</tbody>
</table>

SVCs have been the subject of a great deal of research (see Nishiyama 2008, Kageyama 2016, and references therein, as well as the online Comp Compound Verb Lexicon). Kageyama (1989, 1993) proposes that SVCs must be divided into two kinds, lexical compounds and syntactic compounds that behave differently, e.g., the phrase soo su ‘do so’ can replace the first verb of a syntactic compound, as in (1)a, but not the first verb of a lexical compound as in (1)b. However, Nishiyama (1998) argues that there is no syntactic/lexical distinction, proposing instead that SVCs are all syntactic in nature. Nishiyama makes use of PRO and proposes a structure in which each V has its own Transitive (Tr) head that can be either active or inactive. In this paper, we develop a Minimalist account, assuming Chomsky’s GK (Gengo Kenkyu) theory (Chomsky 2021). Like Nishiyama, we assume a syntactic approach. However, we make use of Form Copy (FC), a fundamental mechanism in GK theory that is (independently) needed to distinguish copy/repetitions at the Conceptual-Intensional interface.

(1) a. *sime-wasureru* ‘close-forget’ → *soo si-wasureru* ‘do so-forget’  
(Kishimoto 2020:146)

---

1 In Kishimoto (2020), Japanese verbs that have an accusative-marked internal argument are considered to be transitive. Verbs with a single dative-marked internal argument are intransitive.
Our goal is to explain how SVCs naturally and smoothly fit into the theory of language (GK) and why they exist. We make the reasonably uncontroversial assumption that verbs contribute argument structure that is projected in syntax. The problem then reduces to how SVC verbs may be combined/linked. We claim there is no novel mechanism (either lexical or syntactic) needed. Verbal arguments are linked by Form Copy (FC) (Chomsky 2001), defined in (2), subject to semantic/pragmatic compatibility. We assume Chomsky’s *Duality of Semantics* (Chomsky 2007). External Merge (EM) alone is responsible for building argument structure. We can ask why SVCs exist in language. The Strong Minimalist Thesis (SMT) (Chomsky 2000, 2001, and subsequent work) states that language makes optimal use of the new functionality enabled by some minor rewiring of the brain. That new functionality is Merge and ancillary operations that interpret and externalize structure. Hence, SVCs are permitted under the *enabling function* of SMT. Note that SVCs also improve the economy of language because they permit what can be expressed via multiple clauses (one clause per verb) within a single clause structure (containing two verbs). We observe that this reduction to mono-clausal structure only happens if there is a reduction in the total number of (independently expressed) arguments. Therefore, Valency Reduction, defined in (4) below, must obtain. Under SMT, language does not (and may not) invent a new mechanism solely for this purpose. Instead, it simply achieves this argument sharing via FC. We believe no other assumptions are needed.

(2) *Form Copy* (FC): establish a copy relation between two (c-commanding) *identical inscriptions* via Minimal Search (*our definition*, adapted from Chomsky 2021).

(3) *Minimal Search* (MS): stop as soon as the first eligible item is found in the c-command domain (Chomsky 2001).

(4) *Valency Reduction* (economy condition): the total number of arguments must be reduced (by least one) when *argument-taking* verbs are combined in a mono-clausal structure.

We note that FC is not an extra operation; it can be viewed as fundamental given SMT, i.e. a natural consequence of the simplest possible relations definable on identical inscriptions, viz. dominance and sisterhood (Noam Chomsky, pc.).
We note that our theory does not apply to SVCs with an aspectual verb (e.g., yomi-hazimeru ‘read-begin’, yomi-owaru ‘read-finish’, kaki-oeru ‘write-finish’), as there is no argument sharing in these compounds. More precisely, the aspectual verb in the SVC does not appear to assign a theta role. For example, hazimeru ‘begin’ takes a clausal complement; it does not have any arguments of its own to be shared with the substantive verb in the SVC.2

2 SVC Argument Structure

Examples (5)a-c show two transitive verb constructions, and an SVC that is formed from their combination. Each verb assigns a theta-role to an internal argument and an external argument. Under identity, we obtain FC(Ken, Ken) and FC(Miki, Miki), as shown in Figure 1. FC results in the lower internal and external arguments being unpronounced. Note that the higher external argument Ken undergoes Internal Merge (IM) to subject position in INFL.

(5) a. Ken-ga Miki-o home-ta K.-Nom M-Acc praise-Pst ‘Ken praised Miki.’
   b. Ken-ga Miki-o tatae-ta K.-Nom M-Acc admire-Pst ‘Ken admired Miki.’
   c. Ken-ga Miki-o home-tatae-ta K.-Nom M.-Acc admire-praise-Pst ‘Ken greatly admired Miki.’

Example (6) also shows two transitive verbs and their corresponding Tr.-Tr. SVC, but with two overtly pronounced objects, which is rare but perfectly grammatical. Note that mati-o sake-o ‘town-Acc alcohol-Acc’ appears to violate the Double-o Constraint (Harada 1973), but this is still well-formed. In this case, FC cannot apply to the objects because they are different inscriptions. The structure is showed in Figure 2 below.


2 Note that there are a variety of compounds formed from verbs in Japanese which we do not consider to be SVCs. With the exception of the nominalized V-V compounds in (iv), the compounds in (i)-(iii) do not involve compounds formed from two verbs.
   (i) V+N: yaki-niku ‘boiled meat’, nomi-mizu ‘drink-water’ (Kageyama 2016:273)
   (ii) N+V: tema-doru (time-take) ‘take time’ (Kageyama 2009:517)
b. Ken-ga yoru-no-mati-o arui-ta  
K.-Nom night-Gen-town-Acc walk-Pst  
‘Ken walked the town at night.’

c. Ken-ga yoru-no mati-o sake-o nomi-arui-ta  
K.-Nom night-Gen town-Acc alcohol-Acc drink-walk-Pst  
‘Ken went bar-hopping at night.’ (cf. Kageyama 1993)

Verb semantic properties also come into play in determining which SVC combinations are possible. In (5)c above, note that home-tataeru ‘praise-admire’ is semantically a combined event that requires the same object Miki. In (7)a, however, osi ‘push’ and taosi ‘topple’ are inextricably connected events requiring the same object: a body part is insufficiently similar to the whole,
thus resulting in ill-formedness. In (7)b *karada ‘body’ refers to Ren’s body, so this is acceptable. Note that because Ren and karada are not identical inscriptions, FC, cannot apply. However, relations between entities can also be formed during semantic interpretation.

(7) a. *Ken-ga Ren-o *mune-o osi-taosi-ta.
   K.-Nom R.-Acc chest-Acc push-topple-Pst
   ‘Ken toppled Ren by pushing his chest.’ (cf. Nishiyama 1998)
   b. ?Ken-ga Ren-o karada-o osi-taosi-ta.
   K.-Nom R.-Acc body-Acc push-topple-Pst
   ‘Ken toppled Ren’s body by pushing him.’

Our analysis seems to predict that a Tr.-Tr. example such as (8) is possible, in which FC applies to internal arguments, but not to external arguments of the 2 verbs. In (8), Hanako and Ken would both be referring to their son, who Ken admires and Hanako praises. However, (8) seems to only allow the interpretation in which Hanako and Ken are both doing the admiring and praising (as if they are conjoined). One possibility is that language does not permit more than one external argument in a mono-clausal structure, i.e. EM cannot form [EA2, [EA1, [[IA, R], v*]]] in which both EA1 and EA2 get theta roles (EA = External Argument, IA = Internal Argument).³

   H.-Nom K.-Nom son-Acc admire-praise-Pst
   ‘Hanako and Ken admire and praise their son.’
   b. {Hanako, {{son, {Ken, {{son, admire}, v*}}}, praise},v*}

Note that Valency Reduction, defined in (4) above, does not imply that Valency Reduction is obligatory for an external argument. For example, in (9), only *mato ‘target’, which is the internal argument of both *tuki ‘get’ and *sasat ‘stuck’, is subject to Valency Reduction.

(9) Ya-ga mato-ni tuki-sasat-ta
   arrow-Nom target-Dat poke-get.stuck-Past
   ‘The arrow hit the target.’

Furthermore, idiomatic interpretations of SVCs are found for many (if not all) types of V-V combinations. As idioms are explicitly learned, it follows

³ The wide variety of so-called multiple subject constructions (Kuno 1973) in Japanese do not appear to violate this constraint, but we leave this for further examination.
that computed V-V FC relations may be stored in the lexicon too. Some examples are shown in Table 1 above.

3 Passivization

Passivization of the first verb of an SVC is generally banned (Kageyama 1989, 1993). An SVC in which the passive morpheme appears on the second verb, as in (10), is fine. (11)c-d with passivization of the first verb are ill-formed.

(10) Ninzya-wa (samurai-ni/ni-yotte) sasi-koros-are-ta.
    ninja-Top samurai-Dat/by stab-kill-Pass-Pst
    ‘The ninja was stabbed and killed by the samurai.’

(11) a. sasi-korosu ‘stab-kill’
    b. sasi-koros-are-ta ‘stab-kill-Pass-Pst’
    c. *sas-are-koros-are-ta ‘stab-Pass-kill-Pass-Pst’
    d. *sas-are-korosi-ta/sin-da ‘stab-Pass-kill/die-Pst’

Our account of SVCs predicts the passivization facts. We assume that -rare ‘Pass’ is a spellout reflex of syntactic passivization introduced into the sentence at externalization. Languages show considerable variation in how passivization is morphologically marked. This variation is expressed in externalization, not in narrow syntax. With that in mind, syntactic passivization universally is simply IM of an internal argument to surface subject (INFL). How this operation is expressed for individual languages will vary, e.g., Japanese spells out the morpheme -rare and English uses be+-en. The derivation of (10) is shown in Fig. 3 below. Under identity, we obtain FC(ninzya,ninzya). Only the higher copy ninzya ‘ninja’ may undergo IM to INFL and appear as the surface subject. Thus, passivization appears only on the higher V2. Passivization of V1 is not permitted because the internal object of V1 is not available for IM to INFL.

Aspectual SVCs permit passivation if the first verb is transitive, as shown in (12) and (13). Arguably, the aspectual verb, viz. the 2nd verb, does not introduce any additional arguments, so FC does not apply. As a result, the internal argument of the first verb can undergo IM to INFL, so that the first

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4 We exclude indirect and adversative passives in which an underlying subject potentially undergoes passivization. The passive suffix -rare seems to indicate that what moves to subject position is affected in some way as a result of the event encoded by the verb.

5 Crucially, the Spell-Out of passivization is at externalization, and not internal to the syntax (I-language).
verb can be passivized,\textsuperscript{6} as shown in Fig. 4, which shows the structure of (13).

\begin{enumerate}
    \item a. \textit{yom+are-hazimeru} ‘read+PASS-begin = begin to be read’
    \item b. \textit{izime+are-tuzukeru} ‘bully+PASS-continue = continue to be bullied’ (Kageyama 1989, 83–84)
\end{enumerate}

\begin{enumerate}
    \item zyoho-ga (Mari-ni-yotte) nusum-are-hazime-ta information-Nom Mari-by steal.Pass-start-Pst
        ‘The information began to be stolen (by Mari).’
\end{enumerate}

\begin{figure}[h]
    \centering
    \includegraphics[width=\textwidth]{passivized_svc.png}
    \caption{Passivized SVC}
\end{figure}

Some exceptions to the non-passivization rule exist involving nominal compounds (possibly with an idiomatic interpretation of the passive first verb), as shown in (14) and (15). Although (15) may be considered marginal, we found some examples of this online.\textsuperscript{7} These require further investigation.

\begin{enumerate}
    \item turare-warai-o suru (lure.Pass-laugh do) ‘be made to laugh by somebody’s laughter’
    \item ?hikare-nige-o suru (hit.Pass-flee do) ‘being hit and flee’
\end{enumerate}

\textsuperscript{6} V2 can also be passivized for some aspectual verbs.
    \begin{enumerate}
        \item \textit{tonneru-ga hori-tuduker-are-ta_}
            Tunnel-nom dig-continue-Pass-Pst
            ‘The tunnel continued to be dug.’
    \end{enumerate}

\textsuperscript{7} https://makkysan.info/2021/02/13/「ひき逃げ」ならぬ「ひかれ逃げ」にご注意！！/
https://detail.chiebukuro.yahoo.co.jp/qa/question_detail/q14146408994
4 Case

A theory must also account for exhibited Case patterning. We posit, following Chomsky (2001), that the Case system is not part of syntax proper, but belongs to externalization. Case is required to pronounce arguments. Therefore, arguments that are treated as unpronounced copies, as the result of FC, do not need to receive Case. Deviations from the default Case patterns may constitute novel evidence for our FC account.

We predict that Case patterns should be preserved in accord with Stability (16). Therefore, if an object receives non-standard Case, it must be output. In (17)a, tuku ‘attach’ assigns its internal argument Dative Case, and in (17)b, the verb matou ‘cover’ assigns its internal argument Accusative Case. When these two verbs are combined to form the SVC tuki-matou ‘attach-wear’, as in (17)c, the Dative Case on the internal argument is maintained. Thus, the Dative Case pattern of the first verb is retained. In (18), note that ou ‘follow’ assigns its internal argument Accusative Case and sugaru ‘cling’ assigns its internal argument Dative Case. The SVC oi-sugaru ‘follow-cling’ retains Dative Case from the second verb on the internal argument.

(16) Stability (Chomsky 2001): Lexical properties must be preserved throughout the derivation.

(17) a. Doro-ga kutu-ni/*-o tu-i-ta
mud-Nom shoes-Dat/Acc attach-Pst
‘Some mud got on my shoes.’

b. Kanozyo-ga kegawa-o/*-ni matot-ta
she-Nom fur-Acc/Dat cover-Pst
‘She wore fur.’

c. Huan-ga kanozyo-ni/*-o tuki-matot-ta.
Anxiety-Nom her-Dat/-Acc attach-wear-Pst
‘Doubts tormented her.’

(18) a. Ken-ga haha-o o-t- K-Nom mother-Acc follow-
Pst ‘Ken followed his mother.’

b. Ken-ga haha-ni sugar-ta K.-Nom mother-Dat cling.to-Pst ‘Ken clung to his mother.’

K-Nom mother-Dat/Acc cling.to-Pst ‘Ken followed his mother, clinging to her.’
5 Conclusions and Further Issues

In conclusion, we propose that SVCs are formed in the syntax. SVCs are part of language, and they make use of the same evolutionary toolkit, in particular EM and FC under MS. There is no separate lexical theory with its own set of operations (contra Kageyama 1989, 1993). Note that English has *go eat, come live* (Tallerman 2011:99), which appear similar to SVCs, but they are not productive in English.\(^8\) Thus an outstanding mystery is why all languages don’t productively form SVCs. We leave this issue for future research.

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Compound Verb Lexicon. Online: https://vvlexicon.ninjal.ac.jp/en/


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\(^8\) English is not considered to be a SVC language, yet it permits V-V compounds such as untensed *go eat* and *come live*. Other V-V compounds (which do inflect) include *dry-clean, freeze-dry, drip-dry, stir-fry*, and *crash-land* (cf. Altakhaineh and Zibin 2017).


M-Gap Analysis of the Highest Clause Sensitivity in Japanese Relative Clauses*

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1 Introduction

Japanese relative clauses (RCs) show very different properties from English ones. In English RCs, the head of an RC can reconstruct into the theta position.

*I appreciate the audiences of Japanese/Korean Linguistics 30. This work was supported by JSPS KAKENHI Grant Number 23K12176 and Nanzan University Pache Research Subsidy IA-2 for the academic year of 2023.

Japanese/Korean Linguistics 30
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(1) the picture of himself that John thinks \( t' \) Bob likes \( t \) best

*Himself* in (1) can refer to either *John* or *Bob* with reconstruction, which is possible because the head moves from the base-generated position of \( t \). If the coreference relation is determined at the base position, *himself* refers to *Bob*, and if the coreference relation is formed at the position \( t' \), the antecedent becomes *John*. In contrast, the heads of Japanese RCs behave differently in short and long-distance RCs.

(2) [Soko\( _i \)-no kogaisya\{?-o/*-ga\} tyoosasita] hutatu-no
daiigyoo, big-enterprise
with accusative: ‘the two big enterprises that investigated its subsidiaries’
with nominative: ‘the two big enterprises that its subsidiaries’

(Miyamoto 2017: 618)

(3) [Keisatu-ga [soko\( _i \)-no kogaisya\{-o/-ga\} tyoosasita]-to
police-NOM that.place-GEN subsidiary\{-ACC/-NOM\} investigation.did-C
sinziteiru] hutatu-no daiigyoo,
believe two.CLF-GEN big.enterprise
with accusative: ‘the two big enterprises that the police believes investigated its subsidiaries’
with nominative: ‘the two big enterprises that the police believes that its subsidiaries investigated’

(\textit{ibid.}: 619)

The ill-formedness of the nominative Case in the short RC (2) results from a weak crossover effect (WCO effect). Since the head serves as the object in the RC, movement to the spell-out position crosses the coreferent subject. The example with the accusative Case poses no problem since the movement is from the subject position, which is higher than the position of the coreferent pronoun. However, the long-distance RC in (3) is well-formed regardless of the Case. In the example with nominative Case, the movement of the head (object) crossing the coreferent subject is apparently allowed without inducing the WCO effect.

This contrast between English and Japanese RCs suggests that Japanese RCs are not derived from movement. In fact, the genuine movement construction, scrambling, allows reconstruction of the moved element into the base position.
(4) [Taro-to Hanako-ga [John-to Mary-ga e\_i inyoositeiru]-to omotteiru]
   T.-COM H.-NOM J.-COM M.-NOM cite-C think
   otaga-no ronbun\_i each.other-GEN paper
   ‘each other’s paper that Taro and Hanako think that John and Mary cite’

(5) [Otagai-no ronbun\_o Taro-to Hanako-wa [John-to Mary-ga e\_i
   each.other-GEN paper-ACC T.-COM H.-TOP J.-COM M.-NOM
   inyoositeiru]-to omotteiru].
   cite-C think
   ‘Taro and Hanako think that John and Mary cite each other’s paper.’

To account for asymmetries between short- and long-distance RCs in Japanese, it is assumed that the different derivations are involved in these RCs. Ishii (1991), Kizu (2005), and Miyamoto (2017) assume pro in long-distance RCs but not in short RCs.

(6) a. [[op [...op\_i] DP] (short RC)
   b. [[op [...op [...pro\_i] ...] DP] (long-distance RC)

In the derivation of short RCs (6a), the theta position of the head is occupied by a null operator, and it moves to the edge of the RC. In contrast, in the derivation of long-distance RCs (6b), a null operator is base generated in the highest clause, and pro is located in the theta position in a deeper clause. Since they assume that the null operators show the reconstruction positions, short RCs allow the head to be reconstructed into the theta position, while the head of long-distance RCs only reconstructs into the highest clause.

However, this analysis faces three problems. The first one is the assumption of a null operator. As Kayne (1994) and Aoun and Li (2003), among others, argue, it is assumed that the null operator does not explain the reconstruction effects and that copies of the head are necessary for reconstruction. Second, the authors do not explain why the null operator cannot move from the theta position in long-distance RCs. If allowed, long-distance RCs are expected to allow reconstruction of the head into the theta position, contrary to fact. Hence, they must explain why this option cannot be adopted. The last point is empirical. Consider the following examples:

(7) ?*[soitu\_ga hihansita] onna\_ga e\_i nagutta otoko\_i
   that.person-NOM criticized woman-NOM hit man
   ‘the man who the woman who criticized he hit’ (Ishii 1991: 41)
(8) a. [[soitu-ga hihansita] onna-ga gakusei-o nagutta]-to uwasasiteiru] otoko
    that.person-NOM criticized woman-NOM student-acc hit-C rumor.do man
    ‘the man who the woman he criticized has spread the rumor that he hit a student.’

b. [[soitu-ga hihansita] onna-ga [gakusei-ga e_i
    that.person-NOM criticized woman-NOM student-NOM nagutta]-to uwasasiteiru] otoko
    hit-C rumor.do man
    ‘the man who the woman he criticized has spread the rumor that a student hit him.’

(7) shows an example of a short RC ill-formed by the WCO effect. The examples in (8) are long-distance RCs, and the highest clause sensitivity becomes relevant. Note that (4) indicates that the head of a long-distance RC is reconstructed under the highest subject, implying that the null operator moves from the position under the subject to the highest edge of the RC. However, the examples in (8) are expected to be ill-formed by the WCO effect since the movement of the null operators crosses the coreferent pronoun.

In the following section, I propose a unified analysis of short- and long-distance RCs.

2 Analysis of RCs

First, I introduce Form Copy, on which the analysis is based. Chomsky (2021) focuses on the long-standing puzzle of how to distinguish copies and repetitions.\(^1\) The analyses thus far (Chomsky 2008, 2015) have distinguished them based on syntactic phase-based memory. For example, the two inscriptions of John are repetitions in (9a) but copies in (9b) because external Merge introduces them independently in the former, and internal Merge connects them in the latter.

(9) a. John praised John.
    b. John was praised John.

In this framework, syntax must store derivational history to distinguish between the two relations. However, Chomsky (2021) reconsiders this idea and suggests that syntax has a strict-Markovian property, which means there is no memory in syntax. In this system, different syntactic operations cannot be

\(^1\) For the recent review of this topic, see Collins and Groat (2018).
assumed to yield different relations. Chomsky proposes an operation Form Copy to assign a copy relation between two syntactic objects. By Form Copy, the two inscriptions of John in (9b) are assigned a copy relation. In contrast, those in (9a) cannot be copies. Chomsky explains this contrast in terms of what he refers to as the univocality of theta assignment. If the two inscriptions of John are copies in (9a), the single verb praise assigns the two different theta roles to a single argument, which the univocality condition precludes. Hence, the copy relation cannot be assumed in (9a). Since the copy relation is dissociated from the operation internal Merge, this system allows a copy relation between the syntactic objects introduced by external Merge. Consider the following example of control:

(10) a. John tried to win.
   b. [John [tried [John to win]]]

(10b) shows the v*P structure in (10a). As discussed, Chomsky (2021) does not allow syntactic memory, and it is unclear which operation (external or internal Merge) is applied to each inscription of John. Instead, the configuration is evaluated based on duality of semantics. This ensures the division of labor of Merge: external Merge constitutes the argument structure, and internal Merge derives the discourse structure. Since both inscriptions of John are located in the theta positions in (10), they must be introduced by external Merge. Nevertheless, a copy relation can be assumed between them to derive the control construction. Since this type of copy relation is available by virtue of the lack of syntactic memory, Chomsky calls this relation M(arkovian)-gap.

The two copy relations behave differently at the interfaces.

(11) a. one interpreter each seems [t to have been assigned to the diplomats]
   b. *one interpreter each tried [PRO to be assigned to the diplomats]
   (Chomsky 2021: 22)

For the desired distributive interpretation, one interpreter each has to be in the same clause as the diplomats in (11). In (11a), with the traditional movement copy relation, the reconstruction is available, and the sentence is well-formed. By contrast, (11b) involves an M-gap with two inscriptions of one interpreter each introduced by external Merge, because each inscription...
receives a theta role. Chomsky argues that reconstruction requires movement, and, (11b) becomes ill-formed because the requirement of one interpreter each is not satisfied.

The analysis proposed here is based on Form Copy and M-gaps; however, I depart from Chomsky’s original idea of reconstruction and assume the following restriction:

(12) The interpretation systems can only trace the same kind of operation.

(12) suggests that reconstruction can take place at the interfaces as long as the same type of relation is involved. However, this departure does not impair Chomsky’s analysis. (13) shows the configuration of (11).

(13) a. one interpreter each seems [to have been assigned e to the diplomats] movement

b. *one interpreter each e tried [to be assigned e to the diplomats] movement M-gap

In (13a), one interpreter each is base generated at position e, receiving a theta role from assigned. It then moves to the spec of TP, the subject position. Since only one type of copy relation is involved, reconstruction can occur. In (13b), an inscription of one interpreter each merges externally at lower e, the theta position of assigned. At the same time, however, the other inscription also merges externally at the position of higher e, receiving the theta-role from tried. The higher inscription then moves to the spec of TP. Since the entire copy relation consists of two different relations, one interpreter each cannot reconstruct into the lowest position at the interfaces by (12).

Note that (12) does not exclude reconstruction by successive-cyclic movements. (14) shows the schema of (1) and (5).

(14) [...XP...[...XP...[...XP...]]] movement movement (order irrelevant)

As all copy relations are the same type, the moved object can be reconstructed into the lower positions. Thus, the moved object can be interpreted either at an intermediate or base-generated position in (1) and (5).

Next, I propose an analysis of Japanese RCs and the highest clause sensitivity in terms of (12). I summarize the assumptions as follows:

(15) a. When a phase is formed, the lower phase becomes inaccessible.

(Chomsky 2000, Saito 2017)
b. The head is base generated outside the RC. Form Copy connects the outer head with another copy inside the RC.

c. DP externally merged with a clause receives a topic interpretation.

d. There is no operator in Japanese RCs because they are TP.

(Saito 1985)

e. The WCO effect is not operative if the theta position is not visible for reconstruction.

(15a) concerns the parameter on feature inheritance discussed by Saito (2017). According to Chomsky (2008, 2015), a head immediately lower than a phase head inherits phasehood along with unvalued features $\overline{uF}$. Consequently, the second phase is derived.

(16) a. $[X[\overline{uF}][PH] \; [Y\ldots]]$

b. $[X[PH] \; [Y[\overline{uF}][PH]\ldots]]$

The second phase then becomes invisible to the derivation. Saito explains why the domain of the phase impenetrability condition is assumed to be the phase complement, not the phase itself. In this analysis, the invisible domain comprises the entire lower phase. Saito further argues that since Japanese lacks $\overline{u\phi}$ (or other $\overline{uF}$ as well), there is no feature inheritance or the derived phase head. Thus, the domain of the phase impenetrability condition in Japanese is smaller than that in English. In line with the common assumption that $v^*P$ and CP are phases, the domain of the phase impenetrability condition in Japanese is the lower $v^*P$ (CP), instead of the phase complement.

Next, I assume in (15b) that the head of an RC is base generated outside the RC and assigned a copy relation with the inner head (cf. Sauerland (2003)). Thus, the two inscriptions of NP in (17) do not have a movement relation.

(17) $[NP \; [_{RC \ldots}NP\ldots] \; NP]$

This derivation brings up the issue of the duality of semantics. Although external Merge is called for theta-role assignment, external Merge of the head with the RC does not involve theta-assignment. Moreover, Chomsky (2021) suggests that the necessary condition for the M-gap relation is that both inscriptions have a theta role. I assume that external Merge of NP with a clause assigns the NP topic interpretation, which serves like the theta role and mediates the M-gap relation. This assumption is supported by empirical evidence. As Kuno (1973) argues, Japanese RCs have a similar interpretation of topic construction. If we assume that the (aboutness) topic is also derived by external Merge with a clause, similarity is captured. In English, Radford
(2018) offers some examples of gapless topics, which require external Merge of the topic with a clause, because there is no gap from which the topic moves.

(18) Defoe, even I could have scored that goal. \textit{(Radford 2018: 42)}

Assumption (14d) is based on Saito’s (1985) classical observations. This explains why Japanese RCs do not employ the movement of the head unlike English RCs. Following the common assumption, I suggest that CP is the projection for operator and Ā movements. Thus, since Japanese RCs lack this projection, Japanese must derive RCs in a different way from English.

The last assumption argues that the WCO effect is not a condition of movement but of the reconstruction. Consider the following examples of parasitic gaps:

(19) a. *?This is the man I interviewed \textit{t_i} before reading the book you gave to \textit{pg}. \textit{(Chomsky 1986: 55)}

b. Who\textit{t_i} did you stay with \textit{t_i} [before [his, wife] had spoken to \textit{pg}]. \textit{(Lasnik and Stowell 1991: 691)}

(19a) shows that this involves movement inside the adjunct to the edge. The movement crosses a complex NP island, and the derivation crashes. Nevertheless, (15b) is well-formed without the WCO effect. Based on Chomsky (2021), I assume the following derivation of (19b):

(20) \[ \text{M-gap} \]

\[
\begin{array}{c}
\text{Who did you stay with \textit{t_e} before his wife had spoken to \textit{e}} \quad \text{movement} \\
\text{movement}
\end{array}
\]

With the derivation shown above, who cannot reconstruct into the theta position in the adjunct since two copy relations are involved. If the WCO effect literally blocked the movement across the coreferent pronoun, the sentence would be ill-formed, contrary to fact. Thus, (15e) is necessary to explain the correct behaviors of the WCO effect.

With these assumptions, I first propose the derivation of short RCs.

(21) \[ \text{NP \[RC \ldots NP\ldots\] NP} \]

\[ \text{M-gap} \]

According to (15a), Japanese allows the internal NP in \textit{v*P} to participate in the copy relation in the next phase. Hence, the outer head externally-merged with the RC and the inner head at the theta-position can form a copy relation.
Since there is only one uniform copy relation here, reconstruction occurs, and the WCO effect is observed in short RCs, as shown in (2) and (7). Next, (22) illustrates the structure of long-distance RCs.

\[
\text{M-gap} \\
(22) \left[ \text{NP } \{ \text{RC } \ldots \text{NP } [\text{phase } \ldots \text{NP} \ldots ] \ldots \} \text{ NP} \right]
\]

According to (15a), the phase becomes inaccessible after the next higher phase is formed. As the derivation of short RCs suggests, the head must be in the v*P domain to be accessible to Form Copy with the NP outside the RC. Then, the inner NP must move in a long-distance RC, which creates nonuniform copy relation. Consequently, (12) allows only the reconstruction into the highest clause, tracing the M-gap relation. Since the theta position is invisible to reconstruction, this proposal also explains why the WCO effect is not observed in long-distance RCs.

3 Concluding Remarks

This paper has started with the different reconstruction behaviors between Japanese short RCs and long-distance RCs. These differences have forced the previous researchers to assume different derivations for Japanese RCs. However, their proposals lack a principled explanation and fail to explain why such differences emerge. In this paper, I have proposed a new analysis of Japanese RCs with Chomsky’s (2021) Form Copy. Considering that reconstruction can take place with a uniform copy relation, I have derived the highest clause sensitivity for long-distance RCs, providing a correct explanation for the WCO effect. Another interpretive rule proposed here allows external Merge of a nominal with a clause, which derives topic interpretation. This assumption captures not only the similarity between RCs and aboutness topics in Japanese but also English gapless topics.

References


What Triggers Movement of the Head Nominal in the Relative Clause?

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1 Introduction

This paper shows similarities between scrambling of adjuncts and movement of head nominals in relative clauses (henceforth, RCs) in Japanese, mainly focusing on the availability of idiomatic interpretations. Then, I argue that movement of head nominals in RCs in Japanese is scrambling (Morita 2013). Below, the relationship between idiomatic interpretations and two derivations of RCs will be introduced.

Derivations of RCs have been controversial. Although there is no consensus on how head nominals of RCs are derived, the analyses can be divided in two types of approaches. One is where a head nominal is base-generated in a matrix clause. This is called the head external analysis (Chomsky 1977, among others).
(1) I bought the book, \( [\text{RC} (\text{CP}) \text{ Op/which, John wrote } t_i] \) 
(head external analysis)

In this structure, the RC in which the operator moves to Spec,CP is adjoined to the matrix clause. The other type is where a head nominal directly moves to its surface position. This is called the head raising analysis (Schachter 1973, Vergnaud 1974, among others).

(2) I bought the \( [\text{RC} (\text{CP}) \text{ book, John wrote } t_i] \) (head raising analysis)

Contrary to (1), (2) straightly captures the close relationship between the verb in the RC and the head nominal. The raising structure gives an explanation why idiomatic readings are available only in \( \text{that-RCs} \). Examine the following sentences:

(3) a. ?? The careful track which she’s keeping of her expenses pleases me.
b. ?? The headway which Mel made was impressive.
c. The careful track that she’s keeping of her expenses pleases me.
d. The headway that Mel made was impressive.

(Aoun and Li 2003:110)

The sentences contain the idioms keep track of meaning ‘to be aware of something’ or make headway meaning ‘to make progress.’ In order to obtain the idiomatic readings, a verb and an idiomatic noun need to be in a close relationship such as a head-complement relationship. This condition requires an idiomatic noun to be base-generated at the complement of the verb in a RC and to be moved from inside the RC to its surface position after establishing the relationship. The contrast between \( \text{wh-RCs} \) and \( \text{that-RCs} \) shows that the latter involves movement of a head nominal (head raising analysis) while the former does not (head external analysis). In other words, the availability of idiomatic readings serves as a test to distinguish which of the two analyses should be applied to RCs. Japanese RCs also exhibit the same behavior as \( \text{that-RCs} \), which I will show in the next section.

The present paper is organized as follows. Section 2 considers derivations of RCs in Japanese. In Section 3, I present new data, which shows similarities between scrambling of adjuncts and movement of head nominals in RCs in Japanese. Section 4 concludes this paper.
2 Movement of Head Nominals in Japanese RCs

RCs can have idiomatic readings in Japanese as that-RCs can in English.

(4) Sono eiga-wa [Mary-ga e, watatta] abunai hasi-o migotoni saigensita.
    ‘That movie elegantly reconstructed the dangerous action Mary committed.’
    (Morita 2006:120)

(5) Raibaru-wa [John-ga mizukara e, hotta] boketu-o totemo yorokonda.
    ‘The ruin John himself brought about made his rival happy.’
    (Kitao 2009:33)

(4) and (5) involve the idiomatic nouns abunai hasi from abunai hasi-o wataru (dangerous bridge-ACC cross) meaning ‘to make a risky attempt’ and boketu from boketu-o horu (grave-ACC dig) meaning ‘to bring about one's own ruin’ respectively. The availability of the idiomatic readings in (4) and (5) indicates that head nominals consisting of idiomatic nouns move from inside RCs to their surface positions after establishing idiomatic relationships. The examples suggest that the head raising analysis is applied to Japanese RCs. However, the situation becomes complicated when we consider long-distance RCs. Here, long-distance RCs mean a head nominal in the surface position and its base-generated position are separated by more than two clause boundaries. Compare the following examples of long-distance RCs with (4) and (5).

    ‘That movie elegantly reconstructed the dangerous bridge that John thought that Mary crossed.’
The rival was very happy about the grave that Mary thought that John himself dug.'

(Ikeda 2021:165–166)

The long-distance RCs do not retain the idiomatic interpretations. Thus, the head external analysis is applied to (6) and (7), contrary to (4) and (5). Why can head nominals not move from inside RCs in the case of long-distance RCs? This is a problem to be solved in this paper. Long-distance RCs in English also exhibit the same phenomenon, but they will be omitted here. In the next section, I will present several examples of scrambling to illustrate its similarities with movement of head nominals in RCs in Japanese.

3 The Similarity between Scrambling of Adjuncts and Movement of Head Nominals in RCs

3.1 Scrambling of Adjuncts

In Japanese, word order is relatively free as long as a verb comes at the end of a sentence. However, scrambling of adjuncts is an exceptional case.

(8) a. Yukkurito, John-ga t/t booru-o nageta.
   slowly John-NOM ball-ACC threw
   ‘John slowly threw a ball’

b. Kyuuni, John-ga t/t nakidashita.
   suddenly John-NOM started-to-cry
   ‘John suddenly started crying’

(Sugisaki 2000:387)

The sentences indicate that short-distance (clause-internal) scrambling of adjuncts is possible. We predict that long-distance scrambling of adjuncts is equally possible from their base-generated positions, but this is not necessarily true.
The adverbs in the sentence-initial positions cannot be associated with the verbs in the embedded clauses in (9) and (9) unlike (8) and (8). Adjuncts are interpreted only in matrix clauses in the case of long-distance scrambling. Since Saito (1985), this peculiar behavior of adjuncts has been noted. The key point here is the commonality that long-distance movement is impossible for both adjuncts and head nominals in RCs. In the next subsection, I will show further similarities between scrambling of adjuncts and movement of head nominals.

3.2 Driving Forces of Movement

Long-distance scrambling of adjuncts is not totally banned. It becomes possible when adjuncts are assigned additional elements such as the superlative expression *itiban* (the most).

(10) **Itiban yukkanrito**, Mary-ga [John-ga *ti booru-o nageta to] the-most slowly Mary-NOM John-NOM ball-ACC threw that said.

‘Mary said that John threw a ball most slowly.’

In the examples above, the adjuncts are interpreted inside the embedded clauses. Interestingly, long-distance movement of head nominals also become possible with the expression. Compare the sentence below with (6).


‘That movie elegantly reconstructed the most dangerous action that John thought Mary committed.’
The idiomatic reading is available in (11), which suggests that the head nominal move long-distance from the base-generated position. Based on those similarities, I claim that movement of head nominals in RCs is scrambling. It is not implausible to assume that idiomatic nouns and adjuncts have some characteristics in common because the former, as Chomsky (1981) argues, is not a true argument (quasi-argument). Scrambling is semantically-vacuous movement, and assumed to be non-feature-driven (Saito 2004). Hence, there is no trigger of movement of head nominals in Japanese RCs.

However, why does adding superlative expressions make it possible to move head nominals and adjuncts long-distance? In (10) and (11), adding the phrase induces a reading of a specific event or a situation. *Itiban abunai hashi* in (11), for instance, refers to the most dangerous attempt among other dangerous attempts. Thus, the head nominal with the superlative expression is considered to be contrastively focused. *Abunai hashi* in (4), on the other hand, refers to a dangerous attempt in a general sense, not a specific event. On the basis of this consideration, I claim that head nominals with superlative expressions bear a feature like a focus-feature. If this reasoning is correct, then there are two types of movement of head nominals in Japanese RCs. One is feature-driven movement of head nominals. The other is non-feature-driven movement, which is scrambling. Hence, adjuncts may also have different type of movement other than scrambling. The next section will conclude this paper.

4 Conclusion

In this paper, I have presented similarities between scrambling of adjuncts and movement of head nominals in RCs in Japanese. Based on the observation, I have claimed that movement of head nominals in RCs is scrambling. The last part of Section 3 has raised the possibility that scrambling is not the only way of movement of head nominals in Japanese RCs.

References


“Naked” or “Dressed Up”?
A Contrastive Analysis of Response Cries Between Korean and Japanese*

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1 Introduction

A speaker will produce utterances even when alone, without anyone to talk to. Of those utterances there are a type of expressions like Wow! and God!, which Goffman (1978) calls “response cries”. They are a speaker’s immediate reaction to what is occurring to or around him/her. Response cries are also referred to as “internal(-state) expressive sentences” (Iwasaki 2006, 2014) or are regarded as a type of sokujibun (Iwasaki and Ono 2007).

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* This research was supported by JSPS KAKENHI (Grant-in-Aid for Scientific Research (C) 21K00530).
According to Goffman (1978), “[a] response cry doesn’t seem to be a statement in the linguistic sense (even a heavily elided one)” (p. 800); that is, it is not a statement “in the linguistic and propositional sense” (p. 805). However, our previous research (Izutsu et al. 2022) demonstrates that Japanese speakers often use the linguistic forms of statements, which describe either a speaker’s emotion/sensation or evaluation of a perceived situation like ita(i) ‘painful’, omo(i) ‘heavy’, or yaba(i) ‘awful’.

The present study explores linguistic forms used for response cries by comparing two typologically similar languages: Korean and Japanese. Internal-state expressions of the two languages are investigated by Iwasaki (2006), who mainly discusses similarities in the structure of the expressions in terms of neurological processes involved in their production. He at the same time notes that the use of adjectives is less common for reflex expressions in Korean (e.g. ??A! apa/apeo!’Ouch!’, ??A! nunbusyeo!’Oh, too bright!’), observing that “pain, olfactory, tactile, and emotional experiences” are more likely “to be expressed pre-linguistically” (e.g. A!, Aya!) (pp. 334-335).1 Our research investigates whether there are any other substantial differences in the representation of internal states between Korean and Japanese, focusing on Goffman’s eight types of response cries (the transition display, the spill cry, the threat startle, revulsion sounds, the strain grunt, the pain cry, floor cues, and audible glee).2

2 Data and Methodology

A questionnaire survey was administered to uncover what kinds of expressions Korean and Japanese speakers will produce under the eight circumstances of Goffman’s response cries.3 The basic description presented was: “Suppose that in the situations described below you are by yourself with no one around to hear you. In each case, what would you utter or say aloud when the following things happen? If you believe you would probably NEVER utter a thing, just write ‘nothing’. “ The following questions were then asked:

(i) Alone, eating lunch, you accidentally spill your coffee. At that moment, what would you utter? [The Spill Cry]

(ii) Shutting the door, you accidentally catch your finger. At that moment, what would you utter? [The Pain Cry]

1 The Korean romanization in this paper is essentially based on Ministry of Education Trans-literation of Hangeul 1959. Examples cited from Iwasaki (2006) were changed accordingly.

2 Goffman (1978) proposes nine types of response cries, of which “sexual moan” was excluded in this research.

3 Though the questionnaire design was described in English below, we used a questionnaire translated into the native language of each group of participants (i.e. Korean and Japanese).
(iii) On trying to lift a large box, you realize it is really heavy. At that moment, what would you utter? [The Strain Grunt]
(iv) While cooking, instead of adding salt, you add sugar by mistake. Upon realizing your mistake, what would you utter? [Floor Cues]
(v) You reach the top story of a very high, open stairwell like the one in the photo. At the instant that you look down, what would you utter? (a photo provided) [The Threat Startle]
(vi) You go to grab a couple of lemons from the refrigerator. And like the rotten ones in the photo, you find them covered in green mold. Right then, what would you utter? (a photo provided) [Revulsion Sounds]
(vii) Upon opening the fridge, you discover a delicious-looking cake like the one in the photo below. Right then, what would you utter? (a photo provided) [Audible Glee]
(viii) Just like the woman in the photo, from a seaside café you exit beachside into the bright sunlight. At that moment, what would you utter? (a photo provided) [The Transition Display]

The online survey (Google Form) was conducted with 50 native speakers of Korean (32 females, 18 males) and 54 speakers of Japanese (24 females, 30 males). The participants were all university students aged 18-26 years.

3 A Taxonomy of Response Cries

The classification used in this study was basically in line with that proposed in Izutsu et al. (2022). Following Ameka (1992), we classified response cries into primary and secondary interjections. Primary interjections are “little words or non-words” (p. 105) like a and oo, and secondary interjections are “words which have an independent semantic value” (p. 111). In our classification, secondary interjections were further divided into depictive (descriptive) and non-depictive (non-descriptive) interjections. Depictive interjections describe the speaker’s physical sensation or perceptual experiences like nunbusyeo ‘dazzling’ and itai ‘painful’, and non-depictive interjections include swear words like ssibal ‘f**k’ and vocatives like eomma ‘OMG (mom)’. Secondary interjections were also subdivided into simple-word and multiple-word expressions, the latter of which consist of more than one word. The taxonomy of response cries is summarized in Table 1:

---

4 The words “(non-)descriptive” were employed in Izutsu et al. (2022), but since Iwasaki (2006, 2014) uses “descriptive” in a different sense, this study adopts the terms “(non-)depictive”.
5 Our definition of word follows Suzuki (1972) and Okuda (1974) (see Izutsu et al. 2022: 200-201 for details).
Table 1. A taxonomy of response cries

<table>
<thead>
<tr>
<th>Primary interjection</th>
<th>Secondary interjection</th>
<th>Non-depictive</th>
<th>Depictive</th>
</tr>
</thead>
<tbody>
<tr>
<td>ag, aigo ‘oh’,</td>
<td>eomma ‘OMG’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>heol ‘huh’;</td>
<td>(mom)’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a ‘oh’,</td>
<td>heg ‘heck’,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>watt ‘wow’,</td>
<td>swes ‘sh*t’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>oo ‘oh’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a ssibal, a ssi</td>
<td>a apa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘ah f**k’,</td>
<td>‘oh painful’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o swes ‘oh sh*t’</td>
<td>a, kobosita</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘oh, (I) spilt (coffee)’</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 Results

4.1 The Overall Distribution of Response Cries

The overall results of our analysis are given in Figures 1 and 2, where simple- and multiple word expressions are not distinguished.\(^6\)

Figure 1 reveals, contra Goffman’s claim, that Korean speakers also produce depictive interjections, which accounted for 35.5%, although the proportion was smaller than their Japanese counterparts (50.7%). In other words, Koreans likewise use the linguistic forms of statements in the propositional sense, which describe a speaker’s feeling/sensation or perception of the situation at hand. The results of the two groups were contrastive with those of American English speakers in our previous research (Izutsu et al. 2022), where their reported use of depictive (descriptive) interjections only accounted for 17.1%.

\(^6\) A response cry consisting of two different types of interjection was classified into the type that is richer in meaning; e.g. A apa was classified as a depictive rather than primary interjection.
Iwasaki (2006: 335) illustrates that some depictive utterances are less acceptable in Korean as indicated with the question marks in the following examples: ??A! apa/apeo! ‘Ouch!’, ??A! nunbusyeo! ‘Oh, too bright!’ In our study, however, five out of the 50 Korean participants employed the depictive forms apa(ra)/apeune ‘painful’ for question (ii) and 13 participants provided responses including nunbusyeo ‘dazzling’ for question (viii). For the latter, there were also four responses including ddeugeo(weo) ‘hot’.

There is a difference between the two groups of speakers in the type of response cries that occurred most frequently: Korean speakers most preferred primary interjections (48.8%) like A and Aigo, while Japanese speakers were most likely to use depictive interjections in their response cries (50.7%).

The types of response cries preferred by the two groups also differ across the eight situations. Figure 3 shows that the largest difference is found in (ii) Pain Cry, where most Japanese favored depictive interjections (83.3%) like Ita(i) and Itta ‘painful’, while Koreans tended to use primary interjections (72%) like A and Ag. Similar, though smaller, differences are observed in (iii) Strain Grunt and (viii) Transition Display. These results support Iwasaki’s observation that reflex experiences including pain, tactile, and visual ones are more likely “to be expressed pre-linguistically” in Korean (pp. 334-335).

For the complexity of utterances, Japanese preferred simple wording like Nagatt ‘long’ and Tak(k)a ‘high’, while multiple wording (expressions with more than one word) was more favored by Koreans like A, waelke gireo ‘A why so long’ and Wa nopda ‘Wow high’ as seen in Figure 4.
4.2 The Use of Swear Words

Another noteworthy difference is the use of swear words. As Table 2 shows, Korean speakers sometimes produce swear words, either those of Korean origin (e.g. ssibal and its shortened form ssi ‘f**k’) or borrowings from English (e.g. heg ‘heck’, swes ‘sh*t’). However, such words are less common in Japanese: there was only one example found in our Japanese data.

<table>
<thead>
<tr>
<th>Swear words (freq.)</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korean</td>
<td>30</td>
</tr>
<tr>
<td>Japanese</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2. The frequency of swear words

The higher frequency of swear words in Korean response cries (7.4% of the total) points to some similarities to English response cries, where the use of swear words is far more prevalent (25% of the total in our American English data, cf. Izutsu et al. 2022). The widespread use of swear words leads to the avoidance of full forms, facilitating replacement with less blasphemous forms (Korean ssi; English f**k, sh**t/shoot). On the other hand, such replacement is less common in Japanese, where kuso ‘crap’ is one such word but not shortened as *ku. It is also interesting that non-depictive interjections including swear words were most frequent in (i) Spill Cry, followed by (iv) Floor Cues in both Korean and English. These situations involve “the speaker’s inadvertent error” (Izutsu et al. 2002: 208), hence likely to be used to curse the event that occurs unexpectedly. Still, in such situations, Japanese prefer primary and depictive interjections as in Figure 3. Such similarities between Korean and English may ease the barrier to borrow English swear words into Korean.

---

7 Youngmin Oh (p.c.) explains that Koreans sometimes feel frustrated when they want to express strong emotion (rage, astonishment, bewilderment, etc.) in Japanese because it does not have sufficient linguistic means that correspond to Korean swear words.
4.3 Utterance-ending Forms

The utterance-ending forms of response cries also reveal important differences between Korean and Japanese, as represented in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>Korean</th>
<th></th>
<th>Japanese</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-(seu)bnida/(neu)(n)nda</td>
<td>41</td>
<td>26.6%</td>
<td>conclusive forms or their variants</td>
<td>193</td>
</tr>
<tr>
<td>-(seu)bnigga/n(eung)a/ (eu)lgga</td>
<td>3</td>
<td>1.9%</td>
<td>-na</td>
<td>1</td>
</tr>
<tr>
<td>-(eu)lggayo</td>
<td>1</td>
<td>0.6%</td>
<td>-ka</td>
<td>1</td>
</tr>
<tr>
<td>-a/yo/ya</td>
<td>58</td>
<td>37.7%</td>
<td>-kke</td>
<td>1</td>
</tr>
<tr>
<td>-(a/yo/eo/e)yo</td>
<td>1</td>
<td>0.6%</td>
<td>-wa</td>
<td>2</td>
</tr>
<tr>
<td>-(a/yo/eo/e)ra</td>
<td>1</td>
<td>0.6%</td>
<td>-yo</td>
<td>1</td>
</tr>
<tr>
<td>-(a/yo/eo/e)seo</td>
<td>1</td>
<td>0.6%</td>
<td>-kana</td>
<td>1</td>
</tr>
<tr>
<td>-ne</td>
<td>10</td>
<td>6.5%</td>
<td>-kayo</td>
<td>1</td>
</tr>
<tr>
<td>-ji</td>
<td>5</td>
<td>3.2%</td>
<td>-yan/yen</td>
<td>5</td>
</tr>
<tr>
<td>-guna</td>
<td>1</td>
<td>0.6%</td>
<td>-keto</td>
<td>1</td>
</tr>
<tr>
<td>-(eu)mya</td>
<td>1</td>
<td>0.6%</td>
<td>adnominal-utterance ending</td>
<td>1</td>
</tr>
<tr>
<td>-(eu)ryeona</td>
<td>1</td>
<td>0.6%</td>
<td>adverbial-utterance ending</td>
<td>1</td>
</tr>
<tr>
<td>-(eu)lgeol</td>
<td>1</td>
<td>0.6%</td>
<td>nominal-utterance ending</td>
<td>13</td>
</tr>
<tr>
<td>-(neu)ngeol</td>
<td>1</td>
<td>0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-(neu)ngeoya</td>
<td>1</td>
<td>0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-(neu)nde</td>
<td>8</td>
<td>5.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-(eu)nigga(n)</td>
<td>1</td>
<td>0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adnominal-utterance ending</td>
<td>3</td>
<td>1.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adverbial-utterance ending</td>
<td>4</td>
<td>2.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nominal-utterance ending</td>
<td>11</td>
<td>7.1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total no. of utterances (excl. vocatives & swear words) | 154 | 100% | Total no. of utterances (excl. vocatives & swear words) | 222 | 100%

Table 3. Utterance-ending forms of response cries
Maynard (1993) observes that when “a speaker expresses surprise, abrupt remembrance or sudden emotional surge” (p. 156), Japanese speakers employ “naked abrupt forms”, i.e. the conclusive forms of verbs and adjectives with no final particles and other interactional devices: for example, Sugoi ‘Awesome’ and Matigaeta ‘(I) made a mistake’. Naked abrupt style tends to be used in such circumstances because speakers utter them “at the instant the thought enter[s] into consciousness” (p. 157). As seen in Table 3, our results of Japanese response cries strongly supported Maynard’s observation: 87.7% of the Japanese examples were coded in naked abrupt style. In our analysis, naked abrupt forms include variant forms of adjectives, some of which are called as “clipped adjective” (Iwasaki 2014) or “i-drop construction” (Konno 2022) like ita < itai ‘painful’ and omo < omoi ‘heavy’. Adjectives (i-adjectives) may also be changed into other variants by undergoing the gemination of a consonant like itta, the coalescence of the diphthong /ai/ like ite(e), or other phonological changes. Interestingly, such variant forms accounted for 91.4% of the i-adjectives in our data, which may of course be related to the age group of the Japanese cohort (18 to 26 years old) but also to the nature of response cries as immediate reactions to unexpected happenings.

On the other hand, the Korean examples of response cries were equipped (or “embellished”) with a variety of utterance-ending forms. It may be difficult to identify the exact counterparts of naked abrupt forms in Korean. However, even if we take into account two types of ending forms (- (seu)bnida/(neu)(n)da and -a/eo/yeo/ya), which can be viewed as representing some kind of conclusive ending, they only amounted to 64.3%. In other words, the remaining approximately 35% of the Korean utterances were ended with other forms such as final particles (jonggyeoleomi), connective particles (yeongyeoleomi), and (ad)nominal/adverbial-utterance endings, examples of which are given in (1)-(3), respectively.

(1) a. O igeo meogeodo dwe-na [(vii) Audible glee]
   ‘Oh can (I) eat this.’
b. Aya apa-ra. [(ii) Pain cry]
   ‘Oh painful.’
c. A manghaess-ne [(iv) Floor cues]
   ‘Ah, (it is) ruined.’
d. Heog eoddeogha-ji? [(iv) Floor cues]
   ‘Huh what should (I) do?’

---

8 If utterances with the politeness morpheme -(seu)bn- are not counted as Korean equivalents of naked abrupt forms, the proportion will become even smaller than 64.3%.
Similar non-naked forms were found in the Japanese data: for example, *Are itu katta-ke?* ‘Well, when did (I) buy (this)?’ *Tabete ii-kana* ‘Can (I) eat (this)?’ *Yatta-wa, kore* ‘(I) goofed this up.’ However, the variation of sentence-ending forms was less pronounced as compared with Korean. These results suggest that although both Korean and Japanese are well-known for having a variety of sentence-final particles, Korean sentence-ending forms are more expressive for the representation of a speaker’s internal state in non-communicative situations. In other words, while Japanese speakers prefer naked-abrupt forms in utterances without overt addressee-orientation, Koreans were more likely to dress up (or embellish) their response cries with a variety of sentence-final forms.

5 Conclusion

This study investigated linguistic forms used for response cries by comparing two typologically similar languages: Korean and Japanese. It was demonstrated that unlike Goffman’s claim, Korean as well as Japanese response
cries can be “a statement in the linguistic sense” (Goffman 1978: 800); they are often expressed in the form of depictive interjections. The results also revealed that the two languages differ in the following respects: (i) primary interjections were most frequent in Korean, but depictive interjections in Japanese (Figures 1 and 2), (ii) simple-predicate wording was more preferred in Japanese (Figure 4), (iii) swear words were more common in Korean (Table 2), and (iv) naked abrupt forms were predominant for Japanese response cries, while more dressed-up forms (i.e. a richer variety of sentence-ending forms) were often used in Korean (Table 3).

Finally, though not fully discussed in this paper, it is interesting to note that swear words and vocatives like eomma ‘mom’ are frequently employed as interjections in Korean but not in Japanese. The absence of such words in the Japanese response cries partly corroborates the contention of some Japanese researchers (e.g. Hasegawa 2010) that solitude speech including response cries may not always be dialogic, which is contrary to the popular assumption held by Western scholars (e.g. Bakhtin 1929/1984, Vigotsky 1934/1986). On the other hand, the frequent occurrences of such swear words in the Korean response cries suggest that Korean speakers may be different from Japanese speakers in their speech conception of non-communicative situations. This issue of dialogicity awaits to be investigated in future research.

References


1 Introduction

Japanese and Korean exhibit argument ellipsis, by which arguments can be elided following an overt antecedent given in the previous discourse context (Oku 1998; Kim 1999; Saito 2007, \textit{inter alia}). This phenomenon has been treated as a kind of ellipsis operation due to the variability in interpretation. If an argument is elided under the presence of an overt antecedent, such a null argument can refer either to the same entity in the antecedent utterance (\textit{i.e.}, the strict reading) or to a newly introduced entity in the following utterance (\textit{i.e.}, the sloppy reading). This is on a par with the observation for predicate ellipsis such as VP-ellipsis, hence the terminology. The availability of sloppy reading thus has been used as the main diagnostics for argument ellipsis (Oku 1998; Kim 1999). The exemplary cases of argument ellipsis with the sloppy

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*The present research is built upon my own previous works, including the proceedings of JK 27 and WAFI 15. I’d like to thank John Whitman, Heejeong Ko, Miloje Despić, Seungho Nam, Chorong Kang for valuable discussion and feedback in various stages of developing this research project. The data presented in this paper came from native speakers’ judgements, for which I am grateful to Jaemo Lee for Korean, Hitomi Minamida and Akitaka Yamada for Japanese. I’d also like to thank the anonymous reviewers and the audience of JK 30 at Simon Fraser University for comments. All remaining errors are my own.

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\textit{Japanese/Korean Linguistics} 30.


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reading in Japanese and Korean are given in (1) and (2) respectively.

(1) **Japanese: argument ellipsis with sloppy reading**

a. Taroo_i-wa [zibun-no hahoya]-ni at-ta. 
   Taroo-TOP [self-GEN mother]-DAT meet-PAST
   ‘Taroo met his mother.’

b. Hanako_j-mo [self-gen mother]-ni at-ta. 
   Hanako-also meet-PAST
   ‘Hanako also met his/her mother.’

(2) **Korean: argument ellipsis with sloppy reading**

   Suho-TOP [self mother]-ACC meet-PAST-DECL
   ‘Suho met his mother.’

b. Mina_j-to manna-ass-ta. 
   Mina-also meet-PAST-DECL
   ‘Mina also met his/her mother.’

In both (1) and (2), the self-anaphor in the elided direct object may refer either to the entity in the previous utterance (*i.e.*, the strict reading), or to the newly introduced entity that is local to the elided argument (*i.e.*, the sloppy reading). The interpretation is thus ambiguous.

More recently, the possibility of argument ellipsis has been investigated on a par with the possibility of scrambling and the absence of overt agreement in Japanese and Korean (Saito 2007, 2016; Takahashi 2014, 2020). This line of conjecture was based on the typological consideration that languages which allow scrambling and lack overt agreement typically exhibit the phenomenon of argument ellipsis. Further, it was argued that argument ellipsis in Korean is subject to a syntactic constraint since there exists an empirical parallelism between argument ellipsis and scrambling (Y-H Kim 2019). Put simply, only those which can undergo scrambling can be eligible for argument ellipsis. I will briefly introduce this claim and the relevant data in Section 2.

Building upon this analysis, in Section 3 it is argued that argument ellipsis in Japanese and Korean is subject to such a syntactic constraint as it involves a syntactic probing from the C-domain. This is done by a discourse operator which consists of twofold operations, in an analogous manner to Sigurðsson (2011) for Germanic-type null arguments. First, *context scanning* by which a proper discourse referent is linked to a null argument. Second, *downward probing* which searches for a to-be-elided argument. Extending the claim, the resultative constructions in Japanese and Korean will be illustrated in Section 4, for which the diverging empirical observation in two languages receives a unified explanation under the analysis proposed here. Section 5 concludes.
2 Parallels between Argument Ellipsis and Scrambling

In addition to the sloppy reading diagnostics, Y-H Kim (2019, 2020) suggests that there exists a structural constraint in play for argument ellipsis in Korean as well. Compare (3) and (4):

(3) Suho-ka Mina-eykey chayk-ul cwu-ess-ta.
   Suho-NOM Mina-DAT book-ACC give-PAST-DECL
   ‘Suho gave Mina a book.’

   Suho-NOM Mina-DAT fear-ACC give-PAST-DECL
   ‘Suho scared Mina.’ (fear + give → scare)

(3) and (4) involve the same linear sequence of the dative argument and the accusative argument with the identical verb *cwu ‘give’, but (3) is ditransitive whereas (4) is idiomatic. Interestingly, they show an asymmetric behavior as to argument ellipsis. First, consider the following example for ditransitives.

   Suho-NOM Mina-DAT book-ACC give-PAST-DECL
   ‘Suho gave Mina a book.’

   Hani-TOP note-ACC give-PAST-DECL
   ‘Hani gave Mina a notebook.’

   Hani-TOP Siwu-DAT give-PAST-DECL
   ‘Hani gave Siwu a book.’

When following the antecedent sentence in (5a), argument ellipsis of the indirect object and the direct object is readily possible as shown in (5b) and (5c) respectively. However, the observation is different for idioms. See (6):

   Suho-NOM Mina-DAT fear-ACC give-PAST-DECL
   ‘Suho scared Mina.’

   Hani-also fear-ACC give-PAST-DECL
   ‘Hani scared Mina as well.’

   Hani-TOP Siwu-DAT give-PAST-DECL
   (intended) ‘Hani scared Siwu.’

Although the examples in this paper are constructed without sloppy reading for the simplicity of exposition, any argument that can be elided is possible with sloppy reading in the data presented.
When following the antecedent sentence in (6a), argument ellipsis of the indirect object is possible as in (6b), yet the direct object cannot be elided in (6c) as it fails to convey the intended idiomatic reading. This asymmetry was attributed to structural differences in Y-H Kim (2019). For ditransitives, two internal arguments are introduced by distinctive heads (Lee 2004). For idioms, however, they belong to a single VP (O’Grady 1998). This difference is schematized as follows.

(7) ditransitives: DAT in vP vs. ACC in VP

\[ \text{VoiceP NOM [vP DAT [vP ACC V ] v] Voice } \]

(8) idioms: DAT and ACC in VP

\[ \text{VoiceP NOM [vp DAT ACC V ] Voice } \]

A structural constraint for argument ellipsis was suggested based on this: only the leftmost element of a given syntactic unit is eligible for argument ellipsis. This unit corresponds to a predication domain (à la den Dikken 2006) and to a linearization domain (à la Fox and Pesetsky 2005). In particular, the latter accounts for the parallel observation between scrambling and ellipsis. In ditransitives, both internal arguments can be scrambled over the subject as shown in (9). However, in idioms, only the indirect object, not the direct object, can be scrambled over the subject as shown in (10).

   Mina-DAT Suho-NOM book-ACC give-PAST-DECL
   ‘To Mina, Suho gave her a book.’

      book-ACC Suho-NOM Mina-DAT give-PAST-DECL
      ‘The book, Suho gave it to her.’

    Mina-DAT Suho-NOM fear-ACC give-PAST-DECL
    ‘Mina, Suho scared her.’

      fear-ACC Suho-NOM Mina-DAT give-PAST-DECL
      (intended) ‘Suho scared Mina.’

Under the cyclic syntactic linearization system (Fox and Pesetsky 2005; Ko 2007), such an asymmetry holds for scrambling since the relative order established within XP has to be maintained after the syntactic linearization of XP: ACC cannot be scrambled over DAT in the idiom structure in (8), since the scrambling will disrupt the already established relative ordering between DAT and ACC within VP. On the other hand, in (7) DAT in vP and ACC in VP belong to different linearization domains for ditransitives, thus each can
undergo scrambling without disrupting the relative order of the respective linearization domain. Now the parallelism obtains: only the leftmost element in a given syntactic unit can be scrambled or be elided. This generalization is summarized in (11) and (12):

(11) **Argument ellipsis targets the leftmost element**

\[
\text{YP} \alpha P \ldots [\text{XP} \beta P \ldots \gamma P \ldots ]
\]

✓ ELIDE ✓ ELIDE * ELIDE

(12) **Scrambling is sensitive to the domain order**

\[
\text{YP} \ldots \alpha P \ldots [\text{XP} \beta P \ldots \gamma P \ldots ]
\]

✓ SCRAMBLE * SCRAMBLE

\[\text{CLn}\]

3 **Argument Ellipsis via C-Probing**

Given this generalization, a question arises as to why argument ellipsis has to be constrained this particular way in these languages. I argue that this can be construed as a C-domain operation where discourse information is encoded. Any elided argument has to be salient, old information whose referent must be retrieved from the discourse context. This is done by context scanning in Sigurðsson (2011) whereby \{CLn\} in [Spec,CP] retrieves a proper referent from the discourse context. At the same time, he argues that null arguments of Germanic-type languages require a proper linking with a lower element as in (13), which is also done by the same \{CLn\} operator. However, depending on the languages, this C/Edge-Linking may be hampered if there exists an intervener as in (14).

(13) **C/Edge-Linking with no intervener** (à la Sigurðsson 2011)

\[
[\text{CP} \{\text{CLn}\} \{\text{TP} \ldots \emptyset \}]
\]

✓ C/EDGE-LINKING

(14) **Subject intervener for C/Edge-Linking** (à la Sigurðsson 2011)

\[
[\text{CP} \{\text{CLn}\} \{\text{TP subject...} [\text{vP} \emptyset \text{object} \ldots ]]\}
\]

* C/EDGE-LINKING

I argue that argument ellipsis in Japanese and Korean can be understood in an analogous manner, in that null arguments in these languages also require a proper discourse referent and they are subject to the aforementioned structural constraint (i.e., (11)). In the probe-goal system, being the leftmost element in a given syntactic domain indicates that it can be targeted by an upper probe by virtue of being the closest candidate in the searching domain. At the same
time, the highest (thus linearly leftmost) element within a unit functions as an intervener for any lower element. Then, the generalization that argument ellipsis targets only the leftmost element can be restated as the generalization that argument ellipsis targets arguments that can be probed by this C-operator. The relevant configurations are given in (15) and (16).

(15) **Succeeded C-probing**

\[
\text{CP Operator} \ [\text{YP } \alpha P \ldots \ [\text{XP } \beta P \ldots \gamma P ]] \]

\[\text{✓ C-PROBING}\]

(16) **Failed C-probing**

\[
\text{CP Operator} \ [\text{YP } \alpha P \ldots \ [\text{XP } \beta P \ldots \gamma P ]] \]

\[\text{✗ C-PROBING INTERVENE}\]

In (15), *Operator* in [Spec,CP] is first in charge of the context scanning by which it retrieves a proper discourse referent from the previous utterance (i.e., antecedent). At the same time, it functions as a probe which searches its c-commanding domain, and by this downward probing it establishes the connectivity with an eligible argument that is to be elided. In (15), C-probing succeeds as *Operator* can probe \(\beta P\), which is the highest (leftmost) element in a given syntactic unit XP. On the other hand, in (16), C-probing fails as *Operator* cannot probe down to \(\gamma P\) due to the presence of the intervener \(\beta P\).

These are the configurations we observed in the data: if two arguments are in the same domain (i.e., idioms), only the leftmost element can be elided; if two arguments belong to different domains (i.e., ditransitives), both can be elided. This is also desirable in that the restriction for argument ellipsis is known to be much more lenient than the null arguments of Germanic-type languages which are constrained by clause (see (14)).

Now, the existence of such a syntactic constraint for argument ellipsis is tied to the C-domain operation. As in (15), *Operator* in the discourse domain takes the dual responsibilities: it retrieves the proper discourse referent for a null argument; it also probes down to find an eligible argument to be elided, which is syntactically constrained per the linearization domain. In the above schematizations, the eligible domains are either YP or XP. In each domain, the highest (thus leftmost) element can be targeted by argument ellipsis.

### 4 Resultatives in Japanese and Korean

The C-probing mechanism coupled with the syntactic constraint can nicely capture the differences observed for Japanese and Korean resultatives as well. In both languages, two internal arguments co-occur to denote the initial state and the resulting state with a change-of-state verb, deriving the interpretation of resultatives. Compare (17) and (18).
In (17), the accusative-marked argument denotes the initial state and the dative-marked argument denotes the resulting state, deriving the resultative interpretation together. In (18), the accusative-marked argument denotes the initial state, and the resultative-marked argument denotes the resulting state. The difference lies in the case marking: the designated resultative marking is used in Korean, whereas the dative case is used in Japanese for the same purpose. The interesting observation here is that Korean is more restricted in allowing argument ellipsis of these arguments. In Japanese, both arguments can be elided given the overt antecedent in the previous utterance. This is shown in (19).

(19)  a. mazyo-ga isi-o hebi-ni kae-ta.
     witch-NOM rock-ACC snake-DAT change-PAST
     ‘The witch turned a rock into a snake.’

     b. * mahoutsukai-wa ari-ni kae-ta.
        wizard-TOP ant-DAT change-PAST
        ‘The wizard turned a rock into an ant.’

     c. mahoutsukai-wa kusa-o kae-ta.
        wizard-TOP grass-ACC change-PAST
        ‘The wizard turned a grass into a snake.’

As shown in (19b) and (19c), both the initial state and the resulting state argument can be elided. However, the observation is different for Korean, as only the initial state argument, not the resulting state argument, can be elided. This is shown in (20): note the contrast between (19c) and (20c).

(20)  a. manye-ka tol-ul paym-ulo pakkwu-ess-ta.
     witch-NOM rock-ACC snake-RES change-PAST-DECL
     ‘The witch turned a rock into a snake.’

     b. mapepsa-nun kaymi-lo pakkwu-ess-ta.
        wizard-TOP ant-RES change-PAST-DECL
        ‘The wizard turned a rock into an ant.’

        wizard-TOP grass-ACC change-PAST-DECL
        (intended) ‘The wizard turned a grass into a snake.’
The difference can receive an explanation with the structures proposed for resultatives in Japanese and Korean. In Japanese, the resulting state element is marked with the dative case. This is assumed to be a structurally assigned case which describes the result state for resultatives in Japanese (Sadakane and Koizumi 1995), thus each internal argument is introduced by a distinctive functional heads, here ApplP for the dative argument. On the other hand, for Korean, it was argued that both internal arguments are contained within RelatorP (Ko 2015), which is the domain of a resultative predication. This is schematized as follows:

(21) **Japanese: ACC in VP vs. DAT in ApplP**

\[ \text{VP} \text{rock-ACC} \left[ \left[ \text{ApplP snake-DAT} \text{ApplP} \right] \text{change} \right] \]

(22) **Korean: ACC and RES in RelatorP (RP)**

\[ \text{VP} \left[ \text{RP rock-ACC} \left[ \text{snake-RES R} \right] \text{change} \right] \]

With the different structures in (21) and (22), the contrasting observation for argument ellipsis can now be accounted for. In Japanese resultatives, two internal arguments belong to different domains (i.e., VP and ApplP), thus both can be elided according to the structural constraint: they are the leftmost element in their respective domain. On the other hand, in Korean resultatives two internal arguments belong to the same RP domain, thus only the leftmost element (i.e., the initial state argument) can be elided according to the same structural constraint.

This can be further corroborated by the observation from scrambling. An interesting asymmetry holds again, and this is systematically parallel to the pattern of argument ellipsis, which is expected under the present analysis. First, in Japanese, both internal arguments can be scrambled over the subject in (23).

(23) a. ✓ isi-o mazyo-ga tisi-o hebi-ni kae-ta.

   `rock-ACC witch-NOM snake-DAT change-PAST-DECL`

   ‘The rock, the witch turned that into a snake.’

b. ✓ hebi-ni mazyo-ga isi-o t-hebi-ni kae-ta.

   `snake-DAT witch-NOM rock-ACC change-PAST`

   ‘The snake, the witch turned a rock into that.’

However, in Korean, only the initial state argument can be scrambled over the subject. If the resulting state argument is scrambled over the subject, this results in the ungrammaticality.² See (24).

² It has to noted that the resultative marking in Korean is homophonous with the instrumental case marking. If RES in (24b) were to be construed as the instrumental marking, the only possible reading of (24b) is that the witch exchanged a rock using a snake, which is not even close to the intended resultative reading.
This asymmetric difference in Japanese and Korean resultatives follows from the suggested structural differences. In Japanese, two arguments belong to different domains, so either can be elided or be scrambled over each other. However, in Korean, two arguments belong to the same domain, so only the leftmost element (i.e., the initial state one) can be elided or be scrambled. The resulting state element cannot be elided or be scrambled over the initial state element. As for argument ellipsis, it is because the leftmost (thus higher) argument functions as the intervener for the C-probing. As for scrambling, it is because such a scrambling operation would result in disrupting the already linearized unit within RP.

5 Conclusion

In the present paper, argument ellipsis in Japanese and Korean is argued to be derived by the C-probing operation with a discourse operator. This was built upon the previous claim on the parallel observation between argument ellipsis and scrambling: those which can be scrambled can only be targeted by argument ellipsis. This observation was attributed to a structural constraint, by which only the leftmost element in a given syntactic linearization domain can be elided. With this, the discourse operator in the C-domain takes dual duties: context scanning by which it retrieves a proper referent from the discourse context, and downward probing by which it looks for an eligible argument for ellipsis. Coupled with the structural constraint, the present analysis could provide an explanation for why such a constraint holds, and could account for the systematic parallelism between argument ellipsis and scrambling in Japanese and Korean resultatives in a uniform manner.

References


Verbs Stay In-situ in Japanese: A Case Study of VP-fronting*

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1 Introduction

It has been controversial whether syntactic verb-raising exists in Japanese, which is strictly head-final. Scholars such as Otani and Whitman (1991), Koizumi (2000), Funakoshi (2014), and Hayashi and Fujii (2015), among many others, present evidence for syntactic verb-raising in Japanese. On the other hand, researchers such as Hoji (1998), Fukui and Sakai (2003), Kobayashi (2016) and others have shown that earlier arguments that syntactic verb-raising occurs in Japanese are not conclusive.

Against this backdrop, this paper scrutinizes Funakoshi’s (2020) recent argument for syntactic verb-raising in Japanese, which focuses on VP-fronting in (1).

(1) a. [VP Ringo-o tabe-sae] Taro-ga tVP si-ta.
   apple-ACC eat-even Taro-NOM do-PST
   ‘Even eat an apple, Taro did.’

*We thank three anonymous reviewers of the 30th Japanese/Korean Linguistics Conference for their comments. Thanks also go to Takayuki Akimoto for his insightful suggestions. This project is supported by JSPS KAKENHI Grant-in-Aid for Scientific Research (C) Grant Number JP21K00574. All remaining errors and inadequacies are of course ours.
b. \[[VP Eigo-o hanasi-sae] Hanako-ga \ t\_{VP} su-ru.\]
   English-ACC speak-even Hanako-NOM do-PRS
   ‘Even speak English, Hanako does.’

In Japanese, VP-fronting is possible only when the verb is accompanied with particles, such as -sae ‘even’, -mo ‘also/even’, and -wa ‘TOP’. Thus, (2) is ungrammatical, unlike the English translations *Eat an apple, Taro did* and *Speak English, Hanako does.*

(2) a. *\[[VP Ringo-o tabe] Taro-ga \ t\_{VP} si-ta.\]
    apple-ACC eat Taro-NOM do-PST
    Intended: ‘Eat an apple, Taro did.’

b. *\[[VP Eigo-o hanasi] Hanako-ga \ t\_{VP} su-ru.\]
   English-ACC speak Hanako-NOM do-PRS
   Intended: ‘Speak English, Hanako does.’

Funakoshi (2020) attempts to explain the contrast between (1) and (2) by assuming string-vacuous syntactic verb-raising (V-to-T movement) in Japanese. In this paper, we argue against Funakoshi’s verb-raising analysis of VP-fronting. We propose an alternative morphological account of the ungrammaticality of (2). With novel evidence, we show that our morphological analysis is empirically and conceptually superior to the string-vacuous verb-raising analysis of Funakoshi (2020).¹

The rest of the paper is organized as follows. In Section 2, we review Funakoshi’s (2020) argument for string vacuous syntactic verb-raising in Japanese. Section 3 argues against Funakoshi’s verb-raising analysis of VP-fronting and provides an alternative analysis, which is morphological in nature. In Section 4, several pieces of supporting evidence for our morphological analysis are in order. Specifically, we observe data on coordinated VP-fronting in Japanese and conclude that Funakoshi’s (2020) verb-raising analysis makes a wrong prediction about grammaticality of such data. Section 5 deals with a remaining issue and Section 6 concludes the paper.

2 The Syntactic Verb-raising Analysis of VP-fronting in Japanese (Funakoshi 2020)

We first review Funakoshi’s (2020) analysis of VP-fronting in Japanese. He claims that the contrast in (3b) and (3c) is explained if string-vacuous syntactic verb-raising occurs only in (3b) but not in (3c). He argues that the verb raises out of the VP in Japanese unless blocked by focus particles. In (3),

¹ The present paper strongly advocates reconsideration of the existence of string-vacuous verb-raising in strictly head-final languages, especially Japanese, for there is no overt evidence for children to acquire it in these languages (cf. Fukui and Sakai 2003).
such verb-raising eventually makes \textit{ringo-o} ‘an apple’ and \textit{tabe} ‘eat’ a non-
constituent. Because \textit{ringo-o} and \textit{tabe} do not form constituency, they cannot
be fronted together; hence, (3b) is ungrammatical in Japanese. The same applies to (4).

(3)  
a. Taro-ga ringo-o tabe-ta.  
   Taro-NOM apple-ACC eat-PST  
   ‘Taro ate an apple.’
b. *[VP Ringo-o \textit{tabe}] Taro-ga t_{VP} si-ta.  
   apple-ACC eat Taro-NOM do-PST  
   Intended: ‘Eat an apple, Taro did.’
c. [VP Ringo-o \textit{tabe-sae}] Taro-ga t_{VP} si-ta.  
   apple-ACC eat-even Taro-NOM do-PST  
   ‘Even eat an apple, Taro did.’

(4)  
a. Hanako-ga eigo-o hanas-u.  
   Hanako-NOM English-ACC speak-PRS  
   ‘Hanako speaks English.’
b. *[VP Eigo-o \textit{hanasi}] Hanako-ga t_{VP} su-ru.  
   English-ACC speak Hanako-NOM do-PRS  
   Intended: ‘Speak English, Hanako does.’
c. [VP Eigo-o \textit{hanasi-sae}] Hanako-ga t_{VP} su-ru.  
   English-ACC speak-even Hanako-NOM do-PRS  
   ‘Even speak English, Hanako does.’

On the other hand, since focus particles such as -sae ‘even’ and -mo ‘also/even’ block verb-raising out of VPs (see Aoyagi 1998 and Sakai 1998 for discussions) the verb remains inside the VP and so the object and the verb form a constituent. Therefore, VP-fronting is possible in (3c) and (4c). To summarize, Funakoshi (2020) claims that VP-fronting without a focus particle in (3b) and (4b) is ungrammatical because verbs raise out of VPs in Japanese. This is summarized in (5).

(5)  
\textbf{Generalization:} VP-fronting without focus particles obtains ungrammaticality because verbs raise out of VPs in Japanese, which makes the fronted elements non-constituents.

In the next section, we propose an alternative morphological account to the relevant contrast in (3b-c) and (4b-c) and argue that Funakoshi’s (2020) claim that syntactic verb-raising occurs in Japanese is inconclusive at best.

\section{Proposal: Verbs Stay In-situ in Japanese}

We propose an alternative account to the contrast between (3b) and (3c). It is well known that verbal stems are bound forms and subject to suffixation
We argue that the verbal stem and a linearly adjacent head undergo morphological merger in the post-syntactic component, which saves the bound verbal stems from being stranded in Japanese. In our analysis, (3b) is ungrammatical since the verbal stem *tabe* stands alone and remains in its bare form. On the contrary, (3c) becomes grammatical because the verbal stem *tabe* is suffixed by a particle *-sae*. In the same vein, (3a) is perfectly grammatical since the bound morpheme *tabe* is suffixed by a tense morpheme *-ta*. This is summarized in (6).

(6) **Generalization:** VP-fronting without focus particles obtains ungrammaticality because bare verbal stems are bound forms in Japanese.

Our analysis naturally explains the contrast in (3) with no recourse to syntactic verb-raising or any other additional assumptions than a widely known fact that Japanese verbal stems are bound morphemes (Fukushima 1999 and Nishiyama 2010, among others).

One may counter our proposal by stating that the verb may appear bare in coordination in (7). Indeed, Funakoshi (2020) claims that the data such as (7) serve as evidence that verbal stems in Japanese are free morphemes but not bound morphemes.

(7) Taro-ga ringo-o *tabe*, mikan-o *kat-ta.*
    Taro-NOM apple-ACC *eat* orange-ACC *buy-PST*  
    ‘Taro ate an apple and bought an orange.’  

However, we claim that Funakoshi’s assumption is wrong in the first place. In (7), a null coordinator head *-&* exists and is merged to the verbal stem in the first conjunct, which saves the bound morpheme *tabe* from being stranded. This is illustrated in (8).

(8) Taro-ga ringo-o *tabe-&*, mikan-o *kat-ta.*
    Taro-NOM apple-ACC *eat-&* orange-ACC *buy-PST*  
    ‘Taro ate an apple and bought an orange.’  

Our proposal is compatible with the following data in (9). In (9), the coordinated VPs are fronted. Although the verb *kai* ‘buy’ in the first conjunct is not suffixed by a particle that blocks verb-raising, the data is grammatical. Funakoshi’s (2020) analysis cannot capture this fact without postulating additional assumptions concerning verb-raising and coordination, such as “verbs remain in-situ in coordination in Japanese, though they undergo raising in other contexts.”
4 VP-coordination and VP-fronting in Japanese

In the previous section, we claimed that the data such as (9) lead us to conclude that Funakoshi’s (2020) analysis must assume the following: verbs remain in-situ in coordination in Japanese, though they undergo raising in other contexts. With this in mind, let us observe a piece of counterevidence to Funakoshi’s (2020) verb-raising analysis of VP-fronting in Japanese. If verbs remain in-situ in VP-coordination, then it is expected under Funakoshi’s (2020) analysis that VP-fronting should be possible with coordination even without a focus particle that blocks verb-raising. In other words, coordination makes verbs remain in-situ and make them form constituency with other VP-internal elements. However, this is not the case: (10) is ungrammatical. The ungrammaticality of (10) is explained straightforwardly in our analysis. Because the verb in the second conjunct is morphologically stranded without any suffixation, the data is ungrammatical. This is unexpected in Funakoshi’s syntactic verb-raising analysis of the availability of VP-fronting in Japanese.

(10) *[VP Ringo-o kai-&. banana-o tabe-sae] Taro-ga tVP si-ta.
    apple-ACC buy-& banana-ACC eat-even Taro-NOM do-PST
    ‘Even buy an apple and eat a banana, Taro did.’

Note that (9) is not derived from (11), in which both verbs in the first and second conjuncts are suffixed by focus particles.

(11) [VP Ringo-o kai-sae. banana-o tabe-sae] Taro-ga tVP si-ta.
    apple-ACC buy-even banana-ACC eat-even Taro-NOM do-PST
    ‘Even buy an apple and even eat a banana, Taro did.’

The interpretation differs in (12a) and (12b). While (12b) allows either the single or the multiple event readings (Carlson 1987 and Takano 2004), (12a) only has the single event reading. In (12), the single event reading refers to an interpretation in which Taro even bought an apple and even had a banana in the same occasion. On the other hand, the multiple event reading here refers to an interpretation in which Taro even bought an apple and he even had a banana on separate occasions.
The fact that (12a) and (12b) have different interpretations further confirms our analysis that (9) is grammatical since a null coordinator head morphologically merges with the bare verb in the first conjunct, satisfying the morphological requirement of the bound morpheme (i.e., the verb in its bare form).

5 Verbal Nouns and VP-fronting in Japanese

Before we conclude, we touch on VP-fronting with verbal nouns in Japanese. Our morphological analysis states that VP-fronting is unavailable when the verb is stranded without affixation. This analysis may face a problem when we take verbal nouns into consideration. The data is in (13), in which *benkyoo* ‘study’ is used. Note that the verbal nouns are free forms unlike native Japanese verbs such as *tabe* ‘eat’ and *kaw* ‘buy’. Since *benkyoo* is morphologically free, it is expected that [eigo-o *benkyoo*] ‘study English’ can undergo VP-fronting, contrary to the fact in (13b).

(13) a. Taro-ga eigo-o benkyoo si-ta.
Taro-NOM English-ACC study do-PST
‘Taro studied English.’

b. *[Eigo-o benkyoo], Taro-ga tsi-ta.
Eigo-o English-ACC study do Taro-NOM PST
Intended: ‘Study English, Taro did.’

In this paper, we suggest that VP-fronting is actually vP-fronting in Japanese, contra Funakoshi (2020). We assume that the root √*benkyoo* ‘study’ undergoes super-short distance raising from V to v, which is spelled-out as -su ‘do’ in (13) after categorization (but see Hayashi 2015). In (13b), -su is not in the fronted vP constituent; hence, the data is ungrammatical.\(^2\) Note that (14a) is ungrammatical even though v has its phonetic content -su

\(^2\) We thank Takayuki Akimoto (p.c.) for bringing this possibility to our attention.
'do’. However, this is not a problem for our suggestion that verbal nouns raise to v in vP-fronting. Since -su is verbal and bound in nature, it requires some suffixation. This prediction is indeed borne out. (14b) is perfectly grammatical, thanks to -sae attached to the verbal stem -su ‘do’.

(14) a. *[Eigo-o benkyoo-si]i Taro-ga t; (si-)ta. English-ACC study-do Taro-NOM do-PST
    Intended: ‘Study English, Taro did.’

b. [Eigo-o benkyoo-si-sae]i Taro-ga t; si-ta. English-ACC study-do-even Taro-NOM do-PST
    ‘Even study English, Taro did.’

6 Conclusion

In this paper, we have shown that the contrast in (3) is explained with no recourse to syntactic verb-raising. Our alternative analysis is superior to Funakoshi’s (2020) syntactic verb-raising analysis because it provides a natural account to the data set in (9) through (12). To summarize, Funakoshi’s argument that verb-raising occurs in Japanese based on the observations of VP-fronting is not conclusive at best.

References


Scope Properties of Parasitic Gaps in Adjunct Control in Japanese*

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1 Parasitic Gaps in English and Japanese

Parasitic Gaps (PGs) in English exhibit scope disambiguation between an object wh-phrase and a subject quantifier phrase (QP), as shown in (1b).

(1) a. Which paper did everyone file? (collective/distributive)

*This research is supported by the JSPS Core-to-Core Program, A. Advanced Research Networks “International Research Network for the Human Language Faculty” (#JPSCCAJ221702004) given to Yoichi Miyamoto, JSPS KAKENHI Grant Numbers 18K00574 given to Yoichi Miyamoto and 18K12412, 21K00586 (PI: Nobuaki Nishioka) given to Masako Maeda. We express our gratitude to the audience at the 30th conference on Japanese/Korean linguistics. We are thankful to Jon Clenton for stylistic improvement. All remaining errors are of course our own.
b. Which paper did everyone file without reading?
   (collective/*distributive)  (Hornstein 1995)

In this paper, we aim to show that the same scope disambiguation effect is observed with PGs in adjunct control clauses in Japanese, and provide a unified analysis of PGs in English and Japanese in terms of the quantifier (Q)-absorption mechanism (Watanabe 2000, Miyamoto 2008, 2022), FormCopy (Chomsky 2021), and Parallelism on copy deletion.

(2) Dare-o minna-ga [pgi hagemasi ni] tazuneta no?
   who-ACC everyone-NOM cheer.up NI visited Q
   ‘Who did all visit t[i to cheer up pg]?’ (collective/*distributive)

As adjunct control in Japanese has attracted little attention in the literature, we first show that goal/rationale clauses in Japanese are instances of adjunct control, and then give an analysis on scope properties of PGs in goal clauses.

2  Goal Clauses and Rationale Clauses as Adjunct Control Clauses

Most of the analyses on control constructions in Japanese have focused on complement control constructions (Nemoto 1993, Uchibori 2000, Fujii 2006, a.o.), the notable exception being Dubinsky and Hamano (2007, 2010), who treat sentences like (3a) to be adjunct Obligatory Control (OC). In (3a), the adjunct clause contains an accusative DP and the locative ni ‘at’. Dubinsky and Hamano observe that the ni-marked NP must be possessed by the sentential subject (its controller). For instance, in (3a), kuti-ni ‘mouth-at’ is interpreted as Ken’s mouth. They observe the possessor cannot be overt in the adjunct clause, as shown in (3b), claiming that the possessor is PRO obligatorily controlled by the matrix subject.

(3) a. Ken-wa [kiseru-o PRO, kuti ni] tatiagatta.
   Ken-TOP pipe-ACC mouth NI stood.up
   ‘Ken stood up [with a pipe in PRO (=his) mouth].’
   (Dubinsky and Hamano 2010: 183)

   b. Mari-wa [ neko-o (*kanozyo-no) aite ni] syokuzi-o siteiru.
   Mari-TOP cat-ACC she-GEN companion NI meal-ACC is.doing
   ‘Mari is eating a meal with a cat as her companion.’  (ibid: 188)

We present other and yet-unnoticed types of adjunct control clauses; goal clauses like (4a) and rationale clauses like (4b). Following the classification of Landau (2021), we argue that a goal clause is an instance of strict
OC clauses, and a rationale clause is an instance of alternating OC/non-obligatory control (NOC) clauses. The OC status of a goal clause is indicated by the absence of the overt pronoun in the position of PRO. In contrast, rationale clauses, an instance of OC/NOC, may include the overt pronoun.

(4) a. Keni-wa [(PROi/*karei-ga) tabako-o sui ni]  
    Ken-TOP hei-NOM cigarette-ACC smoke NI  
    soto-ni deta.  
    outside-to went  
    ‘(Lit.) Ken went outside [(*him) to smoke].’

b. Keni-wa [(PROi/karei-ga) tabako-o suu tame ni]  
    Ken-TOP hei-NOM cigarette-ACC smoke purpose NI  
    soto-ni deta.  
    outside-to went  
    ‘Ken went outside [in order (for him) to smoke].’

Let us examine properties of goal clauses and rational clauses. First, PRO in goal clauses exhibits obligatorily sloppy interpretation, while PRO in rationale clauses exhibits referent ambiguity. Given that the obligatory sloppy interpretation is a hallmark of OC, the obligatoriness of sloppy interpretation in (5a) shows that goal clauses are OC clauses. In contrast, the optionality in (5b) suggests that rationale clauses are alternating OC/NOC clauses.

(5) a. Keni-wa Yuii-ga zibun-i/k-no kuruma-o arai ni  
    Ken-TOP Yui-NOM self-GEN car-ACC wash NI  
    gasorinsutando-ni itta to omotta.  
    gas.station-to went C thought  
    ‘Keni thought that Yuii went to the gas station to wash *his/her car.’

b. Keni-wa Yuii-ga zibuni/k-no kuruma-o arau tame ni  
    Ken-TOP Yui-NOM self-GEN car-ACC wash purpose NI  
    gasorinsutando-ni itta to omotta.  
    gas.station-to went C thought  
    ‘Keni thought that Yuii went to the gas station in order to wash his/her car.’

Second, goal clauses are smaller than rationale clauses in size; the irrelevant circumstantial reading aside, only the latter can include negation.

    Ken-TOP cigarette-ACC smoke-NEG NI yard-to went  
    ‘Ken went to the yard not to smoke.’

b. Ken-wa tabako-o suwa-nai tame ni niwa-ni deta.
   Ken-TOP cigarette-ACC smoke-NEG purpose NI yard-to went
   ‘Ken went to the yard in order not to smoke.’

However, neither goal clauses nor rationale clauses are not large enough to block extraction, as they both allow wh-extraction out of the adjunct clause, as shown in (7).\(^1\)

(7) a. Nani-o Ken-wa \(t_i\) tabe ni café-ni kita no?
   what-ACC Ken-TOP eat NI café-to came Q
   ‘What did Ken come to the café to eat?’

b. Nani-o Ken-wa \(t_i\) taberu tame ni café-ni kita no?
   what-ACC Ken-TOP eat purpose NI café-to came Q
   ‘What did Ken come to the café in order to eat?’

In addition, goal clauses and rationale clauses both allow Argument Ellipsis (AE).

   Ken-TOP 3-CL-GEN teacher-DAT meet NI school-to went
   ‘Ken went to school to meet three teachers.’

   Yui-TOP meet NI school-to go-NEG-PAST
   ‘Yui didn’t go to school to meet Δ.’
   \(\Delta = \text{three teachers: E-type/quantificational}\)

(9) a. Ken-wa [3-nin-no sensei-ni au tame ni] gakkoo-ni itta.
   Ken-TOP 3-CL-GEN teacher-DAT meet purpose NI school-to went
   ‘Ken went to school in order to meet three teachers.’

   Yui-TOP meet purpose NI school-to go-NEG-PAST
   ‘Yui didn’t go to school in order to meet Δ.’
   \(\Delta = \text{three teachers: E-type/quantificational}\)

As shown in (8b) and (9b), the null objects may receive quantificational interpretation. Such quantificational reading is expected to be absent if the empty element is a null pronoun corresponding to ‘them’. Therefore, the availability of the quantificational reading suggests the underlying full-

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\(^1\) The truncated status of these adjunct clauses may be supported by the absence of the inflected tense morpheme. The detailed discussion on the correlation between the size of the adjunct clause and extraction possibilities is left for future research.
fledged nominal expression ‘three teachers’, which is deleted by AE (Takahashi 2008).

3 Parasitic Gaps in Goal Clauses

So far, we have observed that goal clauses are OC clauses and rationale clause are alternating OC/NOC clauses, and they both allow wh-extraction and AE. Now, let us consider an OC goal clause (10a), where a wh-phrase is connected to two gap positions in the main clause and the adjunct control clause. We argue that (10a) is an instance of PG in an adjunct clause in Japanese.

(10) a. Dare-o Ken-wa [pgi hagemasi ni] t1 tazuneta no?
   who-ACC Ken-TOP cheer.up NI visited Q
   ‘Who did Ken visit t1 [to cheer up pgi]?’

   b.* Ken-wa [pgi hagemasi ni] dare-o tazuneta no?
   Ken-TOP cheer.up NI who-ACC visited Q
   ‘Who did Ken visit t1 [to cheer up pgi]?’

Given that an element can be elided in goal/rationale clauses, as shown in (8b) and (9b), one may regard (10a) as another example of AE. However, that the in-situ wh-phrase cannot license the gap in adjunct clause (10b) shows that the gap is a parasitic gap, which is not licensed by an in-situ element (Nissenbaum 2000).

Taking (10a) as an example of PGs, let us consider the quantifier scope interactions. It is well attested that a scrambled wh-phrase and a subject QP show scope ambiguities, as shown in (11). Interestingly, if a sentence contains PG in OC clauses, the sentence lacks scope ambiguity, as shown in (2), repeated as (12).

(11) Dare-o minna-ga t1 tazuneta no?
    who-ACC everyone-NOM visited Q
    ‘Who did everyone visit t1?’ (collective/distributive)

(12) Dare-o minna-ga [pgi hagemasi ni] t1 tazuneta no?
    who-ACC everyone-NOM cheer.up NI visited Q
    ‘Who did everyone visit t1 [to cheer up pgi]?’ (collective/*distributive)

In the following, we argue that the distributive reading is obtained by Q-absorption (Watanabe 2000, Miyamoto 2008, 2022). We further argue that Q-absorption, with FormCopy (Chomsky 2021), results in chain formation that violates the Parallelism condition on copy deletion. Before analyzing (12), let us lay out background assumptions and proposal.
4 Q-absorption, Form Copy and Parallelism on Copy Deletion

Watanabe (2000) and Miyamoto (2008, 2022) argue that scope is determined derivationally in terms of Q-absorption; specifically, distributive reading is obtained when a wh-phrase with [Q, wh] feature is attached to a QP with [Q] feature, where the Q-feature of the wh-phrase is absorbed by the QP, resulting in [Q, Q] feature on the QP. Miyamoto (2008, 2022) further assumes that Q-absorption is conducted at the earliest possible point of the derivation, to the QP in Spec, vP. The subject is then excorporated and moves to Spec, TP. We assume that this excorporation should be operated so that \{Subj, TP\} is successfully labeled under the Labeling Algorithm (Chomsky 2013, 2015) or in order for the Subject Criterion (Rizzi and Shlonsky 2006). The wh-phrase also undergoes wh-movement to CP.

(13) a. \[vP \langle who_2 \_,wh\rangle everyone_1[Q, O]\rangle \[vP who_1[Q, wh] visited]\]

b. \[CP\langle who_2\_,wh\rangle \[TP everyone_2[Q, O] \langle who_4\_,wh\rangle everyone_1[Q, O]\rangle \[vP who_1[Q, wh] visited]\]]

Now, let us elaborate on the mechanism of copy identification and copy deletion. Chomsky (2021) assumes that derivations are strictly Markovian, and at a particular stage of derivation, earlier application of Merge is not detectable, which renders history of derivation inaccessible. Hence, in order to ensure copy relations, an operation FormCopy (FC) is needed; FC, operating at the phase level, assigns the relation Copy to certain identical inscriptions. With FC and Markovian nature of the syntactic derivation, it is then expected that configurations subject to FC but not Internal Merge (IM) are available. Chomsky calls gaps created by such configurations M(arkovian)-gaps, and claims that M-gaps are attested, for instance, in PG sentences like (14).

(14) a. Which papers did everyone file without reading?

  b. \textit{Which papers} did everyone \[vP who_4 file wh_1\] \[CP who_3 without reading wh_1\]?

Chomsky argues that at the CP phase level, FC identifies the wh-phrase at Spec, CP (which paper\textit{s}) and at the vP edge (wh\textit{a}) to be copies. At the same time, FC identifies the wh-phrase at Spec, CP (wh\textit{b}) and the wh-phrase that undergoes movement in the adjunct clause (wh\textit{c}) to be copies, an instance of
M-gap. That is, FC identifies three morphologically non-distinct wh-phrases to be copies at the CP-phase level.

Once copy relations are identified, lower copies should be phonologically deleted. Consider a wh-interrogative sentence like (1a), repeated as (15a). When the sentence yields the collective reading, Q-absorption is not operated as shown in (15b). Here, at the derivational point of the CP phase, FC identifies wh$_3$ at Spec, CP and wh$_2$ at Spec, vP to be copies, and the lower copy is deleted based on the copy relation. In (15c), where the distributive reading is obtained, Q-absorption occurs at the derivational point of the wh-phrase being adjoined to the subject in Spec, vP. Here as well, FC identifies wh$_3$ and wh$_2$ to be copies, with the lower copy deleted based on the copy relation. Here, however, the copy relation is established between the bare wh$_3$ and the wh$_2$ that is pair-merged with the subject. This leads to the chain interpretation where the wh-phrase is extracted out of the subject.

(15) a. Which paper did everyone file? (collective/distributive)

b. [CP wh$_3$[Q, wh] [did [TP QP[Q] [vP wh$_2$[Q, wh] [QP[Q] [vP file wh$_1$[Q, wh]]]]]]]

c. [CP wh$_3$[ _, wh] [did [TP QP[Q, O] [vP wh$_2$[ _, wh], QP[Q, O] [vP file wh$_1$[Q, wh]]]]]]

Going back to a PG sentence like (14), the lower copies (wh$_4$ and wh$_1$) are phonologically/morphologically deleted based on the copy relation {wh$_5$, wh$_4$} and {wh$_5$, wh$_2$} that are identified at the same time. Regarding such parallel copy identification, we assume that copy-deletion is an instance of deletion operation and it obeys the parallelism condition on deletion in the sense of Fox (2000). Specifically, we suggest that when copy relations {α, β} and {α, γ} are identified at the same time, they should exhibit parallel morphological relations; when wh$_8$ is pair-merged to XP at a derivational point, {wh$_8$, <wh$_β$, XP>} and {wh$_α$, wh$_γ$} cannot be identified as copies at the same time; the wh$_α$ cannot be regarded as being extracted out of the pair-merged element and as having moved as a bare wh-phrase simultaneously. Therefore, parallelism cannot identify <wh$_β$, XP> and wh$_γ$ to be copies with respect to wh$_α$, leaving one copy undeleted.

Summarizing so far, we assume that distributive reading is obtained by Q-absorption in a course of derivation. We further assume that copies are identified by FormCopy, which may identify a wh-phrase that heads a parasitic gap in a PG construction to be copies with respect to the wh-phrase in the main clause (M-gap). We argue that copy deletion is subject to the parallelism condition on copy deletion.
5 Scope Disambiguation with Parasitic Gaps in OC Goal Clauses in Japanese

The Q-absorption analysis, with FC and parallelism on copy deletion, accounts for the absence of distributive reading in (12), repeated as (16).

(16) Dare-o minna-ga [p] hagemasu ni tazuneta no?
who-ACC everyone-NOM cheer.up NI visited Q
‘Who did everyone visit [to cheer up p]?’ (collective/*distributive)

Let us consider the derivation that yields distributive reading, concentrating on wh-copies. First, as shown in (17a), the wh-phrase is adjoined to the subject QP and Q-absorption is operated both in the main clause and the adjunct clause, respectively, to assure the parallel interpretation between the main clause and the adjunct clause. FC identifies the wh-phrases ({wh2, wh1} and {wh4, wh3}) to be copies, deleting the lower copies. Next, the derivation proceeds to the CP phase in the adjunct clause, as shown in (17b); the subject and wh-phrase undergo movement to Spec, TP and Spec, CP, respectively. Again, FC identifies the identical elements created by IM to be copies, deleting the lower one. Then, the adjunct clause is adjoined to the main vP, as shown in (17c). In the main clause, the subject is excorporated and undergoes wh-movement to CP.

(17) a. [vPmain <who2[_, wh] everyone1(Q, Q) > [vP who1(Q, wh) visited]]
                Q-absorption

                [vP adjunct <who4[_, wh] everyone2(Q, Q) > [vP who3(Q, wh) visited]]
                Q-absorption
b. \[ [\text{CP}_\text{adjunct} \text{who}_5 [\text{TP everyone}_3 [\text{vP \text{who}_4 \text{everyone}_3 [\text{vP \text{who}_3 \text{visited}}]]]]] \]

c. CP (main clause)

Turning to the wh-phrase in the adjunct clause (who₅), following Chomsky (2021), we assume it is regarded as a copy with respect to the wh-phrase in the main clause that moves to CP (who₆). Here, FC identifies \{wh₆, <wh₂, QP>\} and \{who₆, who₅\} to be copies. However, under the Parallelism condition on copy deletion, one copy fails to be deleted, as \{wh₆, <wh₂, QP>\} and \{wh₆, who₅\} cannot be identified as copies at the same time; the wh₆ cannot be regarded as being extracted out of the pair-merged element and as having moved as a bare wh-phrase simultaneously.

When Q-absorption is absent, such anomaly does not occur, as all the wh-copies are bare wh-phrases.

\[ (18) \quad [\text{CP} \text{who}_5 [\text{TP everyone}_4 [\text{vP \text{who}_3 \text{everyone}_3 [\text{vP \text{who}_2 \text{everyone}_2 [\text{vP \text{who}_1 \text{cheer up}}]]]]]]] \]

The present analysis is further extended to scope disambiguation in English PGs illustrated in (1b), repeated as (19).

(19) Which paper did everyone file without reading? 
(collective/*distributive)

If Q-absorption is conducted, FC fails to relate the wh-phrase in the matrix CP with the amalgamated wh-phrase in Spec, vP and the bare wh-phrase in
the adjunct clause. This leads to the absence of Q-absorption and as a result, the absence of the distributive reading.

(20) *[CP wh[Q, Q] did [TP everyone[Q, Q] [[vP wh[Q, Q], everyone[Q, Q] > [vP file wh[Q, Q]]] [adjunct CP wh[Q, Q] without [everyone[Q, Q] < wh[Q, Q], everyone[Q, Q] > [reading wh[Q, Q]]]]]]]

6 Concluding Remarks

In this paper, we have observed that PGs in goal clauses exhibit the scope disambiguation effect, and provide a uniform analysis of PGs in English and Japanese in terms of the interaction of the Q-absorption, FormCopy, and the Parallelism on copy deletion.

References


What Japanese -(y)oo and -Tai Suffixes Tell Us about De Se*

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1 Introduction
The long-term goal of this research project is to grasp the syntactic nature behind the de se construal observed in a variety of languages and structures. As a step toward this goal, this particular study looks into the behaviors of the Japanese verbal suffixes -(y)oo and -tai, which are often mentioned in the

*I appreciate the reviewers and the audience of the 30th Japanese/Korean Linguistics Conference for their invaluable comments. I am grateful to all the consultants of the experimental study and to Kyoko Yamakoshi for her help in finding them. I also thank Tohru Noguchi for his helpful input on the abstract of this paper. This research is supported by JSPS KAKENHI (Grant-in-Aid for Early-Career Scientists: No. 20K13062).

*Japanese/Korean Linguistics 30
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literature discussing complement control phenomena (e.g. Fujii 2006, Matsuda 2019, Takano 2010). Very briefly, -(y)oo has two basic uses. In one use, it expresses one’s intention or commitment to his/her future actions. This intentive -(y)oo appears mostly in monologues (Fujii 2006). In the other use, it expresses one’s encouragement or exhortation to the addressee(s) to do something together in the future. The suffix -tai communicates one’s hope or desire to do something in the future.

When -(y)oo appears suffixed to the verb in a complement clause under certain attitude or speech predicates such as kimeru ‘decide,’ teiansuru ‘propose,’ and omou ‘think,’ we observe subject or split control, as in examples (1) and (2). The suffix -tai on a complement verb brings about subject control, as in (3).

(1) Minami-wa [PRO, gakko-ni ik-oo-to] kime-ta.
Minami-Top school-to go-(Y)OO-C decide-Past
‘Minami decided to go to school.’
(2) Minami-wa Takuya-ni [PRO, gakko-ni ik-oo-to] teiansi-ta.
Minami-Top Takuya-Dat school-to go-(Y)OO-C propose-Past
‘Minami proposed to Takuya to go to school (together).’
(3) Minami-wa [PRO, gakko-ni iki-tai-to] omot-ta.
Minami-Top school-to go-TAI-C think-Past
‘Minami thought that she wanted to go to school.’

Under obligatory control (OC) criteria, the above phenomena lead to the assumption that the null subject (PRO) of the embedded clause with a verb suffixed with -(y)oo or -tai, as in cases like (1) and (3), is obligatorily read de se (Hornstein 1999, Williams 1980). By extension, we expect cases like (2) with the exhortative -(y)oo to induce a de se plus de te reading. Although recent studies of control reveal that not all cases of complement control involve an obligatorily de se construal, it still seems to hold true that in English and many other languages, infinitival complements under attitude or speech predicates obligatorily bring about a de se reading of PRO (Landau 2015).

The first goal of the present study is to see if -(y)oo and -tai complements really give rise to an obligatorily de se or de se+te interpretation beyond the judgments of previous authors. For this purpose, six native speakers

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1 Some may claim that data like (1)–(3) involve a direct quote. However, grammatical transparency tests suggested in previous literature (e.g. Kuno 1988, Oshima 2006) prove that they allow reported speech interpretations. For instance, a wh-phrase with a matrix scope may appear in these complements. Observe (i):

(i) Minami-wa [doko-e ik-oo-to] kime-ta no?
Minami-Top where-to ik-(Y)OO-C decide-Past Q

Some may claim that data like (1)–(3) involve a direct quote. However, grammatical transparency tests suggested in previous literature (e.g. Kuno 1988, Oshima 2006) prove that they allow reported speech interpretations. For instance, a wh-phrase with a matrix scope may appear in these complements. Observe (i):

(i) Minami-wa [doko-e ik-oo-to] kime-ta no?
Minami-Top where-to ik-(Y)OO-C decide-Past Q
of Japanese were interviewed to judge the truth value of some sentences under certain scenarios.

The second goal is to show that if the above assumption that the suffixes -(y)oo and -tai are firmly tied to the notion of de se/te holds true, its implication in understanding the nature of de se/te construal is nontrivial. The dominant view in the studies of de se maintains that the semantic structures of de se attitude reports correspond to those of properties, not to propositions (e.g. Chierchia 1990, Lewis 1979, Pearson 2013, Percus and Sauerland 2003). For instance, Chierchia (1990) posits an operator (Op) above an IP of the clausal complement, which denotes a proposition, and assumes that this Op abstracts over the subject under IP. This creates a property denoting structure, as in (4).

(4) John hopes [Op; PRO; to win the election].

However, as discussed in detail in Landau (2018), there is at least one nontrivial deficiency in this line of approaches to de se. It does not provide a mechanism which assures that the matrix subject John co-refers with Op and in turn controls PRO. The picture seems simple enough when monotransitives such as hope appear as a matrix predicate, but in the cases of ditransitives such as promise and order (e.g., John promised Mary to win the election), the above system fails to predict which matrix argument controls PRO.

A question arises as to whether there are any mechanisms that ensure an obligatorily de se interpretation and controller identification. This paper suggests that the Op has a set of primitive person features such as speaker and addressee, which arise inside the complement clause. They arise from a modal element visible in Japanese via suffixes such as -(y)oo and -tai within the complement. The Op behaves like a free relative, such as who or whoever, with a certain primitive person feature. This feature contributes to both the identification of the semantic value of the Op and the interpretation de se/te.

2 Modality and Controller Constraints in Japanese OC

First, I will look into a set of Japanese sentences including (1) to (3) above, comparable to English attitude OC structures. We can see a control pattern contingent on the verbal suffixes appearing in the complement clause. For example, when the suffixes -(y)oo or -tai appear on the verb of the complement clause, we typically observe subject control, as in (1) and (3). The suffix -(y)oo used as an exhortative gives rise to split control, as in (2). These patterns are contrasted with, say, the -e imperative suffix on the complement verb, which brings about object control as shown in (5).
Minami-Top Takuya-Dat school-to go-E-C order-Past
‘Minami ordered Takuya to go to school.’

Notably, in root environments, these suffixes impose person constraints on the subject. Let us focus on the suffixes -(y)oo and -tai. When the suffix -(y)oo appears on the verb in roots and is used as an intensive in a monologue-like context, the subject most felicitously refers to the speaker of the utterance (Adachi 2002, Fujii 2006). Consider (6) adapted from Adachi (2002: 20).

(6) Watasi/??Anata/??Kare-wa kaisha yame-yoo.
I/You/He-Top company quit-(Y)OO
‘I/You/He will quit my/your/his job.’

When the same suffix appears on the verb and the sentence is uttered toward the addressee(s) as an exhortation, the subject most felicitously includes both the speaker and addressee(s), as in (7). Watasitati ‘we’ here is an inclusive first-person plural pronoun referring to the speaker and addressee(s).

(7) Watasitati/??Anatatati/??Karera-wa kaisha yame-yoo.
We/You.Pl/They-Top company quit-(Y)OO
‘We/You/They will quit our/your/their job.’

A similar constraint can be observed for -tai. In assertive sentences, when -tai appears on the verb, the subject refers to the speaker of the utterance (Kuno 1973, Nitta 1991). Observe (8) based on Nitta (1991: 30).

(8) Watasi/??Anata/??Kare-wa sake-ga nomi-tai.
I/You/He-Top sake-Nom drink-TAI
‘I/You/He want(s) to drink sake.’

———

2 There are exceptional uses of the exhortative -(y)oo, as in (ii), adapted from Nitta (1991: 33), where the subject is understood to refer only to the addressees. In the context where a teacher utters (ii) to her students, the subject minna ‘everyone’ may refer only to her addressees (i.e. her students) exclusive of the speaker (i.e. the teacher).

(ii) Minna sizzukanai si-yoo.
Everyone quiet do-(Y)OO
‘Everyone, let’s be quiet.’

The present paper does not delve into such exceptional cases. It seems that in cases like (ii), the action taken by the students will be mutually beneficial to both the students and the teacher. Such mutually beneficial contexts may be a key to allowing the exceptional use of -(y)oo.

3 As is well known, in interrogatives, the subject refers to the addressee.

4 Sentences like (6)–(8) sound most natural with a null subject. Even with a null subject, we would most naturally interpret the subject to refer to the speaker in (6) and (8) and the speaker...
At first glance, in control complements (1)–(3), these constraints seem lifted. In (1), the subject of the complement verb with -(y)oo is obviously not the speaker of the entire utterance; it designates the referent of Minami, the matrix subject. In (2), the subject of the exhortative -(y)oo verb does not designate the speaker and addressee(s) of the utterance either; it designates Minami and Takuya. Similarly, in (3), the subject of the complement -tai verb is not the utterance speaker. Nevertheless, we could see the suffixes -(y)oo and -tai as behaving like shifted indexicals observed in languages such as Amharic (Schlenker 2003) and Zazaki (Anand and Nevins 2004).

Put differently, we could see these suffixes as imposing shifted person constraints on PRO. For instance, with the complement -(y)oo verb, PRO refers to the speaker or the attitude holder of the reported context, which is Minami in (1). When the exhortative -(y)oo appears on the verb, as in (2), PRO refers to a set of individuals inclusive of the speaker and addressee of the reported context, i.e. Minami and Takuya. In (3), the suffix -tai is on the complement verb. In this case, PRO refers to the speaker/attitude holder of the reported context, which is Minami. These observations reveal that modal elements, such as -(y)oo and -tai, contribute to controller identification via shifted person constraints.

It has often been assumed that shifted indexicals are the source of de se/te. Thus, we may be tempted to conclude that -(y)oo and -tai induce obligatorily de se/te readings because they are shifted indexicals. However, new evidence has shown that shifted indexicals are not necessarily construed de se/te. For instance, shifted indexicals in Dhaasanac (Nishiguchi 2017) and Amharic (Malamud 2006) have been reported to allow de re readings. Such evidence has led Grano (2021: 151) to say that ‘It is an open question whether shifted indexicals have an obligatory de se interpretation ....’ It seems crucial to have it empirically tested whether -(y)oo and -tai really induce obligatorily de se/te readings.

3 Do -(Y)oo and -Tai Induce Obligatorily De Se Readings?

In a preliminary test conducted in August 2022, I consulted with six native speakers of Japanese. The following two pairs of scenarios, A(1) and (2) and B(1) and (2), were included in the test. After showing each scenario with visual illustrations to my consultants, I showed and read out several sentences with -(y)oo and -tai clausal complements and asked them if each sentence correctly or incorrectly depicts the scenario. The scenarios are based on Morgan (1970) and Schlenker (2003).
Scenario A(1): Misaki is a very famous Japanese singer in her teens. Her beautiful voice attracts many Japanese fans. One day, Misaki sees herself singing on YouTube and thinks she sings amazingly. She thinks to herself, ‘I should advance overseas.’

Scenario A(2): Misaki is a very famous Japanese singer in her teens. Her beautiful voice attracts many Japanese fans. But unfortunately, she gets into a car accident and becomes amnesic. She loses all her memories and does not even remember she is a singer. One day, while hospitalized, Misaki sees herself singing on YouTube. Since she is amnesic, she is not aware she is in fact watching herself but still thinks that she sings amazingly and tells her doctor, ‘She should advance overseas.’

My consultants, a to f, were asked to judge whether test sentences (9) and (10) correctly or incorrectly describe the scenarios. The results are shown in Table 1 for (9) with -(y)oo and Table 2 for (10) with -tai.

Misaki-Top overseas-to advance-(Y)OO-C think-Prog-Nonpast
‘Misaki is thinking of advancing overseas.’

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Table 1. Results for (9) against scenarios A(1) and A(2)

Misaki-Top overseas-to advance-TAI-C think-Prog-Nonpast
‘Misaki is thinking that she wants to advance overseas.’

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Table 2. Results for (10) against scenarios A(1) and A(2)

Three out of six consultants judged the sentence (9) ‘correct’ against scenario A(1), the aware version, and the rest were either incapable of judging it (said ‘don’t know’) or replied ‘incorrect.’ Focusing on those three who said

For test sentences (9) and (10), consultants a and b judged each sentence with no-da ‘be-Cop’ at the end. For all consultants, when (9) and (10) were judged against A(2), one of the phrases kiokusositudaga ‘although amnesic’ or sirazusirazunoutini ‘unknowingly’ was inserted into each sentence to support the consultants’ understanding of the context.
‘correct,’ meeting the baseline for this test, all judged the same sentence (9) ‘incorrect’ against scenario A(2), the unaware version. At least for those three consultants, sentence (9) seems to induce an obligatorily de se reading. Regarding sentence (10) with the suffix -tai, five out of six consultants judged it ‘correct’ against scenario A(1), and all those five consultants judged it ‘incorrect’ against scenario A(2). For those five consultants, sentence (10) seems to give rise to an obligatorily de se construal.

Another set of scenarios, B(1) and (2), were presented to my consultants to judge sentence (11) with the exhortative -(y)oo. Table 3 shows the results.

**Scenario B(1):** Minami is a high school senior and president of the student council. One of the graduating students makes a speech at the graduation ceremony every year at her school. However, no students have volunteered to give the speech. Minami, who is in charge of deciding who is to give the speech, consults with the vice-president of the council, Takuya. She proposes to Takuya, ‘Why don’t we give the speech together?’

**Scenario B(2):** Minami is a high school senior and president of the student council. One of the graduating students makes a speech at the graduation ceremony every year at her school. However, no students have volunteered to give the speech. Minami, who is in charge of deciding who is to give the speech, consults with the vice-president of the council, Takuya. She proposes to Takuya, ‘What about two students who have the top-two final exam scores giving the speech together?’ Unbeknownst to Minami and Takuya, they have the top-two final exam scores.

   Minami-Top Takuya-Dat together speech do-(Y)OO-C propose-Past
   ‘Minami proposed to Takuya to give the speech together.’

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<td>B(2)</td>
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Table 3. Results for (11) against scenarios B(1) and B(2)

The results are not so clear for the exhortative -(y)oo, as in (11). This is perhaps due to the somewhat complicated scenarios that consultants had to deal with. However, although all judged (11) correct against scenario B(1), three out of six judged it incorrect against B(2). At least for some speakers, the

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6 For test sentence (11), consultants a and b judged each sentence with no-da ‘be-Cop’ at the end. For consultants b to f, the phrase hakarazuno ‘unintentionally’ was inserted into sentence (11) to support the consultants’ understanding of the context when it was judged against B(2).
exhortative use of -(y)ooy in the complement seems to induce an obligatorily de se and de te reading. Although more careful research is necessary in the future, the preliminary test reveals a set of promising data that modal elements such as -(y)ooy and -tai in Japanese complement clauses play a key role in giving rise to obligatorily de se te readings.

4 Analysis and Implications

In Section 2, we saw that the suffixes -(y)ooy and -tai bear speaker–addressee shifted indexicality, and the empirical test results reviewed in Section 3 suggest they give rise to an obligatorily de se te construal in at least certain types of complement control in Japanese. It seems that the modal elements overtly observed by the Japanese suffixes -(y)ooy and -tai are responsible for both the obligatorily de se nature of PRO and its controller determination. The present study proposes to extend a similar view to English complement control involving attitude and speech predicates where PRO is obligatorily construed de se te. That is to say, in such English complements, covert modality and indexicality are also the source of de se te and make possible the identification of the controller.\(^7\)

There are a variety of ways to implement this view. For instance, in Japanese, we could posit that the suffixes -(y)ooy and -tai originate with primitive indexical features such as speaker and addressee features. They are distinct from the traditional first- and second-person features observed in English-type languages. Rather, they are part of the hierarchical structural representations of the first- and second-person pronouns in the sense of Harley and Ritter (2002); hence, they are more primitive than the first- and second-person features.

These primitive speaker/addressee features on -(y)ooy and -tai can be shared with PRO by agreement, as in (12) and (13). (12) represents the intensive -(y)ooy; the exhortative -(y)ooy would have both the speaker and the addressee features. Note that -(y)ooy and -tai should be distinguished from sentence final particles, such as Japanese -yo and -ne, which involve the Speaker-Addressee or Commitment Phrase located high above the CP projection according to studies, including Miyagawa (2022). Both -(y)ooy and -tai can be followed by the particles -yo or -ne; we often observe -(y)ooy-yo or -tai-ne sequences. I temporarily assume that -(y)ooy merges on the modal head M between T and C; I simply assume here that -(y)ooy must be positioned above T because it lacks a past tense variant, while -tai is below T on the aspectual head Asp since it has the past tense variant, -takatta.

\(^7\) The notion of covert modality in nonfinite contexts is inspired by Bhatt (2006).
Following the property view of \textit{de se}, the last step will be the \(\lambda\)-abstraction over the subject (PRO) by the operator in order to create a property denoting clausal structure. PRO moves up to the Op position with the speaker feature, as in (12) and (13). This, in effect, specifies that the property bearer is the speaker, or the attitude holder, of the relevant context. When the exhortative -(\(\gamma\))oo appears, the Op would end up with both the speaker and addressee features, specifying that both bear the property. The Op here behaves like a free relative, such as \textit{who} or \textit{whoever}, with certain primitive indexical features, thus restricting its domain to include the speaker or addressee or both. The present study in essence supports the view presented in previous research, including Schlenker (2003) and Anand and Nevins (2004), that PRO involves shifted indexicality. How the shift is implemented will be detailed in future research.

We could apply a similar syntactic derivation to English OC with attitude or speech predicates, such as (4). We could assume that there is a null modal or aspectual head which carries the speaker/addresssee features. Then the Op can end up with these features, just as in (12) and (13). Note that, in English, the primitive speaker/addresssee features can be realized in the traditional third-person agreement in a shifted context embedded under an attitude or speech verb. Thus, having PRO co-occurring with the third-person reflexive (e.g., \textit{John told David to behave himself}) is compatible with the present proposal.

The Japanese suffixes -(\(\gamma\))oo and -\textit{tai} allow us to see what is invisible in English. They suggest that certain types of modality associated with the primitive indexical features play a crucial role in a \textit{de se} construal. Further detailed research into their behaviors may pave the way for a better understanding of the issues surrounding \textit{de se}.  

References


On the Syntax of the Adjective-based Adverbs

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1 Introduction

Studies of small clause constructions in Japanese have revealed that certain expressions that describes speaker’s psychological state, such as oisiku ‘tast-ily’ (the psychological predicate) can be associated with either the epistemic verb (EV) or non-epistemic verb (NEV), as instantiated in (1).

(1) a. John-wa sono sasimi-o oisi-ku omotta.
    John-TOP that raw.fish-ACC delicious thought
    ‘John thought that the raw fish was delicious.’

    John-TOP that raw.fish-ACC delicious ate
    ‘John ate the raw fish and found them delicious.’
Superficially, these expressions are appearing in the same position in these two examples. However, detailed investigations on the distribution of these expressions, we can find some remarkable differences. Most remarkably, *oisī-ku* in an epistemic verb construction (EVC) like (1a), cannot appear before the accusative object as in (2a) (Koizumi 2002), while the one appearing in a non-epistemic verb construction (Non-EVC) like (1b) can as in (2b).

   ‘John thought that the raw fish was delicious.’

b. John-wa oisi-ku sono sasimi-o tabeta. John-TOP delicious that raw.fish-ACC ate
   ‘John ate the raw fish and found them delicious.’

This study attempts to provide an explanation for this constraint on the distribution of the psychological predicates. Specifically, I argue for the position that the predicate in (1a) is embedded in a small clause that is sister to the verb, while the one in (1b) is adjoined to VP. Specifically, in (1a) the object and the psychological predicate constitute a predicational phrase, while in (1b) they do not.

2 Background

The psychological predicate in Japanese, as (1) and (2) show, cannot precede the object in the EVC, whereas it can in the Non-EVC. Korean psychological predicates show exactly the same distributional pattern (see Miura 2021 for more details).

(3) a. * Talo-nun masiss-key ku mwulkoki-lul sayngkakhaysssta. Talo-TOP delicious that fish-ACC thought
   ‘Talo thought that the fish was delicious.’

b. Talo-nun masiss-key ku mwulkoki-lul mekessta. Talo-TOP delicious that fish-ACC ate
   ‘Talo ate the fish and found it delicious.’

In the EVC with *sayngkakhayss* ‘think’ the psychological predicate *masiss-key* ‘delicious’ cannot precede both the object and the subject. On the other hand, in the Non-EVC with *meke* ‘eat’ it can precede both of them.

It is widely assumed that in both Korean and Japanese the subject and the object distribute differently with respect to the floating of numeral quantifiers (NQ) (Kuno 1973, Miyagawa 1989).
(4) a. biiru-o John-wa san-bon non-da.
   beer-ACC John-NOM 3-CL drink-PST
   ‘John drank three bottles of beer.’

      student-PL-NOM beer-ACC 3-CL drink-PST
      ‘Three students drank beer.’

In (4a), the subject *John* can intervene between the subject *biiru* ‘beer’ and its NP *san-bon* ‘three bottles’. On the other hand, the object cannot split the subject and its NP as (4b) shows.

The same pattern is found in Korean. As in (5a), the subject *John* can appear between the object *maykcwu* ‘beer’ and its NQ *sey-pyeng* ‘three bottles’, while the object cannot appear between the subject *haksayng-tul* ‘students’ and its NQ *sey-myeng* ‘three persons’ as in (5b).

    beer-ACC John-NOM 3-CL_bottle drink-PST-DEC
    ‘John drank three bottles of beer.’

      student-PL-NOM beer-ACC 3-CL_person drink-PST-DEC
      ‘Three students drank beer.’

The psychological predicate cannot precede the floated quantifiers in the EVC, but it can in the Non-EVC, both in Japanese and in Korean, suggesting that psychological predicates assume a tighter relation with the EV than with Non-EV.

    Taro-TOP paper-ACC interesting 2-CL thought
    ‘Taro thought/felt two papers were interesting.’

   b. Taroo-wa ronbun-o (omosiro-ku) ni-hon yonda.
      Taro-TOP paper-ACC interesting 2-CL read
      ‘Taro read two papers and found them interesting.’

(7) a. * Talo-nun ku mwulkoki-lul masiss-key sey-mali
    Talo-TOP that fish-ACC delicious-key 3-CL
    sayngkakhayssta.
    thought
    ‘Talo thought that the three fish were delicious.’
b. ?Talo-nun ku mwulkoki-lul masiss-key sey-mali mekessta.
   Talo-top that fish-ACC delicious-key 3-CL ate
   ‘Talo ate three fish and found them delicious.’

To wrap up, both in Japanese and Korean, the psychological predicate in the EV clause identifies the order freezing phenomena with respect to the object, while the psychological predicate in the Non-EV clause does not identify such a phenomena.

3 Edge Generalization and Small Clauses

Ko (2014) proposes the Edge Generalization (EG). In (8) γP elements appearing in the specifier of a predication domain like (8b) cannot be separated by their domain-internal elements Z at any stage of derivations so-called

(8) a. Edge Generalization (EG)
   If X and Y are dominated by a specifier γP of a Spell-out domain αP, X and Y cannot be separated by an αP-internal element Z that is not dominated by γP.

b.

\[
\begin{array}{c}
\text{αP} \\
\text{Z} \\
\gammaP \\
\text{X} \quad \text{Y} \\
\betaP \\
\text{Z}
\end{array}
\]

*[X…Z…Y]  
(Ko 2014: 24)

The element Z in βP can move over γP since it is c-commanded by α. Thus, it is possible to derive the order Z-X-Y from the structure (8b). However, the element X in γP cannot be remerged to the specifier of αP because X is not contained in the c-command domain of the head α. Hence, the order X-Z-Y cannot be derived from the structure (8b).

Ko argues that the EG can account for the asymmetry of the subject and object concerning the floating of their NQs as in (4) and (5). Because the object is contained in the c-command domain of v, it can be probed by v and remerged over the subject position at the specifier of vP, leaving its NQ
within VP. The subject, however, cannot be probed by v within vP since it is not contained in the c-command domain of v. Thus, the subject cannot move over the remerged position of the object. This is why the order *Subj-Obj-Subj_{NQ} is never derived.

Korean has two types of small clause constructions. In the consider-type small clause (e.g., *samas) such as (9a) the small clause predicate ceyca-lo ‘student-as’ cannot intervene the object cencik taythonglyeng-ul ‘former president-ACC’ and its NQ sey-myeng ‘three-persons’, whereas in the hire-type verb sentence (e.g., ppopas) as in (9b) the small clause predicate kyoswu-lo ‘professor-as’ can intervene the object cencik taythonglyeng-ul ‘former president-ACC’ and its NQ sey-myeng ‘three-persons’.

(9) a. * Kim kyoswu-nun cencik taythonglyeng-ul ceyca-lo
   Kim professor-TOP former president-ACC student-as
   sey-myeng 3-cl.
   considered (Ko 2014: 136, (11))
   ‘Prof. Kim considered three former presidents as (his) students.’

b. * SNU-nun cencik taythonglyeng-ul kyoswu-lo sey-myeng
   SNU-TOP former president-ACC professor-as
   ppopasst.
   hired (Ko 2014: 139, (17))
   ‘Snu hired three former presidents as (his) professors.’

Ko explains how the EG accounts for the contrast in (9). She argues that a small clause structure such as (10) being mediated by Relator (den Dikken 2007) is involved in (9a) but not in (9b). This is why the former has the order preservation effect while the latter does not.

(10) Edge Effect

The order preservation effect is explained as follows: The matrix object in (10) (SS in (10)) and its NQ are contained in the specifier of RP. The small clause predicate, being as a complement of R can be remerged over the object.
but the object itself must be frozen at the base position and never be fronted over the remerged position of the predicate within RP. This is why the order *Obj-Predicate-NQ_{obj} is never derived.\footnote{One issue here is that the small clause predicate is the complement of R, and there is nothing wrong for R to probe the small clause predicate over the matrix object. If so, it should have been placed before the object. But this is not the case. Ko (2014) argues this remerge is blocked by Anti-locality principle, that is, the complement cannot move into the specifier of the same head (Abels 2003).}

4 Proposals

In Section 3 we observed psychological predicates distribute differently depending on with which verb clause they may be combined. When they are combined in the EVC, their distribution against the object is restricted, whereas when they are combined in the Non-EVC, that is not the case. This fact strongly correlates with the object-predicate relation in the consider-type small clause in Korean and Japanese.

I propose that Japanese (and also Korean) psychological predicates (Adj-\textit{ku} in (11)) in EVC includes the predicational structure RP such as (11a). On the other hand, the same predicate in Non-EVC does not contain RP as (11b) illustrates.

\begin{figure}
\centering
\begin{tikzpicture}
\node (VP) at (0,0) {VP};
\node (RP) at (2,-1) {RP};
\node (V) at (4,-1) {V};
\node (Adj-\textit{ku}) at (2,-2) {Adj-\textit{ku}};
\node (R) at (4,-2) {R};
\node (DP) at (0,-3) {DP};
\node (Obj) at (1,-3.5) {Obj};
\node (NQ_{obj}) at (2,-3.5) {NQ_{obj}};
\draw [->, dashed] (Obj) -- (NQ_{obj});
\draw [->] (DP) -- (Obj);
\draw [->] (DP) -- (NQ_{obj});
\draw [->] (Obj) -- (Adj-\textit{ku});
\draw [->] (Adj-\textit{ku}) -- (R);
\draw [->] (R) -- (V);
\node (Edge Effect) at (-1,-2) {Edge Effect};
\end{tikzpicture}
\caption{Diagram of the relationship between the psychological predicate and the object in the EVC (11a).}
\end{figure}

\begin{figure}
\centering
\begin{tikzpicture}
\node (VP) at (0,0) {VP};
\node (Adj-\textit{ku}) at (-1,-1) {Adj-\textit{ku}};
\node (VP2) at (1,0) {VP};
\node (DP) at (0,-1) {DP};
\node (V) at (2,-1) {V};
\draw [->] (Adj-\textit{ku}) -- (VP2);
\draw [->] (DP) -- (VP2);
\draw [->] (VP) -- (Adj-\textit{ku});
\draw [->] (VP) -- (V);
\draw [->] (VP) -- (DP);
\end{tikzpicture}
\caption{Diagram of the relationship between the psychological predicate and the object in the Non-EVC (11b).}
\end{figure}

In (11a) the psychological predicate directly merges with R. The object and its NQ (when available) constitute a phrase at the edge of RP. The psychological predicate cannot move to the specifier of the same R head due to the violation of Anti-locality principle. Hence, it cannot move over the object or intervene between the object and its NQ.
I argue the morpheme *ku-* is the adjective inflection but not a realization of the head R. According to Kishimoto (2021), *ku*-marked elements are an adjective-based adverbial and they do not project the subject position. Crucially, the *ku*-marked element cannot be associated with the copulative form *de-aru* ‘be’ as in *oisii-de-aru* ‘tasty-COP’, which is in sharp contrast with a depictive secondary predicate such as *nama-de-aru* ‘raw-COP’.

However, there is a piece of evidence to indicate the element in (11a) forms a subject-predicate-like relation with the matrix object. The subject honorification in Japanese takes the local subject as its target of deference (Kishimoto 2021). For instance, the target of the deference of the adjective *oyasasii* ‘kind’ is the nominative-marked *Tanaka-sensei* but not the dative-marked *gakusei* ‘student’ as in (12a). When they alternate with each other, the honorific meaning disappears as in (12b).

   'Teacher Tanaka is kind to his/her students.'

   'The students are kind to Tanaka teacher.'

We can observe that the same relation is hold between the matrix object and the psychological phrase of the EVC, as in (13a).

(13) a. Gakusei-ga Tanaka-sensei-o o-utkusiku omotta.
   'Students considered Tanaka teacher beautiful.'

   'Tanaka teacher considered a student beautiful.'

In (13a) the accusative-marked NP *Tanaka-sensei* is the target of the deference of *o-utkusiku* ‘HON-beautiful’ and this is the local subject of the adjective with the honorific morpheme *o-. When the accusative NP is *gakusei*, the sentence is non-sensical as in (13b). Although it is the local subject of the adjective, it cannot be the target of the deference.

The psychological phrase in the Non-EVC differs from the one in the EVC in terms of the subject honorification. The matrix object cannot be the target of the honorification as in (14) (see Kishimoto 2021 for more details).
In (14) the matrix object Tanaka-sensei is the perfect target of deference of the subject honorification. However, the honorific reading is not held between the object and the psychological phrase, which suggests that the ku-element is not predicated of the matrix object.

5 Conclusions and Implications

This paper discusses the syntax of adjective-based psychological predicates. When they are combined with the clause of EV, it constitutes a small clause with the matrix object, and therefore their order is fixed. When it is combined with the clause of Non-EV, it does not consist of a small clause, which results in a free order against the object.

I suggest the present analysis has an implication to resultative clauses, following Ko (2014). Ko proposes ni-resultatives in Japanese (e.g. makka-ni ‘deep.red-res’) show the order preservation effect with respect to the object, and therefore they constitute an RP. My suggestion is that ku-resultatives (e.g. aka-ku ‘red-res’) do not involve an RP, which explains why there is no order preservation effect between the ku-resultative predicate and the matrix object.

Acknowledgments

I express my gratitude to all the audience at JK 30th. I am grateful for the comments and discussions with Masaya Yoshida, Chung-hye Han, Qiushi Chen, Brian Agbayani, Hideki Kishimoto, Kyoko Yamakoshi, Kensuke Takita, Jiwon Yun, Myeong Hyeon Kim, Chae Eun Lee.

References


NI XP-shika as Adjunct, NOT Argument in Japanese and its D-Linking Property

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1 Introduction

In this paper, I will investigate Negative Concord Item (hereafter NCI) XP-shika in Japanese and its distributional properties in terms of an availability of fragment answer and multiple occurrence. Previous analyses in Japanese have paid a lot of attention to negative indefinites like wh-MO (Watanabe 2004, Kishimoto 2007, Shimoyama 2011 among others). But there is also another type of NCI, an exceptive XP-shika in Japanese (Muraki 1978, Aoyagi and Ishi 1994, Tanaka 1997 among others). This paper focuses on the exceptive XP-shika. This expression needs negation as its licenser:

(1) Taro-wa sushi-shika tabe*(-nakat)-ta.
    Taro-TOP sushi-NCI eat-NEG-PAST

‘Taro ate nothing but sushi.’ (Miyagawa et al. 2016, 1)

* I would like to thank Yuya Noguchi, Satoshi Tomioka, John Whitman, Masaya Yoshida, Hedde Zeijlstra and the audience at SSRG and at JK 30th for helpful comments. Special thanks to Ken Hiraiwa and Vincent Homer for helpful, insightful comments and discussions of this idea. All remaining errors are of course mine.
1.1 D-Linking Asymmetry

Miyata (2018) observes that XP-\textit{shika} shows D-Link/non-D-Link asymmetry, where it can be a fragment answer and it can appear multiply when it is D-Linked. as in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>D-Link</th>
<th>Non-D-Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fragment Answer</td>
<td>OK\textsubscript{(2,3)}</td>
<td>*\textsubscript{(4,5)}</td>
</tr>
<tr>
<td>Multiple Occurrence</td>
<td>OK\textsubscript{(6,7)}</td>
<td>*\textsubscript{(8,9)}</td>
</tr>
</tbody>
</table>

TABLE 1 D-Link/Non-D-Link Asymmetry observed in Miyata (2018)

(2) A: \textit{Yamadazemi-no} gakusei-de dare-o mi-ta no?
\textit{Yamada’s.seminar-GEN student-in who-ACC see-PAST Q}  
‘Who did you see among the students in Prof. Yamada’s seminar?’

B: John-\textit{shika} (mi-nakat-ta yo).
John-NCI see-NEG-PAST PRT  
‘I saw no students in Prof. Yamada’s seminar but John.’

(3) A: \textit{Yamadazemi-no} gakusei-de eiga-o mi-ta no?
\textit{Yamada’s.seminar-GEN student-in who-with movie-ACC see-PAST Q}  
‘With whom did you see the movie among students in Prof. Yamada’s seminar?’

B: John-\textit{to-shika} (sore-o mi-nakat-ta yo).
John-with-NCI it-ACC see-NEG-PAST PRT  
‘I saw it with no students in Prof. Yamada’s seminar but John.’

The example in (2) indicates that XP-\textit{shika John-shika} is licensed as a fragment answer when it is D-linked due to an existence of \textit{Yamadazemi-no gakusei-de ‘students in Prof. Yamada’s seminar’ in the question. Importantly note here that it gets an D-linked interpretation ‘no students in Prof. Yamada’s seminar but John’, instead of a non-D-linked interpretation ‘nobody but John’.
The examples in (4) and (5), however, indicate that XP-shika is not licensed as a fragment answer when an aggressively non-D-Link element ittai ‘the hell’ appears in an antecedent (Pesetsky 1987). In multiple appearance cases, it is also observed that, regardless of whether it is an argument or not, XP-shika can appear multiply when it is D-Linked, while it cannot be when ittai ‘the hell’ appears in the antecedent as in (6-9).

(6) A: gakusei-wa dare-ga dono-gengo-o hana-shi-ta no?
students-TOP who-NOM which-language-tscacc speak-PAST Q
‘As for students, who speaks which languages?’
B: (gakuse-wa) John-shika (gengo-o) eigo-shika
student-TOP John-NCI language-ACC English-NCI
hanasa-nakat-ta yo.
speak-NEG-PAST PRT
‘No students but John speak any language but English.’
These examples show that D-Link/non-D-Link asymmetry exists in Japanese as in Miyata (2018). Why does it show that asymmetry in Japanese? This is the puzzle that I address in this paper.

2 Miyagawa et al. (2016)
In previous analyses of NCIs XP-shika in Japanese, the phrase can be either an argument or an adjunct to a verb and an argument/adjunct asymmetry is
observed in terms of an availability of fragment answer and its multiple occurrence, contrary to the observations that we have seen in the previous section. According to them, argument XP-shika can neither be a fragment answer as in (10) nor appear multiply as in (12a) (see Kishimoto 2007, Miyagawa et al. 2013, 2016), while adjunct XP-shika can both, as in (11) and (12b) (see Kuno1995, Nishioka 2000, Miyagawa et al. 2016), as summarized in Table 2:

<table>
<thead>
<tr>
<th>Fragment Answer</th>
<th>Argument</th>
<th>Adjunct</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(10)</em></td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Multiple Occurrence</td>
<td><em>(12a)</em></td>
<td>OK</td>
</tr>
</tbody>
</table>

**TABLE 2 Argument/Adjunct Asymmetry observed in previous analyses**

(10) **Argument XP-shika as Fragment Answer**
A: dare-o mi-ta no?
   who-ACC see-PAST Q
   ‘Who did you see?’
B: *John-shika.
   ‘Only John.’ (Miyagawa et al. 2016, 3)

(11) **OK Adjunct XP-shika as Fragment Answer**
A: kimi, nando-mo betonamu-ni it-ta koto aru
   you many-times Vietnam-to go-PAST experience have
   nodaroo?
   I.suppose
   ‘Haven’t you been to Vietnam many times?’
B: Iya, ichido-shika.
   no once-NCI
   ‘No only once.’ (Kuno 1995, 170)

(12) **Argument/Adjunct Asymmetry of XP-shika in Multiple Occurrence**
      John-NCI English-NCI speak-NEG-PAST
      Int.: ‘No one buy John speak anything but English.’
   b. karaoke-e-wa ichido-shika Shiori-to-shika it-ta
      karaoke-to-TOP once-NCI Shiori-with-NCI go-PAST
      koto-ga nai.
      experience-NOM NEG
      ‘I have been to Karaoke only once, with only Hanako.’
      (Miyagawa et al. 2016)
In order to derive the argument/adjunct asymmetry, Miyagawa et al. (2016) propose an activation condition of a focus feature in (13).

(13)  *Activation Condition of the Focus Feature for Agreement*
An interpretable focus feature, [iFOC], on an XP becomes visible for Agree with some higher head-carrying [uFOC] in T or any other functional head that inherits this probing feature from C if and only if the XP is in another (case–)agreement relation with the head.

(Miyagawa et al. 2016, 19)

Adopting Miyagawa (2010), Miyagawa et al. (2016) argue that Japanese is a discourse-configurational language where both ϕ-feature probes and a discourse feature such as topic/focus are generated in C and they are inherited by T. In a discourse-configurational language like Japanese, a topic/focus-feature on T triggers movement of a topiced/focused element to Spec, TP. Focus in such a language requires case for activation as in (13). Based on this analysis, we can see the argument/adjunct asymmetry of XP-shika: the argument XP-shika can establish an Agree relation with the focus-probe on T because it has a case-feature; however, the adjunct XP-shika cannot because it does not have a case-feature. The argument XP-shika is forced to move into Spec, TP to establish the Agree relation. But its landing site, Spec, TP, is inside of TP-ellipsis that derives the fragment answer. Therefore, the argument XP-shika cannot survive TP-ellipsis as in (14a).

(14)  a.  

```
  F
 /\  /
 F  F
|  T
|  |
|  |
```

b.  

```
  F
 /\  /
 F  F
|  T
|  |
|  |
```

On the contrary to the argument case, the adjunct XP-shika can survive it because it does not enter into the focus-agreement with T due to a lack of its case feature. The adjunct XP-shika, therefore, moves into Spec, FP and can be derived as the fragment answer as in (14b). The ban of multiple appearance of the argument XP-shika is also explained based on (13). The higher argument XP-shika becomes an intervenor of the lower one establishing the Agree with an [uFOC] on T, crushing its derivation. The adjunct one, however, has an inactive [iFOC] and it does not prevent another XP-shika with an active [iFOC] from entering the agree-relation with T.
Their analysis is, however, not free from an empirical problem. As observed in Kawashima and Kitahara (1992), NCI \textit{nani-mo} can appear with its \textit{CASE}-marked associate. \textit{XP-shika} also shows this property and an \textit{ACC}-marked associate ‘fruits’ can co-occur with it as in (15).

\textbf{(15)} John-wa fruits-o ringo-shika tabe-nakat-ta yo.
John-TOP fruits-ACC apples-NCI eat-NEG-PAST PRT
‘John ate no fruits but apples.’

Miyagawa et al. (2016) predict that NCI \textit{ringo-shika} in (15) should be able to become a fragment answer. It lacks a \textit{CASE}-feature because the associate ‘fruits’ has the feature and its [iFOC] is thus inactive. \textit{XP-shika} should therefore survive TP-deletion when it appears with the \textit{CASE}-marked associate.

\textbf{(16)} A: Hanako-wa nani-o tabe-ta no?
Hanako-TOP what-ACC eat-PAST Q
‘What did Hanako eat?’

B: John-wa furutsu-o ringo-shika tabe-nakat-ta yo.
John-TOP fruits-ACC apples-NCI eat-NEG-PAST PRT
‘John ate no fruits but apples.’

B’: *ringo-shika.
apples-NCI
Int.: ‘John ate no fruits but apples.’

This is, however, contrary to the fact as in (16B’). Note that (15), repeated as (16B), is a base-structure of (16B’) and it is an appropriate answer of (15A).

3 Proposal

Adopting an unary-NEG structure in Collins and Postal (2014), I propose that NCI’s associate is a true argument and NCI \textit{XP-shika} appears as adjunct within the DP headed by its associate in Japanese (cf. Shoji 1986).\footnote{I assume here that NEG SOME is covert in Japanese.}

\textbf{(17)} Structure of NCI \textit{XP-shika} in Japanese
a. \([DP [NEG SOME] NP XP-shika D]]\) (Base-Structure)
b. \([DP [NEG SOME] pro XP-shika D]]\) (Reduction form)

In (2), (3), (6) and (7), the \textit{CASE}-marked associate appears as \textit{pro} which is licensed due to D-Linked \textit{wh}-phrase like \textit{Yamadazemi-no gakusei-de dare-o}
‘Who among the students in Prof. Yamada’s seminar’ in (2). On the contrary to these, the presence of the non-D-Linked \textit{wh}-phrase prevents it in (4), (5), (8) and (9). Note that \textit{pro} is not licensed in (10) and (12a) because of a lack of its possible antecedent. This analysis can capture (16), repeated as (18).
A: Hanako-wa nani-o tabe-ta no?
   Hanako-TOP waht-ACC eat-PAST Q
   ‘What did Hanako eat?’
B’: *(furutsu-o) ringo-shika. (=16)
   fruits-ACC apples-NCI
   ‘John ate no fruits but apples.’

The ungrammaticality of (18B) is accounted for because pro is not licensed. Instead, the CASE-marked associate, furutsu-o ‘fruits’, appears and, XP-shika and its associate are then licensed as a fragment answer.

A piece of evidence of the proposal is from the (un)availability of XP-shika as discourse antecedent. Collins and Postal (2014) argue that an element with the unary-NEG cannot serve as discourse antecedent as in (19b).

(19)  a. If you steal any candy_i, give it_i to me. (\((\text{NEG}[\text{NEG SOME}])\))
    b. * If you don’t steal any candy_i, give it_i to me. (\((\text{NEG SOME}])\)
       (Collins and Postal (2014, 34))

XP-shika cannot also become discourse antecedent as in (20b), indicating that XP-shika has the unary-NEG structure.

(20)  a. Yamadazemi-no gakusei-ga_i kita-ra, karera-ni_i
       Yamada’s.seminar-GEN students-NOM come-COND. they-DAT
       kore-o watashite.
       this-ACC give.please.
       ‘If students come among the students in Prof. Yamada’s seminar, please give it to them.’
    b. * Yamadazemi-no gakusei-ga_i Taro-shika
       Yamada’s.seminar-GEN students-NOM Taro-NCI
       ko-nakatt-ra, karera-ni_i kore-o watashite.
       come-NEG-COND. they-DAT this-ACC give.please.
       ‘If no students but Taro come among the students in Prof. Yamada’s seminar, please give it to them.’

4 Conclusion

Miyata (2018) argues that the argument/adjunct asymmetry of NCI XP-shika does not exist in Japanese, contrary to Miyagawa et al. (2016). In this paper, I propose that it is an adjunct and its CASE-marked associate is a true argument that can also appear as pro. This analysis can explain the grammaticality of the counterexample in (18) to the previous analysis and why XP-shika shows D-Link/non-D-Link asymmetry. Furthermore, this paper provides data showing that XP-shika can be a fragment answer regardless it is an argument or not.
This indicates that XP-shika is NCI based on a diagnostic test proposed in Vallduvi (1994) and Giannakidou (2000). This paper does not show what the exact structure containing it looks like. I leave this open as a remaining issue.

References


1 Introduction

In the last four decades, there has been extensive investigation of the mechanism of Case assignment in Japanese, and what the crucial factor pertaining to assignment of nominative Case in Japanese is has been much controversial. For instance, Takezawa (1987), Koizumi (1994), Saito (2016), and others claim that a finite T is responsible for nominative Case assignment to a DP.

* I am truly grateful to Nobuaki Nishioka, Masako Maeda and Norimasa Hayashi for their invaluable suggestions and questions on the central ideas presented here. I also thank the audience of the Japanese/Korean Linguistics 30, especially Kensuke Takita, Kenta Mizutani, Yuya Noguchi for their comments. My thanks also go to Carey Benom for stylistic improvement. This research was supported by Grant-in-Aid for JSPS Fellows Grant Number JP23KJ1687. Needless to say, all the remaining inadequacies are my own.

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On the other hand, Fukui (1986, 2006), Inoue (1989), Aoyagi (2006), and others argue that nominative Case should be assigned to a DP by the default strategy. Based on the latter perspective, nominative Case is no longer taken to be abstract Case that is syntactically assigned to the DP by heads capable of Case assignment, but it has become mere morphological case with which the DP is pronounced (Schütze 1997, 2001; McFadden 2004, 2007; Moritake 2023; among others). In order to figure out which of the two competing measures is employed in Japanese, I focus particularly on the nominative Case realization as exemplified in the bracketed adverbial clauses in (1) and (2). As shown in (1) and (2), there is no overt tense morpheme realization in such clauses; however, the subject John successfully receives nominative Case in both the examples.¹

(1) [John-ga benkyoo-tyuu-ni], Mary-wa utattei-ta.
   John-NOM study-while-DAT Mary-TOP singing-PST
   ‘While John was studying, Mary was singing.’

(2) [John-ga syukkin-mae/go-ni], Mary-wa ringo-o
   John-NOM go.to.work-before/after-DAT Mary-TOP apple-ACC
tabe-ta.
   eat-PST
   ‘Before/After John went to work, Mary ate an apple.’

If nominative Case is contingent on the presence of finite T, as assumed by Takezawa (1987), Koizumi (1994), Saito (2016), and others, an immediate question that arises from these two examples is how DPs in the bracketed adverbial clauses obtain nominative Case. I will discuss these examples to show that finite T is indeed present in such clauses, enabling DPs to obtain nominative Case. This paper thus attempts to argue persuasively that nominative Case in Japanese is assigned to the DP not by the default strategy but by finite T. That finite T is responsible for nominative Case assignment in Japanese is, of course, not a new idea, as discussed above. In what follows, I would like to support this idea with further empirical evidence. I will also argue that default case in Japanese is realized as morphologically zero (null) form, suggesting that nominative Case in Japanese can never be assigned to the DP by the default strategy.

¹ The following abbreviations are used: ACC = accusative, DAT = dative, GEN = genitive, NEG = negation, NOM = nominative, PRES = present, PST = past, Q = question, TOP = topic
2 The Complex DP

As shown above, the overt tense morpheme, -ta, is present in the matrix clauses in (1) and (2); thus, finite T arguably exists in the matrix clauses in (1) and (2). It seems unlikely, however, that finite T in the matrix clauses is responsible for nominative Case assignment to John in the bracketed adverbial clauses in (1) and (2) because a nominative-marked subject in the bracketed phrase headed by -tyuu ‘while’ can independently be licensed without a matrix clause, as represented in (3).

(3) [John-ga benkyoo-tyuu-no] sisei
    John-NOM study-while-GEN posture
    (Lit.) ‘the posture while John is studying’

Note that the same result obtains by using the phrase headed by -mae ‘before’ or -go ‘after,’ as demonstrated in (4), in which nominative Case assignment to John succeeds.

(4) [John-ga syukkin-mae/go-no] tenki
    John-NOM go.to.work-before/after-GEN weather
    (Lit.) ‘the weather before/after John goes/went to work’

The examples in (3) and (4) strongly suggest that nominative Case can be assigned to the DPs within the bracketed phrases headed by -tyuu ‘while’ and -mae/-go ‘before/after,’ though finite T is apparently missing. Based on these examples, it can be assumed that nominative Case assignment to John in (1) and (2) is also accomplished within the bracketed adjunct clauses headed by the same elements. At this point, it still remains unclear whether nominative Case assignment requires the occurrence of finite T or adopts the default strategy. In the following section, I will empirically show that nominative Case does not serve as default case in Japanese, arguing explicitly that nominative Case is assigned to DPs without recourse to the default mechanism, in contrast to Fukui (1986, 2006), Inoue (1989), Aoyagi (2006), and others.

3 Against the Default Case Analysis

One might argue that the default case analysis for nominative Case assignment is more plausible than the proposal that finite T assigns nominative Case in Japanese, since finite T appears to be missing on the surface in the bracketed clauses/phrases in (1-4). However, this is a hasty conclusion. According to Schütze (1997, 2001), to diagnose a fragment answer is helpful to reveal
what default case is in the language. For instance, only a DP marked with accusative case is appropriate for a fragment answer in English, as in (5).

(5) Q. Who wants to try this game?
   A. Me/*I. \(\text{Schütze 2001: 211}\)

Schütze (1997, 2001) also points out that a left-dislocated DP is likely to be pronounced with default case. In English, such a DP must be marked with accusative case, as shown in (6).

(6) Me/*I, I like beans. \(\text{Schütze 2001: 210}\)

Based on Schütze’s (1997, 2001) analysis, it is a trivial truth that default case in English is accusative case (see also McCloskey 1985; McFadden 2004, 2007; among others).

Now let us turn to the examples in Japanese. As demonstrated in (7A), only a DP without an overt Case-marker is licensed as a fragment answer in Japanese (for relevant discussion, see Abe 2016; Miyagawa et al. 2016; among others). In what follows, ‘DP-ø’ stands for a DP without an overt Case-marker.

(7) Q. Dare-ga ringo-o tabe-ta no?
   who-NOM apple-ACC eat-PST Q
   ‘Who ate an apple?’
   A. Watasi-ø/*ga/*o.
   me-Ø/*NOM/*ACC
   ‘Me.’

For left-dislocated DP, Takita (2014) and Moritake (2023) argue that Japanese only licenses a DP lacking an overt Case-marker, as shown in (8).

(8) Takuya-ø/*ga/*o, kare-wa kasiko-i.
    Takuya-Ø/*NOM/*ACC, he-TOP intelligent-PRES
    ‘Takuya, he is intelligent.’

The empirical facts in (7A) and (8) can straightforwardly be accommodated by assuming that DPs in Japanese are to be pronounced with default case in the absence of an overt Case-marker. In light of these facts observed above, default case in Japanese should be considered as morphologically zero (null) case (see also Moritake 2023 for relevant discussion). As a consequence, it follows automatically that nominative Case in Japanese cannot be regarded as default case, in contrast to the proposals by Fukui (1986, 2006), Inoue
(1989), Aoyagi (2006), and others. Thus, we must reconsider what makes nominative Case assignment available to John in (1-4).

4 Proposal

It is well-known that a subject within a relative clause in Japanese may be marked with -ga (nominative Case) or -no (genitive Case), as represented in (9). This phenomenon is often referred to as the ga/no conversion (Harada 1971).

\[ \text{[Taro-ga/no nonda] kusuri} \]
\[ \text{Taro-NOM/GEN took medicine} \]
\[ \text{‘the medicine that Taro took’} \quad \text{(Akaso and Haraguchi 2011: 95)} \]

Using the Case alternation illustrated in (9), I will provide evidence that nominative Case assignment in Japanese depends exclusively on the occurrence of finite T.

Akaso and Haraguchi (2011) observe the intriguing fact that the genitive subject is incompatible with focus-marking, whereas the nominative subject can be focused. This point is illustrated in (10), in which the subject Taro is focused with the focus-particle dake ‘only.’

\[ \text{[Taro-dake-ga/*no nonda] kusuri} \]
\[ \text{Taro-only-NOM/GEN took medicine} \]
\[ \text{‘the medicine that only Taro took’} \]

Adopting Rizzi’s (1997) articulated CP system, Akaso and Haraguchi (2011) assume that the focus-particle dake ‘only’ is licensed by a focus head located in the CP, concluding that a relative clause with nominative subjects is projected into the CP with a potential focus licensing head. For a relative clause with genitive subjects, Akaso and Haraguchi (2011) argue that it consists of the TP at most, given that no focus-marking on genitive subjects is possible. Related to this analysis, Miyagawa (2011, 2012, 2013, 2017) claims that in Japanese, the focus licensing of subjects requires a full phasal CP to be present in the clauses, with the assumption that a focus feature originates at the phase head C and is inherited by T. Based on Chomsky’s (2008) assumption that T is able to assign nominative Case only if it is selected by the phase head C, Miyagawa (2011, 2012, 2013, 2017) argues that nominative Case assignment is warranted within the bracketed relative clauses in (9) and (10) by assuming the presence of T selected by the phase head C, a presence of which is guaranteed by the focus-marking on the nominative subject. In contrast, Miyagawa (2011, 2012, 2013, 2017) suggests that when genitive Case
is assigned to the subject in a relative clause, it is implied that the bracketed relative clauses in (9) and (10) are composed of defective TPs: the defective nature of T follows from the assumption that T is not selected by the phase head C, thereby lacking the Case assigning property, just as with T in Exceptional Case-Marking and Raising Constructions in English (Chomsky 2008; Akaso and Haraguchi 2011; among others). The tree diagrams shown in (11) succinctly summarize the discussions so far.

(11)  a. Nominative subjects

```
CP (phase)
   TP
   C

subject-NOM
   T'
   vP
   T (finite)
```

b. Genitive subjects (based on Miyagawa’s series of works)

```
DP
   TP
   D

subject-GEN
   T'
   vP
   T (defective)
```

In light of these discussions, it is suggested that nominative Case assignment is available only if T is selected by the C head bearing a phasal status. A general assumption in Chomsky (2000, 2001, 2008) is that T should be finite when it is selected by the phase head C. Based on Akaso and Haraguchi’s and Miyagawa’s insightful analyses, I argue that in Japanese, nominative Case assignment is dependent on the presence of finite T selected by C, rather than the default strategy (see also Moritake 2022 for relevant discussion concerning the close relation between the availability of nominative Case in Japanese and the presence of the CP phase).

5 Analysis

This section analyzes specific examples, with the assumption that the focus licensing of the subject is key to identifying whether or not the clause in question consists of a CP with finite T. Let us first observe the examples in (12), in which John is focused within the bracketed constructions headed by -tyuu
‘while.’ As evidenced by (12), the subject John obtains a focus interpretation because the focus-particle dake ‘only’ is attached to it. Based on Akaso and Haraguchi’s (2011) analysis and Miyagawa’s series of works, the availability of focus-marking on the subject leads to the conclusion that both the phase head C and finite T are present in the bracketed clauses/phrases in (12).

singing-PST
‘While only John was studying in the classroom, Mary was singing.’

b. [John-dake-ga benkyoo-tyuu-no] kyoositu
John-only-NOM study-while-GEN classroom
‘the classroom in which only John was studying’

Given the presence of finite T within the bracketed constructions headed by -tyuu, nominative Case assignment to the subject John-dake ‘only John’ is expected to be controlled by the same head. This analysis holds the bracketed clauses/phrases headed by -mae/go ‘before/after’ in (13), in which the overt focus-particle dake ‘only’ is attached to the subject John, thereby allowing John to be focused within these constructions. It is then plausible to conclude that finite T is present within such a clause/phrase and is responsible for nominative Case assignment to John-dake ‘only John.’

(13) a. [Busyo-no-nakade John-dake-ga syuppatu-mae/go-ni],
department-GEN-within John-only-NOM leave-before/after-DAT Mary-wa eeu-o oku-tta.
Mary-TOP cheers-ACC send-PST
(Lit.) ‘Before/After only John leaves/left in the department, Mary sent a heartly cheers to him.’

b. [John-dake-ga syuppatu-mae/go-no] eki
John-only-nom leave-before/after-gen station
(Lit.) ‘the airport at which only John is/was before/after departure’

As discussed above, nominative Case assignment to John can be done within

2 In (12a), the PP kyoositu-de ‘in the classroom,’ which modifies an event that a verb expresses in the bracketed adjunct clause, is placed before the subject John-dake ‘only John’ to make it clear that the subject occupies the bracketed adverbial clause. The presence of the PP provides evidence in support of the current analysis that nominative Case assignment takes place independently of finite T in the matrix clause.
the bracketed constructions headed by -tyuu ‘while’ or -mae/-go ‘after/before’ in (12) and (13). This analysis has an immediate consequence for the analysis of nominative Case assignment to subjects in the bracketed clauses/phrases in (1-4). These constructions in question are headed by -tyuu ‘while’ and -mae/-go ‘before/after,’ as with the relevant constructions in (12) and (13). Therefore, I argue that what is responsible for nominative Case assignment to John in (1-4) is the occurrence of finite T within the bracketed constructions. As can be seen, the discussions so far have presented evidence in favor of the view that finite T plays the decisive role in nominative Case assignment in Japanese (Takezawa 1987; Koizumi 1994; Saito 2016; among others).

6 Extension

Before concluding this paper, I will extend the current analysis to the examples with the structure of coordination, as exemplified in (14). Note that the subject ame ‘rain’ in the first conjunct is marked with nominative Case.

(14) [Ame-ga tuyo-ku], kaze-ga hagesi-i (koto).
    rain-NOM heavy-KU wind-NOM strong-PRES (fact)
    (Lit.) ‘The rain is heavy, and the wind is strong’ (Takezawa 1998: 97)

The adjectival inflection -ku in the first conjunct has been regarded as an infinitival marker (Takezawa 1998; Yoshimoto 2019; among others). If the first conjunct in (14) consists of infinitival clause, a question arises as to why nominative Case is licensed in this conjunct. Recall that focus assignment to the subject is closely correlated with the occurrence of the phase head C. If the focus licensing of the subject is possible in the first conjunct in (14), then the occurrence of finite T follows automatically under the current analysis. Since the preceding discussions suggest that nominative Case assignment is tied to the presence of finite T, it is mandatory to make sure that the subject ame ‘rain’ in (14) obtains nominative Case by finite T. The existence of finite T in the first conjunct is confirmed by the example in (15), in which the subject in question is focused with the focus-particle dake ‘only’ attached to it.

(15) [Ame-dake-ga tuyo-ku], kyou-wa kaze-wa huitai-na-i.
    rain-only-NOM strong-KU today-TOP wind-TOP blowing-NEG-PRES
    (Lit.) ‘Only the rain is heavy, and the wind does not blow today.’

The focus-marking on the subject ame ‘rain’ necessarily entails the occurrence of both the phase head C and finite T. It is thus suggested that the first conjuncts in (13) and (14) in fact contain finite T, and as a result, nominative
Case assignment to the subject is made possible within such a conjunct.

7 Conclusion

This paper has compared two previous analyses of nominative Case assignment in Japanese: finite T versus the default strategy. I have provided some evidence in support of the argument that the presence of finite T is crucial for assigning nominative Case to the DP in Japanese, as assumed by Takezawa (1987), Koizumi (1994), Saito (2016), and others. I have argued that the adverbial clauses/phrases, in which there seem to be no overt finite tense morphemes on the surface, in fact involve finite T. This analysis is confirmed by assuming that the focus licensing of the subject is available if and only if the construction in question is projected into the CP phase headed by the phase head C selecting finite T (Akaso and Haraguchi 2011; Miyagawa 2011, 2012, 2013, 2017). To further fortify this analysis, I have revealed that default case in Japanese is indeed taken to be morphologically zero (null) case; thus, nominative Case can never be assigned to the DP by the default strategy, contrary to previous analyses by Fukui (1986, 2006), Inoue (1989), Aoyagi (2006), and others. Finally, the proposed analysis has been extended into the structure of coordination that apparently lacks an overt finite tense morpheme. I have demonstrated that the subject in this construction can be focused, which guarantees the presence of finite T in the CP phase. Therefore, finite T is capable of assigning nominative Case to the DP in the same way observed in the adverbial clauses/phrases that have been dealt with in this paper.

References


dissertation, MIT.
1 Introduction

Among if-exclamatives—bare if-clauses used as exclamations—, if-adversatives like German (2) have received much less attention than if-optatives like (1).1

(1) If-optative
   If only I were taller!

(2) German if-adversatives
   Wenn ich nur größer wäre!

We thank the reviewers and participants of JK30. All errors and shortcomings are our own. This work was partly supported by JSPS KAKENHI Grant Number JP20K00582 to Toshiko Oda.

1 It would be better to have an English example for (2) to make the data parallel between if-optatives and if-adversatives. However, English does not seem to have if-adversatives (Grosz 2012:93).
The goal of this study is to identify novel data of if-adversatives in Japanese and argue that Japanese if-adversatives have silent main clauses, in deviation from optatives in languages like German (Grosz 2012). In Japanese, it is the silent matrix clause that determines whether a given if-clause turns out to be an if-optative or if-adversative.

2 Previous Studies

If-optatives like (1) describe the speaker’s desire. The question is how the desire semantics is made possible without having any overt desire predicate (e.g. wish). Grosz (2012) argues that the desire semantics of if-optatives is brought about by a silent exclamative operator EX, which comes with a contextually determined preference-scale $S$ as shown in (3). EX can be described as an expressive presupposition trigger; its lexical entry is given in (4).

(3) $[EX\ S]\ [\text{if only I were taller}]$

(4) $EX\ (S)(p)$ presupposes $p$ to exceed a contextually salient threshold on $S$

As for if-adversatives like (2), Grosz argues that the negative interpretation comes from an inverse preference scale $S$ (i.e. a scale of speaker-dispreference). This division of labor between EX and $S$ makes it possible to keep the single lexical entry for EX in (4) while dealing with both if-optatives and if-adversatives.

Grosz further argues that if-optatives do not come with silent main clauses that contribute a positive evaluation of the antecedent proposition. Evidence is obtained from (5), where a ‘because’-clause fails to take scope over a silent main clause indicated in parentheses in (5).

(5) \textit{Wenn Hans doch nur gekommen wäre,}

if Han\ DOCH\ only\ come\ were

\textit{weil er immer guten Wein mitbringt.}

because\ he\ always\ good\ wine\ brings

#‘If only Hans had come because he always brings good wine.’

*because he always brings good wine $>$ (it would be good)
Given below is an example of an if-optative and its structure from Grosz (2012). The silent exclamative operator EX combines with a proposition of type <s,t> and yields an expressive meaning of type E, a felicity-conditional utterance. This utterance is expressive in nature.

\[(6)\]
\[
\text{EX}_S (\text{rain}): E \\
\text{rain}: <st> \quad \text{EX}_S: <st,E> \quad (\text{Grosz 2012:118})
\]

\[(7)\] Felicity conditions:
(6) is felicitous iff \(\exists q[q \neq [\text{It rains}] \& q \in g(C)] \& [\text{It rains}] >_{\text{speaker-preference}} q]\)

“The speaker expresses the emotion that [It rains] is higher on a speaker-related preference scale than some contextually relevant alternative q.”

Oda and Wimmer (2021) propose that Japanese naa is an overt version of Grosz’s EX-operator. Nevertheless, they argue that Japanese if-optatives, unlike German ones, come with silent main clauses. In the Japanese equivalent of (5) given in (8), the wide scope reading of the relevant because-clause is easily obtained, which indicates that the because-clause modifies a silent matrix clause, i.e. ‘(it would be) good’. In fact, the if-clause followed by naa in (8) intuitively has the same meaning as (9) with the overt positive predicate ii ‘good’ as the matrix ‘clause’, indicated by (MC) in the translation.

\[(8)\]
\[
\text{Taro-wa itumo ii wain-o mottekuru kara } ,
\quad \text{Taro-TOP always good wine-ACC bring because}
\quad \text{Taro-ga } \{\text{ku-reba / ki-tara / kuru-nara}\} \text{ naa!}
\quad \text{Taro-NOM come-COND NAAEX}
\quad \text{‘If (only) Taro came [because he always brings good wine].’}
\quad \checkmark \text{because he always brings good wine > (It would be good)}
\]

\[(9)\]
\[
\text{Taro-ga } \{\text{ku-reba / ki-tara / kuru-nara}\} \ (\text{ii}) \text{ naa!}
\quad \text{Taro-NOM come-COND (good) NAAEX}
\quad \text{‘(MC It would be good) if Taro came!’ ≈ If only Taro came!}
\]

---

2 C is a contextual variable, interpreted by the contextual assignment function g familiar from Heim and Kratzer (1998). g(C) returns a set of contextually salient propositions, including the ‘prejacent’ proposition \(p\) that EX combines with.
3 Data

3.1 To-Adversatives

Among the well-known conditional markers in Japanese (reba, tara, nara, to), to behaves differently from others. The example in (10) with to only induces an adversative reading. Its intuitive interpretation is paraphrased as ‘It will be problematic if Taro comes’.

(10) [Taro-ga kuru-to ] naa!
    Taro-NOM come-COND NAA_EX
    lit. ‘If Taro comes!’ (It will be problematic if Taro comes.)

3.2 Anmari ‘much’ in To-Adversatives

The adversative interpretation of bare to-clauses is confirmed by the following contrast. Such clauses are compatible with anmari ‘much’, a negative polarity item (NPI) that comes with a negative evaluation as shown in (11). Other conditional markers are not compatible with anmari, as shown in (12).

(11) Taro-ga anmari bennkyoosuru-to naa!
    Taro-NOM muchNPI study-COND NAA_EX
    lit. ‘If Taro studies too much!’ (It will be problematic if Taro studies too much.)

(12) *Taro-ga anmari bennkyoo {su-reba/si-tara/suru-nara} naa!
    Taro-NOM muchNPI study-COND NAA_EX
    lit. ‘If Taro studies much!’

3.3 Sae ‘even’ in To-Adversatives

The dichotomy of to-adversatives vs. reba/tara/nara-optatives is further observed in the following contrast involving the scalar particle sae ‘even’. The example in (13) is a little degraded when uttered out of the blue, but sae means ‘even’ here. However, it has been observed that sae generally turns out to mean something different when it occurs in if-clauses (Hasegawa 2020). In fact, sae in the reba/tara/nara-clause in (14) means ‘only2’ (at least) in the sense of Grosz (2012).

---

3 Anmari, a phonetic variation of annari, can be used as well.
(13) (?)[Taro-sae\textsubscript{even} \textit{kuru-to} \textit{naa}!] (if-adversative)  
\begin{verbatim}
Taro-SAE \textit{come-COND} NAA\textsubscript{EX}
\end{verbatim}  
\textit{lit. ‘If even Taro comes!’ (It will be problematic if even Taro comes.)}

(14) [Taro-sae\textsubscript{only2} \{\textit{kuru-reba/ki-tara/\textit{kuru-nara}\} \textit{naa}!]\textsuperscript{4} (if-optative)  
\begin{verbatim}
Taro-SAE \textit{come-COND} NAA\textsubscript{EX}
\end{verbatim}  
\textit{‘(MC) It would be good) if only(at least) Taro comes!’}

‘Only2(at least)’ is one of two \textit{ONLY}-variants assumed by Grosz (2012) as shown in (15b). Both only1 and only2 share an implication of scalar lowness (\textit{LOW}) and are phonetically realized as \textit{only} (‘PF’ is for ‘phonetic form’). But while only1 is exclusive/exhaustive (\textit{EXH}), only2 is nonexclusive.

(15) a. only1: \{ \textit{LOW, EXH} \} \implies \textit{PF only}  
b. only2: \{ \textit{LOW} \} \implies \textit{PF only} \quad (Grosz 2012:228)

3.4 \textit{To}-Clauses Can Be Followed by Positive Main Clauses

So far, the dichotomy between \textit{to}-clauses vs. \textit{reba}/\textit{tara}/\textit{nara}-clauses looks very simple: the former are used for adversatives, and the latter for optatives. However, the picture is not that simple. As shown in (16), \textit{to}-clauses can be easily followed by positive predicates such as \textit{ii} ‘good’ and turn out to be an optative sentence.

(16) [[ \textit{Taro-ga kuru-to} ] \textit{ii } ] \textit{naa}!  
\begin{verbatim}
Taro-NOM \textit{come-COND} \textit{good} NAA\textsubscript{EX}
\end{verbatim}  
\textit{‘It will be good if Taro comes.’}

In other words, there is a tension in interpretation between constructions of the form in (17a) vs. (17b). \textit{GOOD} in (17b) stands for any positively evaluative predicate.

(17) a. [\textit{p-to } ]-\textit{naa} \leadsto \textit{adversative reading, cf. (10)}  
b. [\textit{p-to \textsc{good} } ]-\textit{naa} \leadsto \textit{optative reading, cf. (16)}

Thus, we cannot attribute the adversative meaning of (10) entirely to the lexical property of \textit{to}. We rather need an analysis that is flexible enough to accommodate (16).

\textsuperscript{4} The relevant example with \textit{nara} is degraded compared to the ones with \textit{reba} and \textit{tara}.
4 Proposal

We first propose that Oda and Wimmer’s (2021) analysis of Japanese if-optatives, which involves silent main clauses, carries over to Japanese to-adversatives, again in crosslinguistic deviation from the English/German optatives at the center of Grosz’s (2012) investigation. The LFs of Japanese optatives and adversatives both come with a silent evaluative predicate, GOOD and BAD, respectively. In the optative case, GOOD describes a positive (desirable) state of affairs, and roughly amounts to the proposition ‘it [=the situation under consideration] is good’. In the adversative case, reserved for the conditional marker to, a silent BAD in the main clause (MC) describes a negative (undesirable) state of affairs, and roughly amounts to ‘it is problematic’.

(18) Proposal: to-adversatives in Japanese

\[ p\text{-}t o \ (s a c \ B A D) \ n a a ! \]

In what follows we will present four pieces of evidence.

4.1 Overt Main Clause

Evidence for (18) is obtained from (19) with an overt negative main clause komaru ‘problematic’, which intuitively means the same as (10).

(19) \[ T a r o \text{-}g a \ k u r u \text{-}t o \ \ k o m a r u \ n a a ! \]

\[
\begin{array}{llll}
\text{Taro-NOM} & \text{come-COND} & \text{problematic} & \text{NAAEX} \\
\end{array}
\]

‘It will be problematic if Taro comes.’

4.2 Scopal Diagnostic

The silent main clause involved in to-adversatives can be confirmed by Grosz’s (2012) scopal diagnostic with ‘because’. In the to-adversative with a ‘because’-clause given in (20), the ‘because’-clause easily takes scope over a hidden matrix clause ‘it is problematic’.

(20) \[ \text{because-cl.} \ Asu\text{-}w a \ \text{p i k u n i k k u-g a} \ a r u \ \text{k a r a } \]

\[
\begin{array}{llll}
\text{tomorrow-TOP} & \text{picnic-NOM} & \text{have} & \text{because} \\
\end{array}
\]

\[ [ a m e \text{-}g a \ \text{f u r u \text{-}t o }] \ n a a ! \]

\[
\begin{array}{llll}
\text{rain-NOM} & \text{fall-COND} & \text{NAAEX} \\
\end{array}
\]

‘Because we go on a picnic tomorrow, (MC it will be problematic) if it rains.’ ✓ ‘because we go on a picnic tomorrow > (it is problematic)’
4.3 NPI Licensing

The compatibility with $anmari_{\text{NPI}}$ in (11) is expected under the assumption that there is a silent negative main clause. In fact, the overt negative main clause $komaru$ ‘problematic’ in (21) licenses $anmari_{\text{NPI}}$, which is expected insofar as they both come with a negative evaluation. In contrast, positive main clauses such as $ii$ ‘good’ cannot license $anmari_{\text{NPI}}$, as shown in (22), which we ascribe to an evaluative mismatch between $anmari_{\text{NPI}}$ and $ii$.

(21) ((11) with an overt negative matrix clause)

$Taro$-NOM $anmari$ much$_{\text{NPI}}$ study-COND problematic $\text{NAA}_{\text{EX}}$

‘It will be problematic if Taro studies too much.’

(22) $*$ $Taro$-NOM $anmari$ much$_{\text{NPI}}$ study-COND $\text{good}$ $\text{NAA}_{\text{EX}}$

‘It will be good if Taro studies much.’

4.4 Sae Taking Scope Over Matrix Clauses

Our proposal of a silent $q$ captures the different readings of $\text{sae}$ between $to$-adversatives vs. $\text{reba}/\text{tara}/\text{nara}$-optatives. $\text{sae}$ as ‘even’ in $to$-adversatives is explained if we assume $\text{sae}$ takes low scope just inside an if-clause. On the other hand, $\text{sae}$ as ‘only2(at least)’ takes high scope over the entire conditional construction, in line with scopal approaches to weak NPI even (Wilkinson 1996, Guerzoni 2003). In other words, it is essential for $\text{reba}/\text{tara}/\text{nara}$-optatives to be actual conditionals involving a downward-entailing operator, which confirms Oda and Wimmer’s (2021) claim. Then it will be natural to assume that $to$-adversatives are also implicit conditionals, as we claim here.

(23) a. $\text{sae}$ as ‘even’ in $to$-adversatives

$[p$-$\text{sae}$ to $q_{\text{BAD}}]$               

b. $\text{sae}$ as ‘only2(at least)’ in $\text{reba}/\text{tara}/\text{nara}$-optatives

$[p$-$\text{reba}/\text{tara}/\text{nara}$ $q_{\text{GOOD}}]$-$\text{sae}$

(24) $[\text{saec}] = \lambda p$: $p$ is the strongest alternative in $\text{C}$. $p$

(Karttunen and Peters 1979)

Let us consider how the intuitive interpretations are captured. In (23a), the focus particle $\text{sae}$ is attached to $p$, the constituent denoting the proposition $\text{Taro comes}$. Thus, among the focus alternatives of $[\text{Taro comes}]$, $[\text{Taro comes}]$ is the strongest alternative in $\text{C}$. This makes Taro the least likely person to come, which captures the intuitive interpretation. For (23b), on the
other hand, among the focus alternatives of \([\text{It will be good if Taro comes}]\) in C, \([\text{It will be good if Taro comes}]\) is the strongest (least likely) alternative among \([\{\text{It will be good if Taro comes}, \text{It will be good if Jiro comes}\}, \ldots\]\. This means that Taro is the least likely person to bring about good circumstances. Put differently, Taro’s coming ranks lowest on a scale of desirability.\(^5\)

5 Analysis

5.1 Felicity Conditions of To-Adversatives

Given the proposal, the felicity conditions of to-conditionals are calculated in the following manner. The operator *naa* is of type \(<\text{st}, E>\) and yields an expressive meaning of type \(E\).\(^6\)

\[
(25) \quad \text{naa}_{EX,S}(p\text{-COND}(q)): E
\]

\[
[p\text{-COND}(q)]: <\text{st}\quad \text{naa}_{EX,S}: <\text{st}, E>
\]

\[
(26) \text{felicity conditions for (10) ‘(MC It is bad) if Taro comes’:}
\]

(10) is felicitous iff \(\exists q[[q \neq [\text{It is bad if Taro comes}] \& q \in g(C)] \& \[
[\text{It is bad if Taro comes}] <_{\text{speaker-preference}} q \]
\]

“The speaker expresses the emotion that \([\text{It is bad if Taro comes}]\) is lower on a speaker-related preference scale than some contextually relevant alternative \(q\).”

5.2 Why Is \(q\) Negatively Biased?

Now we are left with a puzzle: Why is an implicit \(q\) always understood as BAD for to-clauses? Given the fact that to-clauses can be followed by overt GOOD in the main clause, the negative interpretation of the implicit \(q\) is more likely to be a “bias” rather than something that stems from the lexical meaning of to. Thus a possible solution lies in non-truth conditional semantics.

For one thing, we assume that if-exclamatives are optatives by default and an adversative interpretation is chosen when given a cue. In case of Japanese if-exclamatives, to serves as such a cue. This makes it possible for us

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\(^5\) Some native speakers claim that the relevant example of *sae* given in (14) has another reading, namely Taro is the most desired person. This reading seems to stem from *sae* taking lower scope over \(p\). If so, (14) is scopally ambiguous between a low and a high reading for *sae*.

\(^6\) Note that the conditions given in (25) may sound redundant though it may not be harmful. A parallel observation is made in Oda and Wimmer (2021) for optative *naa*. 
to capture the fact that the relevant if-clause constructions in Japanese are mostly optatives, and to-adversatives are the only exceptional cases.\(^7\)

The idea of to as a cue is adopted from Grosz (2014), who argues that small particles like doch are cues to interpret if-clauses as if-exclamatives rather than if-conditionals. A core idea is that if a globally infrequent reading can be supported by a certain element, the element counts as a cue (Grosz 2014:113).\(^8\) Grosz further attempts to formally capture the notion of a cue in a game-theoretic framework based on Lewis (1969), Franke (2009) and others. A similar formal analysis is likely to capture the behavior of to as a cue as well. However, we do not discuss details in this paper due to space limitations.

Support for to as a cue comes from a production experiment reported by Maeda (2020), where native speakers of Japanese produced conditional sentences by filling out the main clause of the format in (27). The result is striking. Among the 65 sentences with a negative \(q\) produced by the speakers, 42 cases (65%) are ones with to.\(^9\) In other words, native speakers judge that to-clauses are more suitable to be followed by a negative \(q\) than rebai/tara/nara-clauses. This can give to a special role as a cue for adversatives, and this cue is overridden when a positive clause is provided overtly.

(27) \(\text{Dizunii lando-ni } \{i-keba/i-ttara/iku-nara/iku-to\}\), ___________.
    Disney Land-to go-COND ___________.
    ‘If (you) go to Disney Land, ___________.’

(Translated and edited from Maeda 2020:42)

However, we are still left with the question of why to-clauses are followed by a negative \(q\) more often than other if-clauses. The answer will be obtained by analyzing the semantics of to-conditionals. We will leave a detailed analysis for further research.

6 Conclusion

This study discussed how the semantics of if-adversatives (to-adversatives) arises in Japanese. It is a silent negatively evaluative main clause \(q\) that

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\(^7\) Having optatives as a default may capture the case of English, which does not seem to have if-adversatives (see footnote 1). English may lack cues like to that would induce adversative readings, see the conclusion below.

\(^8\) Another aspect about cues mentioned by Grosz is that cues do not have to be used when a context sufficiently supports the infrequent reading that is intended. A similar argument applies to to. To does not have to be used to create an adversative when it is followed by an overt \(q\).

\(^9\) For other examples with negative main clauses, there are 15 cases with tara, 8 case with ba, and 0 case with nara (Maeda 2020:45).
triggers the adversative meaning of *to*-adversatives. The semantics of *to* per se is not responsible for the adversative meaning of *to*-adversatives. *To* rather serves as a cue for an implicit negative *q*. This allows *to* to be part of *to*-optatives in the overt presence of a positively evaluative *q*.

This line of analysis supports Grosz’s (2012) division of labor between *EX* and *S*. The meaning of *if*-adversatives comes from a speaker-related inverse preference scale *S*. We also follow Grosz in assuming *S* to be contextually determined. Thus, there is just one (scalarly underspecified) *EX* whose definition is adopted for Japanese NAAEX.

The difference between German and Japanese *if*-optatives/adversatives is that the latter always come with a silent *q* under the view argued for by Oda and Wimmer (2021). Data involving ‘because’ clauses, the NPI *annari* ‘much’ and *sae* ‘even/only2(at least)’ support such an analysis. In other words, *if*-optatives/adversatives are implicit conditionals, unlike their English or German counterparts.

There are two issues left. One is to capture *to* as a cue in a formal manner, probably in a game-theoretic framework. The other is to explain in detail why *to*-conditionals host a negatively evaluative *q* more often than other *if*-conditionals in Japanese.

References


The Japanese Verb *Itasu* and its Kin: Dishonorifics (*Kenjōgo* II) vs. Courtesy Honorifics (*Teichōgo*)

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1 Introduction

The treatment of the group of honorific verbs including *Itasu*\(^1\) ‘do’—the “*I*-class verbs” for short—has been a matter of contention in the research on Japanese honorific expressions. The *I*-class consists of the verbs listed in (1). *Itasu* may be used as a light verb in combination with a verbal noun. *Mairu* and *oru* may be used either as a main verb (*MaiR u M*/*Oru M*) or as an auxiliary (*MaiR u A*/*Oru A*).

(1) a. *Itasu* ‘do’  
   b. (i) *MaiRu M* ‘go, come’  
      (ii) *(V-te)* *MaiRu A* ‘keep (V-ing), go to (V) and come back’  
   c. *Mōsu* ‘say’  
   d. *Zonjiru* ‘believe, know’  
   e. (i) *Oru M* ‘(for a sentient entity to) exist, be located’

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\(^1\) Expressions in small capitals refer to lexemes.

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*This work was supported by JSPS KAKENHI Grant Number 21K18359. A portion of the content of the present work is presented also in Oshima (2023a).*
These verbs have been said to have two uses: (i) dishonorifics (*kenjôgo II*) and (ii) courtesy honorifics (*teichôgo*) (Kikuchi 1997, 2022; Oshima 2019).

The two uses are illustrated below, with MAIRU<sub>M</sub>.

(2) a. *Doyôbi wa* {watakushi/Abe} ga *mairimasu*. (dishonorific)
   ‘On Saturday, {I/my colleague} Abe will come here.’

b. *Oya, muku kara* {kodomo/Oda sensei} ga *mairimashita*. (courtesy honorific)
   ‘Oh, {a child/#Dr. Oda} is coming this way.’

Building on data collected through a questionnaire survey, this work makes the following claims. First, the distinction of the two uses, which has not been unanimously accepted, is well-motivated. Second, ITASU, MAIRU<sub>M</sub>, and MÔSU in their dishonorific use have richer meaning than previously acknowledged, and convey that the described eventuality has direct relevance to the addressee. Third, whereas ZONJIRU is invariably used as a dishonorific, MAIRU<sub>A</sub> and ORU<sub>A</sub> are invariably used as a courtesy honorific.

2 The Background Theory of Linguistic Honorification

Based on Oshima (2019, 2021, 2023b), I adopt the following premises regarding honorific meaning expressible with honorific expressions; the term “FIRST-person (= extended-first-person) referent”, inspired by Kikuchi (1997:121), refers to “the speaker and people in his/her domain (family members, work colleagues, etc.)”.

(3) a. The range of respectfulness expressible with honorific expressions is represented as the real-number interval [−1, 1]. The members of this interval are referred to as “honorific values”. The values 1 and −1 correspond to the maximum degrees of honorification (elevation) and dishonorification (lowering).

b. In any given utterance context, the interlocutors and potential referents are assigned honorific values by the context-sensitive function HON. “HON(ken) = 0.3”, for example, means that the speaker considers Ken to be mildly honorable in the context of utterance.

c. A FIRST-person referent cannot be assigned an honorific value exceeding 0 (i.e. cannot be elevated). Only a FIRST-person referent can be assigned an honorific value below 0 (i.e. can be lowered).

3 *Kenjôgo I, Kenjôgo II, and Teichôgo*

Dishonorific (*kenjôgo II*) verbs and courtesy-honorific (*teichôgo*) verbs are subsumed by what has traditionally been called *kenjôgo*, or humbling forms
This section overviews the defining characteristics of the two classes, as well as how they contrast with another class called *kenjōgo* I (ARG2 honorifics).

### 3.1 *Kenjōgo* I Predicates, or ARG2 Honorifics

A *kenjōgo* I predicate (verb or adjective), or an ARG2 honorific, conveys that the referent of its second most prominent complement (after the subject) is honorable, both in absolute terms and in comparison to the referent of the subject (Oshima 2021:118). (4a) involves an ARG2 honorific verb *mōshiageru* ‘say’ and conveys an honorific meaning along the lines of (4b). “0.6” is a tentative threshold value meant to capture the fairly high degree of respectfulness conveyed by *mōshiageru*.

(4) a.  *Tanaka senpai ga Kawai kyōju ni sono yoo ni mōshiageta.*
   ‘My senior colleague Tanaka said so to Professor Kawai.’

   b.  $\text{HON(kawai)} \geq 0.6 \& \text{HON(kawai)} > \text{HON(tanaka)}$

### 3.2 *Kenjōgo* II Verbs, or ARG1 Dishonorifics

*Kenjōgo* II verbs, or ARG1 dishonorifics, have been characterized to convey respect toward the addressee by means of lowering the referent of the subject (Kikuchi 1997:270–272). Elaborating on this idea, Oshima (2019:336) posits discourse principle (5), presented here with some terminological adaptations.

(5) Inversion Principle: The degree of respectfulness that a lexical item $i$ expresses toward the addressee matches the highest of (i) the (positive) honorific value range attributed by $i$ to the addressee and (ii) the additive inverse of the (negative) honorific value range attributed by $i$ to a FIRST-person referent.

The lexical meaning of the ARG1 dishonorific verb *zonjiru* ‘believe, know’ looks like (6). A logical expression of the form $\langle \phi; \psi \rangle$ (the “transjunction” of $\phi$ and $\psi$) represents the combination of at-issue (proffered) content $\phi$ and not-at-issue (non-proffered) content $\psi$ (Oshima 2021).

(6) $\lambda p_1[\lambda e_1[\lambda x_1[\langle \text{believe}(e_1, x_1, p_1); \text{HON}(x_1) \leq -0.5 \rangle]]$

*Zonjimasu* in (7a) involves two honorific features, the verb *zonjiru* and the addressee-oriented honorific morpheme *mas* (which conveys a relatively mild degree of respect), and has an honorific meaning along the lines of (7b). The Inversion Principle makes (7b) practically equivalent to (7c).

(7) a.  *Watashi mo sono yoo ni zonjimasu.*
   ‘I believe so, too.’

   b.  $\text{HON(Speaker)} \leq -0.5 \& \text{HON(Addressee)} \geq 0.3$

(see Kikuchi 2022 for a literature review).
c. **HON(Addressee) ≥ 0.5**

An ARG1 dishonorific contrasts with an ARG2 honorific in that (i) its subject invariably refers to a FIRST-person referent and (ii) it always expresses respect toward the addressee (cf. (4)).

### 3.3 **Teichōgo, or Courtesy Honorifics**

Kikuchi (1997, 2022) maintains that the *I*-class verbs except for *ZONJIRU* have an extended use as a *teichōgo*, which (i) elevates the addressee without lowering the referent of the subject but (ii) contrasts with a “pure” addressee-oriented honorific (like *mas*) in requiring that the referent of the subject be not a person to be elevated. (2b) above and (8) below respectively illustrate the usage of *MAIRUM* and *ITASU* as a courtesy honorific.  

(8) (by a sports announcer)  

300 nin no senshu ga sanka *itashimasu*.  

‘300 athletes will participate (*lit. do participation.*)’ (Kikuchi 1997:264)

In Oshima (2019), the honorific meaning conveyed by (8) is taken to be along the lines of: “**HON(athletes) ≤ 0 & HON(Addressee) ≥ 0.5**.”

It is noteworthy here that, given that a FIRST-person referent cannot be assigned an honorific value exceeding 0 (see (3c)), the prerequisites for the use of a courtesy honorific verb are weaker than those for the use of the corresponding dishonorific verb. One may thus sensibly suspect that putative dishonorific verbs are merely instances of courtesy honorific verbs which happen to have a FIRST-person subject (cf. Ikawa and Yamada 2022).

It appears that the received wisdom that courtesy honorifics are to be distinguished from ARG1 dishonorific has been motivated by the supposition that the former are marked and less typical in comparison to the latter, in terms of frequency and register of use. To my knowledge, however, little empirical data have been put forth in existing studies to endorse this point.

### 4 **Survey**

A web questionnaire survey was administered using the platform Questant\(^3\) in June, 2022. The respondents were men and women in their 30s or 40s residing in Japan. 150 valid responses, 75 each from men and women, were obtained, after 66 responses were screened out that were suspected to be insincere.

The survey included 28 questions of the form given in (9), which shows the

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\(^2\) Kikuchi uses the term *teichōgo* to refer to an atypical use of *kenjōgo* II verbs. His “*kenjōgo* II verbs” thus do not exactly match my “ARG1 dishonorifics”, which specifically refer to verbs that dishonorify (lower) the referent of the subject.

\(^3\) [https://questant.jp/](https://questant.jp/) (checked on May 1, 2023)
respondent a pair of (i) a sentence with an I-class honorific verb ("H-item") and (ii) one minimally contrasting with it in having a corresponding non-honorific verb—e.g. SURU 'do' for ITASU—instead ("N-item"). Some stimuli sentence pairs were accompanied by a brief explanation of the context. The questions and stimuli sentences were shown to each respondent in a different randomized order.

(9) Instructions: For each of the following two sentences, please select all of the options that you believe to hold true. "A person to be honored" refers to, for example, a superior at one’s workplace, a senior colleague, a customer, a teacher, or an examiner. Please evaluate whether the sentence “might be uttered” in terms of wording, rather than in terms of topic/content.

Sentence Pair (example):
1. Shūkeisagyo wa, watashi ga itashimasu. (H-item)
2. Shūkeisagyo wa, watashi ga shimasu. (N-item)

Options:
A You might utter this sentence when talking to a person to be honored.
B People around you might utter this sentence when talking to a person to be honored.
C Neither applies.

The proportion of the respondents who chose option A or B (or both) can sensibly be taken as an indicator of the degree of unmarkedness/typicality of the item. This proportion will be referred to as the “acceptability rate (AR)”. “The AR of an H-item minus the AR of the corresponding the N-item” will be referred to as “relative acceptability (RA)” of the H-item.

Some of the stimuli sentence pairs are discussed in some detail in the next section, but for reason of space, most of them are presented only in Appendix, along with their ARs/RAs. A fuller presentation can be found in Oshima (2023a).

5 Analysis

5.1 ITASU, MAIRU_M, and MŌSU and the Relevance Condition

The H-items with ITASU in (10a,b) exhibited high ARs (over 80%) and RAs (over +15p.p. (percentage points)).

(10) a. Shūkeisagyo wa, watashi ga {itashimasu/shimasu}.
   ‘I will do the tallying.’
b. Kizai wa watashi ga kinō tenken {itashimashita/shimashita}.
‘I checked the equipment yesterday.’

The H-items in (11a,b), where the subject does not refer to a FIRST-person entity (so that ITASU cannot be interpreted as a dishonorific), had significantly lower ARs/RAs.

(11) a. Donna ni chūibukai hito demo toki ni wa misu o {itashimasu/shimasu}.
‘Even very careful people sometimes make mistakes.’
H: 47.3%, N: 82.0%, H−N: −34.7p.p.

b. 1964 nen no Tōkyō Orinpikku ni wa 94 no kuni/chiiki no senshu ga sanka {itashimashita/shimashita}.
‘Athletes from 94 countries and regions participated in the 1964 Tokyo Olympics.’

This lends empirical support to Kikuchi’s (1997) supposition that the courtesy-honorific use of ITASU is perceived to be atypical/marked in comparison to the dishonorific use.

Interestingly, the H-items in (12a,b) had fairly low ARs/RAs, despite their subject referring to the speaker.

(12) a. Watashi wa konshūmatsu, yūjin no hikkoshi no tetsudai o {itashimasu/shimasu}.
‘I will help my friend move to a new house in the weekend.’
H: 54.0%, N: 68.0%, H−N: −14.0p.p.

b. Watashi wa 8 ji no tokkyū ni jōsha {itashimashita/shimashita}.
‘I took the express train at 8 o’clock.’

I propose that ITASU as a dishonorific conveys that the described eventuality has direct relevance to the addressee. The semantic representation in (13a) integrates this feature, which will be referred to as the “Relevance Condition” hereafter; $R$ stands for a contextually prominent relation that counts as direct relevance.

(13) The two senses of ITASU

a. $\lambda e_2[\lambda x[\lambda e_1(\langle do(e_1, x, e_2); HON(x) \leq −0.5 \& \exists R[R(e_1, \text{Addressee})])]])$ (dishonorific)

b. $\lambda e_2[\lambda x[\lambda e_1(\langle do(e_1, x, e_2); HON(x) \leq 0 \& HON(\text{Addressee}) > 0.5)]]]$ (courtesy honorific)
(10a, b) are naturally taken to describe an eventuality (action) that benefits—and thus has significant relevance to—the addressee. The eventualities described in (12a, b), on other hand, are likely understood not to have direct relevance to the addressee. Accordingly, ITASU is more plausibly interpreted as a courtesy honorific, which is stylistically marked. It bears noting here that the eventuality described by dishonorific ITASU need not be one that benefits the addressee; that a sentence like (14) is utterly natural evidences this point.

(14) Sumimasen, shitsurei na koto o itashimashita.
‘My apologies, I was rude (lit. did a rude thing).’

The items involving MAIRU_M and MŌSU exhibited patterns similar to those involving ITASU (see [7–11, 13–17] in Appendix). Thus, they can be regarded as patterning the same as ITASU, typically being used as a dishonorific, which is subject to the Relevance Condition, and less typically as a courtesy honorific.

(15) The two senses of MAIRU_M
a. \( \lambda y [\lambda x [\lambda e_1 [\{ \text{move-to}(e_1, x, y); \text{HON}(x) \leq -0.5 \& \exists R[R(e_1, \text{Addressee})]]]]] \) (dishonorific)

b. \( \lambda y [\lambda x [\lambda e_1 [\{ \text{move-to}(e_1, x, y); \text{HON}(x) \leq 0 \& \text{HON(Addressee)} > 0.5 \}]]] \) (courtesy honorific)

(16) The two senses of MŌSU
a. \( \lambda u_1 [\lambda x [\lambda e_1 [\{ \text{say}(e_1, x, u_1); \text{HON}(x) \leq -0.5 \& \exists R[R(e_1, \text{Addressee})]]]]] \) (dishonorific)

b. \( \lambda u_1 [\lambda x [\lambda e_1 [\{ \text{say}(e_1, x, u_1); \text{HON}(x) \leq 0 \& \text{HON(Addressee)} > 0.5 \}]]] \) (courtesy honorific)

5.2 ZONJIRU
The survey data ([18–22]) were consistent with Kikuchi’s (1997:313) claim that ZONJIRU lacks a use as a courtesy honorific, and thus invariably requires that their subject be a FIRST-person entity.

The data furthermore revealed that the effect of the Relevance Condition is rather mild for ZONJIRU (as a dishonorific) in comparison to ITASU, MAIRU_M, and MŌSU. This suggests that, for a good number of speakers, the relatively simple semantic representation of ZONJIRU along the lines of (6) above is appropriate (see Oshima 2023a:30 for further discussion).

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4 An H-item involving MŌSU as the main-clause predicate, namely [13], exhibited an AR and an RA that are relatively low; why this may be the case is discussed in Oshima (2023a:31).
5.3 ORU

There is a great deal variation in the usage of the verb ORU, across speakers and dialects (Kikuchi 1997:318–322). In Standard Japanese and its close variants, however, ORU occurring (i) in a finite form and (ii) in combination with the addressee-oriented honorific morpheme mas (e.g. orimashita) can sensitively regarded as an I-class honorific. With Kikuchi (1997), I consider that ORU conveys a milder degree of respect than other I-class verbs.

The survey data ([23–26]) suggest (i) that ORU, like ITASU, etc., has both dishonorific and courtesy-honorific uses, with the latter being marked, and furthermore (ii) that ORU as a dishonorific is not subject to the Relevance Condition. The two senses of ORU as an I-class verb thus look like (17); note that the verb conveys, as a not-at-issue content, that its subject refers to a sentient entity.

(17) The two senses of ORU

a. \( \lambda x[\lambda e_1[\langle \text{exist}(e_1, x); \text{sentient}(x) & \text{HON}(x) \leq -0.4 \rangle]] \) (dishonorific)

b. \( \lambda x[\lambda e_1[\langle \text{exist}(e_1, x); \text{sentient}(x) & \text{HON}(x) \leq 0 & \text{HON(Addrressee)} > 0.4 \rangle]] \) (courtesy honorific)

5.4 MAIRU_A and ORU_A

The ARs and RAs of the H-items with MAIRU_A or ORU_A were generally high, regardless of whether their subject is FIRST-person or not ([12, 27, 28]). This suggests that these items only have a use as a courtesy honorific, which, in the absence of the competing use as a dishonorific, is perceived to be unmarked.

6 Conclusion

It was discussed that it is sensible to admit two distinct uses of the I-class verbs (except for ZONJIRU): ARG1 dishonorifics and courtesy honorifics. It was furthermore argued (i) that some dishonorific verbs—ITASU, MAIRU_M, and MŌSU, to be specific—convey that the described eventuality has direct relevance to the addressee, and that (ii) while ZONJIRU is a “pure ARG dishonorific”, MAIRU_A and ORU_A are “pure courtesy honorifics”.

It is noteworthy that the Relevance Condition posed on some ARG1 dishonorifics may reflect the historical connection between ARG1 dishonorifics (kenjōgo II) and ARG2 honorifics (kenjōgo I). It is said that at least some ARG1 dishonorifics historically developed from ARG2 honorifics (Kikuchi 1997:323–324). With an ARG2 honorific, the target of honorification must be involved in the described eventuality as a participant; in other words, the eventuality must be relevant to the honorified individual in a rather strong sense. It seems reasonable to hypothesize that the Relevance Condition is a weaker version, or perhaps a residue, of the stronger “Involvement Condition” for ARG2 honorifics.
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Appendix: The Stimuli Sentences in the Survey and the Results Obtained

- \( n\% \) = the AR of the item; \( n\text{p.p.} \) = the RA (of the H-item) of the item pair
- Feature \([-f]\) specifies whether the subject of the item refers to a FIRST-person entity; feature \([-r]\) specifies whether the item is naturally understood to meet the Relevance Condition.

\textbf{ITASU:} [1] Shūkai saygō wa watashi ga \{itashimasu [81.3\%] / shimashu [60.0\%]\}. \(+21.3\text{p.p.,} \,+f,+r\); [2] Kiizai wa watashi ga kinō tenken \{itashimashita [81.3\%] / shimashita [63.3\%]\}. \(+18.0\text{p.p.,} \,+f,+r\); [3] Watashi wa konshūmatu, yūjin no hikkoshi no tetsudai o \{itashimasu [54.0\%] / shimashu [74.7\%]\}. \(−20.7\text{p.p.,} \,+f,−r\); [4] Watashi wa, 8 ji no tokkyū ni jōsha \{itashimashita [59.3\%] / shimashita [73.3\%]\}. \(−14.0\text{p.p.,} \,+f,−r\); [5] Donna ni chūbakai hito demo, toki ni wa misu o \{itashimasu [47.3\%] / shimashu [82.0\%]\}. \(−34.7\text{p.p.,} \,+f,−r\); [6] 1964 nen no Tōkyō Orinpikku ni wa, 94 no kuni/chūki no senshu ga sanka \{itashimashita
Koko sūnen, tōnan jiken no kensū wa kanari genshō shite iru; kore kara haha no tokoro ni mairimasu [58.0%] / ikimasu [71.3%]. (−13.3pp., [+f,−r]); [11] Sono kissaten wa sorenari ni ninki ga ari, kyaku ga mainichi 100nin kurai mairimashita [29.3%] / kimashita [80.0%]. (−50.7pp., [−f,−r]); MAIRU A: [12] Saikin wa daibu samoku natte mairimasu [69.3%] / kimashita [66.7%]. (+2.7pp., [−f,−r]); MÔSU: [13] Sumimasen, yokei na koto o mōshimashita [66.0%] / iimashita [65.3%]. (+0.7pp., [+f,+r]); [14] Senshū mōshimashita [87.3%] / iimashita [42.0%] yō ni, raigetsu kara shichōsha no kaichiku kōji ga hajimarimasu. (+45.3pp., [+f,+r]); [15] Watashi wa chichi ni sō mōshimashita [52.7%] / iimashita [74.7%]. (−22.0pp., [+f,−r]); [16] Watashi wa sono toshokan’in ni “Sono hon wa senshū henkyaku shita hazu desu, kakunin shite moraemasen ka” to mōshimashita [61.3%] / iimashita [71.3%]. (−10.0pp., [+f,−r]); [17] Pasa-karu wa “Ningen wa kangaeru ashi de aru” to mōshimashita [32.7%] / iimashita [84.7%]. (−52.0pp., [−f,−r]); ZONJIRU: [18] (Satō toiu jinbutsu ni taishite) Satō san ga kurashikku ongaku o osuki na koto wa, watashi mo zonjite [78.7%] / shitte [60.0%] orimashita. (+18.7pp., [+f,+r]); [19] (Suzuki toiu jinbutsu ni taishite) Suzuki san ga nyūin sarete ita koto wa, watashi wa mattaku zonjimasen [76.0%] / shirimashen [64.7%] deshita. (+11.3pp., [+f,+r]); [20] Kinnen, Hokkyoku no kōri ga genshō shite iru koto wa, watashi mo zonjite [66.7%] / shitte [69.3%] orimashita. (−2.7pp., [+f,−r]); [21] Eki no chikuakku ni atarashiku shoppingu mōru ga dekita koto wa, watashi wa mattaku zonjimasen [66.0%] / shirimashen [74.7%] deshita. (−8.7pp., [+f,+r]); [22] Yononaka no taitei no hito wa, raïtâ wa mochiron, matchi no tsukurikata mo zonjimasen [29.3%] / shirimashen [85.3%]. (−56.0pp., [−f,−r]); ORU A: [23] Nanika toraburu ga okoru kanōsei mo arimasu node, 6 ji made wa watashi ga koko ni orimasu [72.7%] / imasu [63.3%]. (+9.3pp., [+f,+r]); [24] Watashi wa, kinō wa toku ni gaihetsu wa shinaide itakku ni orimashita [77.3%] / iimashita [64.7%]. (+12.7pp., [+f,−r]); [25] Kyōito ni wa daigakusei ga takusan orimasu [57.3%] / imasu [79.3%]. (−20.0pp., [−f,−r]); [26] Mukashi wa, kono atari ni mo kuma ya shika ga takusan orimashita [52.7%] / iimashita [75.3%]. (−22.7pp., [−f,−r]); ORU A: [27] Watashi wa, saikin wa 10 ji mae ni shōshin suru yō ni kokerogakete orimasu [79.3%] / imasu [64.0%]. (+15.3pp., [+f,−r]); [28] Koko jūnen, tōnan jiken no kensū wa kanari genshō shite orimasu [74.7%] / imasu [64.7%]. (+10.0pp., [−f,−r])
Accusative Case without Agree*

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1 Introduction
Since Chomsky (2000), Case assignment via Agree has been widely assumed, and Japanese is no exception in this respect (Hiraiwa 2005, Nomura 2005, Takahashi 2011 and Ura 2007). However, there is another strategy to assign a case (not a Case) to a DP, which is also widely discussed since Marantz (1992). Namely, case assignment is purely morphological, consulting c-command relations of multiple DPs in a given case-competition domain. The aim of this paper is rather modest: we will argue that the morphological approach to case assignment is needed at least for a certain set of Japanese adjectives whose (theme) argument can bear an accusative case.

2 Accusative Case and Adjectives
Adjectives like suki-da ‘be fond (of)’ or kirai-da ‘be averse (to)’, which Nishiyama (1999) calls Nominal Adjectives (NAs), allow their theme argu-

* Koji Shimamura is supported by the Grants-in-Aid for Scientific Research (KAKENHI) Grant Number 20K13017, and Takayuki Akimoto is supported by the Grants-in-Aid for Scientific Research (KAKENHI) Grant Number JP22K13104. We express our gratitude to all the audience at the 30th Japanese/Korean Linguistics Conference.
ment to get an accusative case when embedded in a relative clause as in (1a), or an embedded question as in (1b). However, as (1c) shows, it sounds very awkward in the matrix context.

(1)  
   a. [ Taroo-ga Hanako-{o/?ga} suki-na ] riyuu-wa  
      Taro-NOM Hanako-ACC/NOM fond-COP.ADN reason-TOP  
      nani.  
      what  
      ‘What is the reason why Taro likes Hanako?’
   b. Boku-wa [ Taroo-ga Hanako-{o/?ga}  
      I-TOP Taro-NOM Hanako-ACC/NOM  
      suki(-na-no)-ka ] sit-tei-ru.  
      fond-COP.ADN-NMLZ-Q know-ASP-PRES  
      ‘I know if Taro likes Hanako.’
   c. Taroo-wa Hanako-{ga/?o} suki-da.  
      Taro-TOP Hanako-NOM/ACC fond-COP.PRES  
      ‘Taro likes Hanako.’

Fukuda (2020) recently discusses similar cases, arguing that a Voice that can assign an accusative Case is possible for a certain set of adjectives including suki-da and kirai-da, and he gives (2). We do not find the accusative option in (2) as bad as that in (1c), although it sounds a bit unnatural to us.

(2)  
   Sono otokonoko-wa ano on’nanoko-{ga/o} [suki/kirai]-da-ta.  
   this boy-TOP that girl-NOM/ACC like/dislike-COP-PAST  
   ‘This [liked/disliked] that girl.’ (Fukuda 2020:133)

Then, we raise two questions: (i) why in the first place the accusative option becomes available for a certain set of adjectives and (ii) why there is a variety in judgment, especially with or without embedding. If one wants to stick to any Agree-based approach like Fukuda (2020), s/he has to assume that Agree becomes possible when a given adjective is embedded, which seems unattractive. We thus propose a different approach without Agree.

3 Proposal

To explain the above examples, we propose with Baker (2015), Bobaljik (2008) and Marantz (1992) among others that the accusative case can be assigned as a morphological case post-syntactically. To be more specific, we argue with Baker and Vinokurova (2010) that NAs, composed of a nominal stem and a copula, constitute a phase, and that morphological case assignment is carried out on the Spell-Out basis (Baker 2015). Also notable is the fact that when the accusative case is chosen (or preferred) the case on the subject is nominative as (1a) and (1b) illustrate, so we argue that the nomina-
ative subject stays inside the copular VP, and the topic-marked subject moves to Spec-TP (Miyagawa 2009). Then, (1a)/(1b) and (1c) are structured as (3a) and (3b), respectively.

(3) a. \[ TP \quad [vp \text{Taro-NOM Hanako-}\{\text{ACC/}\text{NOM-}\} \text{fond-be } ] \quad \text{reason/Q} \]

\[
\text{Spell-Out Domain} = \text{Case Competition Domain}
\]

b. \[ TP \text{Taro-TOP } [vp \text{ Hanako-}\{\text{NOM/}\text{ ??ACC-}\} \text{fond-be } ] \]

\[
\text{Spell-Out Domain} = \text{Case Competition Domain}
\]

In (3a), the subject and the object are in the same Spell-Out domain; we assume that Spell-Out applies to the entire VP, not the complement of VP, at least for morphological Spell-Out (Fox and Pesetsky 2005). In contrast, in (3b), the subject moves to Spec-TP, so that the subject and the object do not share the same Spell-Out domain, so a nominative case is assigned to the object; following Baker (2015), we assume that the nominative case is assigned via Agree with T (Chomsky 2000), and that VP is still visible syntactically (Fox and Pesetsky 2005). In this way, the proposed analysis explains the contrast between (1a)/(1b) and (1c).

Note that (1a) and (1b) still somehow allow a nominative case on the object. This means that T can also Agree with it. Thus, the object gets both accusative and nominative cases, so we assume that either of them will morphologically surface. The slight deviancy of the nominative object in (1a) and (1b) should be the ambiguity of which person is the subject/object of the sentence. If we replace the object by an inanimate one, the nominative option becomes perfect.

(4) \[ \text{Taro-ga eego-no benkyoo-}\{\text{o/ga} \text{ suki-na } \text{study-ACC/NOM fond-COP.ADN} \text{riyuu-wa nani.}} \]

\[
\text{reason-TOP what}
\]

‘What is the reason why Taro likes studying English?’

Relevant to this sort of multiple case-assignment to a single DP, there are cases where both case morphemes can show up, as we will see in Section 4.2.

4 Consequences

4.1 Topicalized Subject and Accusative Object

As (1c) shows, the accusative option is not totally ungrammatical, and speakers exhibit variation in its acceptability. Relevant to this point, (2) sounds much better than (1c). However, if we put a stress on the object to highlight the person who Taro likes (e.g. in comparison to others), the following sentence with an accusative object becomes better:
In this connection, the object in (2) has a demonstrative, so that it is specific/definite. Then, suppose that definiteness and (contrastive) focushood require (or at least prefer) object shift (cf. Lasnik 1995). Then, the object in (2) and (5) moves out of VP, so even if the subject moves to Spec-TP, both of them are in the same Spell-Out domain, hence the accusative case on the object.

4.2 Case-stacking

In our analysis, the object gets a case (accusative) and a Case (nominative). Although rare, there are languages where multiple cases appear on one DP (Levin 2017, Pesetsky 2013, Richards 2013), and Japanese also allows case-stacking when a given DP bears a focus particle -dake ‘only’.

Though not all Japanese speakers accept case-stacking, we find (6) marginally possible. The morphological order between two c/Case particles is determined by the order of their assignments: let us assume that -dake can be late-inserted (Shibata 2015), and that the source of the nominative Case is C (cf. Chomsky 2008, Johnson 1991). Under our analysis, (6) is structured as follows:

\[
(7) \begin{array}{c}
\text{[CP [TP Taro-\text{TOP} Hanako-\text{ACC} [VP fond-be ] \text{C[}\text{NOM}\text{]} ]]} \\
\text{Spell-Out Domain = Case Competition Domain}
\end{array}
\]

In (7), the entire TP constitutes a Spell-Out domain and hence a case competition domain, and Taro c-commands Hanako, so that the latter gets a morphological accusative case. However, TP is still available syntactically. Therefore, only can be late-inserted, and a nominative Case can be assigned to the object via Agree as in (8). When CP is Spelled-Out, we get case-stacking in (6). Probably, this sort of complex procedure leads to the somewhat degraded grammaticality of case-stacking.

\[
(8) \begin{array}{c}
\text{[CP [TP Taro-\text{TOP} Hanako-\text{ACC-only-NOM} [VP fond-be ] \text{C[}\text{NOM}\text{]} ]]} \\
\text{Agree}
\end{array}
\]
4.3 Accusative Object in Matrix Clause

Interestingly, even in the matrix context, we can have an accusative case when the subject bears a nominative Case as in (9), where the nominative option for the object sounds awkward. This means that the subject stays inside the copular VP, so that case competition applies, leading to an accusative case on Hanako.\(^1\)

(9) Dare-ga Hanako{-o/ga} suki-na-no.
    who-NOM Hanako-ACC/NOM fond-COP.ADN-Q
    ‘Who likes Hanako?’

4.4 Canonical Adjectives and Accusative Object

In (10), we have *kowa-i* ‘(be) afraid’, one of the Canonical Adjectives (Nishiyanmaya 1999). Even if embedded, an accusative object still sounds difficult.

(10) [ Taroo-ga hebi-{ga/??o} kowa-i ] riyuu-wa nani.
    Taro-NOM snake-NOM/ACC afraid-PRES reason-TOP what
    ‘What is the reason why Taro is afraid of snakes?’

For (10), it may be possible to buy the idea by Baker (2015) and Landau (2009) that the experiencer subject is covertly a PP, i.e. \([\text{PP DP} P]\). Thus, the subject DP, contained in the PP structure, does not c-command the object DP. In fact, the experiencer can be a dative subject (cf. Ura 2000):

(11) [ Taroo-ni hebi-{ga/*o} kowa-i ] riyuu-wa nani.
    Taro-DAT snake-NOM/ACC afraid-PRES reason-TOP what
    ‘What is the reason why Taro is afraid of snakes?’

However, a quick Google search brings us quite a few examples with an accusative object such as the following:

(12) a. [ dansei-ga unten-o kowa-i ] riyuu to gen’in
guy-NOM driving-NOM afraid-PRES reason and cause
    ‘(the) reason and cause due to which guys are afraid of driving’

b. [ hoikusi-ga tensyoku-o kowa-i
nursery.school.teacher-NOM change.of.job-ACC afraid-PRES
] riyuu
    reason
    ‘(the) reason why nursery school teachers are afraid of changing their jobs’

\(^1\) Another possibility to analyze (9) is to assume with Shimoyama (2001) that -no is not an interrogative complementizer but a usual nominalizing suffix, and that there is a hidden structure that is responsible for the interrogative interpretation.
This may imply that there are speakers who still realize their experiencer argument as a DP.

5 Reconsidering Fukuda (2020)

As we noted above, Fukuda (2020) claims that there are kinds of NAs in Japanese that are selected by a Voice. Therefore, an accusative object is possible. He, however, assumes two types of Voice: one that assigns an accusative Case, and the other that does not assign the relevant Case. This is because there are NAs that obligatorily select an accusative object or nominative object. For example, Fukuda mentions NAs that he calls the verbal noun (VN) and the deverbal noun (DN). Observe:

   Taro-TOP Europe-ACC/NOM visit-COP.PRES
   ‘Taro will visit Europe.’
   
   this.place-at rent-a-car-ACC/NOM receipt-COP.PAST
   ‘(I) received a rental car here.’

   (Fukuda 2020:139)

(14) a. Taroo-wa Hanako-[ga/*o] simpai-da
   Taro-TOP Hanako-NOM/ACC worry-COP.PRES
   ‘Taro is worried about Hanako.’

   b. Taroo-wa Hanako-[ga/*o] meewaku-da
   Taro-TOP Hanako-NOM/ACC bothersome-COP.PRES
   ‘Taro found Hanako bothersome.’

   (Fukuda 2020:139)

In (13), the nominative option is bad whereas the accusative one is excluded in (14).

However, when we embed the NAs in (14), the accusative object in fact sounds more natural.

(15) a. [ Taroo-ga Hanako-[o/*ga] simpai-na ] riyuu-wa
   Taro-TOP Hanako-ACC/NOM worry-COP.ADN reason-TOP nani.
   what
   ‘What is the reason why Taro is worried about Hanako?’

   b. [ Taroo-ga Hanako-[o/*ga] meewaku-na ] riyuu-wa nani
   Taro-TOP Hanako-ACC/NOM bothersome-COP.ADN reason-TOP what
   ‘What is the reason why Taro found Hanako bothersome?’
Therefore, contra Fukuda’s observation, the accusative object is still possible for the adjectives in (14). In contrast, the issue (13) poses to us is not the same as what we have just seen regarding (14), since the accusative object is obligatory even if the subject is topic-marked. Then, we may assume with Fukuda that there is a Voice that assigns an accusative Case as in (16). This analysis does not hinge on anything but only on the Voice that has [ACC] for its Case specification. Then, what is predicted is that even if we take the copular V and T away from (16), the accusative object is possible. This however seems impossible as in (17).

(16)

(17) [ Taro-\{no/*ga\} yooroppa-\{no/*o\} hoomon ]-ga
    Taro-GEN/NOM Europe-GEN/NO visit NOM
    hookoku-s-are-ta.
    report-do-PASS-PAST
    ‘That Taro visited Europe was reported.’

Fukuda is, in a sense, aware of this issue, since he cites a similar example from Tsujimura (1992). However, his analysis in (16) does not say anything about how to exclude (17). One way to supplement his analysis in this respect is to assume with Kishimoto (2006) that licensing an accusative Case requires the presence of T, and the presence of the copula -da indicates that T is involved in the structure.

However, there is still another issue. As Kageyama (1982) and Tsujimura (1992) among others point out and Fukuda himself provides the relevant data,
the accusative object is possible in the following example:

(18) John-wa gakui-o syutoku-go nihon-e ki-ta.
    John-TOP degree-ACC obtaining-after Japan-to come-PAST
    ‘John came to Japan after obtaining his degree.’ (Fukuda 2020:130)

This example is not considered to involve any instances of T, unless we assume some covert one. Should we do so, we would be challenged by the ungrammaticality of (19).

(19) [ Hakase-no gakui-[no/*o] syutoku-go ]-ga
    Ph.D.-GEN degree-GEN/ACC obtaining-after -NOM
dai-zi-da.
    important-COP.PRES
    ‘It is important what we will do after obtaining a Ph.D. degree.’

In (18), the accusative object appears in the adjunct whereas in (19) it is inside the argument, i.e. the subject. It should be very speculative and ad hoc if we assume that a covert T is possible for the former but not for the latter. Therefore, it should be safe to assume that there is no TP projected when a copula is not present,\(^2\) and that the grammaticality of (18) has a different source. Then, we suggest that our analysis based on morphological case may come to the rescue. To be specific, the relevant adjunct items are visible for the c-command relation, so that the accusative object will be licensed as in (20), where the embedded object is c-commanded by the matrix subject. Admittedly, this possibility needs to be elaborated more, but we suggest that this may constitute another case where we need the morphological licensing of an accusative case.

\(^2\) *Syutoku* ‘obtaining’ can be followed by -da, and its object must be marked by an accusative case.

(i) Taro-wa kotosi hakase-no gakui-[o/*ga] syutoku-da.
    Taro-TOP this.year Ph.D.-GEN degree-ACC/NOM obtaining-COP.PRES
    ‘Taro will obtain his Ph.D. degree this year.’
6 Conclusion

We have seen that there are NAs that can license an accusative case, which is contingent on whether a given NA is embedded or not. This disparity should not be understood in terms of the availability or unavailability of Agree as we have argued. Rather, morphological case assignment can explain the relevant data, and there should be at least two modes of realizing an accusative case morphologically: the accusative “Case” and “case”.

References


Nouniness, Factive and Implicative Readings: Japanese Wasre- (‘Forget’) *

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1 Introduction
This paper is about the Japanese verb wasre- (‘forget’) in construction with sentential koto- and no-arguments (= tensed clauses followed by koto / no).

(1) nom-u { koto / no }-o wasure-ta-ri, non-da { take-PRES { koto / no }-ACC forget-PAST-CONNECTOR take-PAST { koto / no }-o wasure-nai yoo-ni su-ru. koto / no }-ACC forget-NEG yoo-ni do-PRES
‘Do not forget to take it [the medicine], nor forget having taken it.’
[Instructions on taking medication, BCCWJ]

Like forget in English, wasre- can have factive and implicative readings when it combines with sentential arguments. We introduce these notions in detail in the next section. The empirical goal of this paper is to explore the

*This research is supported by the JSPS Core-to-Core Program, A. Advanced Research Networks “International Research Network for the Human Language Faculty” (#JPJSC-CAJ221702004).

Japanese/Korean Linguistics 30.
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frequency of these readings based on a corpus study in relation to (a) different argument-types (koto- vs. no-arguments) and (b) different temporal and aspectual forms in the embedded clause (mainly: present vs. past). Given our findings, we discuss different options for their analysis with a focus on koto. Our tentative conclusion is that the different readings can be traced back to a flexibility in the lexical meaning of wasure- that is conceptually restricted by the choice of tense/aspect forms in the embedded clause. Both koto- and no-arguments are semantically neutral with respect to factive and implicative readings. There is nonetheless a tendency that no-arguments are preferred over koto-arguments in expressing implicative readings. This may be due to the different roles that koto- and no-arguments play elsewhere in Japanese.

2 Background: Implicative and Factive Readings With Forget

The English verbs claim and forget can both combine with finite that-clauses and with infinitival to-clauses, as illustrated in (2) and (3), respectively.

(2) a. Sue claims that she is taking the medicine.
    b. Sue claims PRO to be taking the medicine.

(3) a. Sue forgot that she is taking the medicine.
    b. Sue forgot PRO to take the medicine.

There are crucial semantic differences between the pairs in (2) and (3): First, while the sentences in (2) may be used to express the same truth conditions in a given context; the sentences in (3) report the forgetting of different things: (3-a) reports that Sue forgot a certain fact, namely, that she was taking the medicine; (3-b) reports that Sue forgot to perform a certain action, namely, the action of taking the medicine. Second, while both sentences in (2) neither entail nor presuppose the truth of their complement; the sentence in (3-a) presupposes the truth of its complement; the sentence in (3-b) entails its falsity.

(4) FACTIVE INFEERENCE PATTERN
    a. Sue forgot that she was taking the medicine.
       ⇝ ‘Sue was taking the medicine.’
    b. Sue didn’t forget that she was taking the medicine.
       ⇝ ‘Sue was taking the medicine.’

(5) (NEGATIVE) IMPLICATIVE INFEERENCE PATTERN
    a. Sue forgot to take the medicine. ⇝ ‘Sue didn’t take the medicine.’
    b. Sue didn’t forget to take the medicine. ⇝ ‘Sue took the medicine.’

The alternation between a knowledge-related factive interpretation and an action-related (negative) implicative interpretation, as we find it for English forget, we want to call “Fact/act-alternation”.
If we try to relate the Fact/Act-Alternation in English to grammatical properties of the complement clauses, we find that there are two grammatical dimensions that have influence on the semantic interpretation: (a) the choice of COMPLEMENT-TYPE and (b) the choice TENSE/MOOD AND ASPECT in the embedded clause. A valid generalization with respect to the choice of complement-type seems to be: G1 The use of a finite 'that'-clause excludes implicative readings. To generalize that infinitivals exclude factive readings, on the other hand, may be too strict. In German, where the grammatical facts are very similar to English, we do find infinitivals that clearly are knowledge- and not action-related and seem to introduce a fact rather than an action.

(6) Denn das Meer ist so ruhig und die Disney Magic mit 83000 Tonnen so kolossal, dass man unterwegs schon mal vergessen kann, auf einem Schiff zu sein. Die Zeit, 09.03.2000, Nr. 11
literally: 'Because the sea is so calm and the Disney Magic with 83000 tons so colossal that you can sometimes forget to be on a ship (= that you are on a ship).'

(7) Frisch geschieden, wollen viele am liebsten vergessen, jemals verheiratet gewesen zu sein. Die Zeit, 05.08.1994, Nr. 32
literally: ‘Newly divorced, many would like to forget to ever have been married (= that they were ever married).’

With respect to TENSE/MOOD AND ASPECT, we have to note another difference between the sentence pairs in (2) and (3): While the sentences in (2) both feature progressive forms in the embedded clause, only the sentence in (3-a) features a progressive form. If we change the verbal form in (3-b) to a progressive form, resulting in (8), the sentence sounds marked and a factive reading becomes more salient.

(8) ??Sue forgot to be taking the medicine.

What the sentences in (6)-(8) seem to have in common is that the predicates in the embedded clause exclude an interpretation as an intended action either by their lexical meaning, (6), or by their temporal/aspectual form, (7) and (8). A valid generalization seems to be: G2 If an embedded predicate excludes an interpretation as an intended action by its lexical meaning or its temporal/aspectual form, then it excludes an implicative interpretation. The reason for this is conceptual in nature: Implicative readings relate to intended actions. If the lexical meaning or the grammatical form of the predicate excludes reference to an intended action, an implicative reading is unavailable.
3 Motivation for a Corpus Study

The example in (1) already suffices to illustrate that we find the same Fact/Act-alternation for wasure- in Japanese as we find for forget in English. Different from English, neither the choice of a koto- nor of a no-argument already decides in favour of one reading over the other. In fact, in the example in (1) koto and no seem to be interchangeable. This is particularly surprising for koto-arguments since koto-arguments are typically associated with factivity and sometimes are even analysed as having the lexical meaning ‘the fact that’.

If we assume that the choice between sentential koto- and no-arguments belongs to the grammatical dimension COMPLEMENT-TYPE, we have to conclude that the grammatical dimension COMPLEMENT-TYPE is not as decisive a category in Japanese as it is in English. Neither koto- nor no-arguments seem to have the disambiguating effect of a finite that-clause in English.

The goal of our empirical study is therefore to explore (a) whether there is nevertheless a tendency for koto- or no-arguments to favour an implicative or factive reading and (b) whether there is confirmation for the similarity to English and German in the grammatical dimension TENSE/MOOD AND ASPECT, as we would expect it on the assumption of its conceptual nature. We focus on the temporal interpretation.

4 Corpus Study

We report data of wasure-related occurrences from the Balanced Corpus of Contemporary Written Japanese, BCCWJ (Maekawa et al., 2014) and the Corpus of Everyday Japanese Conversation, CEJC (Koiso et al., 2022). We also searched wasure-related utterances in child corpora (CHILDES), specifically MiiPro Corpus (Miyata, 2012a) and Miyata Corpus (Miyata, 2012b) to report implications.

We found 2181 occurrences of wasure- in BCCWJ and CEJC. We coded the data according to the part of speech of the complement (noun, verb stem, or finite clause), tense information of verb if finite clause (present or past), the use of koto or no, and the interpretation (factive or implicative). The results from 1148 relevant occurrences, which contain a finite clause in its complement, are shown in the following table and the figure.¹

---

1 An example of “minority”-type, V-PRES-no-ACC wasure on a factive reading:

(i) Mado-o akete-iiru-no-o wasurete fuufu genka-o sita-ra, […]
window-ACC open-STATIVE-no-ACC forget marital quarrel-ACC did-when […]
oowarai sare masi-ta. (BCCWJ)
big:laughter PASSIVE polite-PAST

‘We forgot that the window was open and had a marital quarrel, then we had the neighbor laugh out loud.’
All the instances where the past tense is used in the complement had the factive reading, regardless of the use of *koto or no*. This is in agreement with G2 from above. Besides that, we observe several things: First, we found more occurrences with present tense than with past tense in the complement of *forget* in the BCCWJ and CEJC corpora. Secondly, our corpus study confirms that both *koto* and *no* are compatible with both factive and implicative readings. Furthermore, we found that *koto* has a tendency for factive readings while *no* has a tendency for implicative readings. Finally, we note that there were relatively more factive interpretations in BCCWJ and CEJC combined.

The MiiPro corpus and the Miyata corpus contain data from four children and surrounding adults and three children and surrounding adults, respectively. The children’s ages range from one year and two months to five years old (MiiPro) and one year and three months to three years old (Miyata). We found a total of 34 occurrences of *wasure-* in those corpora. The breakdown of the speakers and interpretations are summarized in Table 2. There were 2 occurrences of **V-PAST-no wasure** and 1 occurrence of **V-PAST-ka wasure** by adults, which accounted for all the instances of factive uses in our data. Of 18 implicative uses by adults, 16 were in the form of **V-PRES-no wasure**. Since the number of data is small, we included 1 occurrence of **V-STEM wasure** and 1 occurrence of **Noun wasure** in Table 2, both of which had the implicative interpretation. Of 13 occurrences by children, we could identify

### Table 1. Results from 1148 relevant occurrences

<table>
<thead>
<tr>
<th>String</th>
<th>Factive</th>
<th>Implicative</th>
</tr>
</thead>
<tbody>
<tr>
<td>[mat [emb ... PAST]-koto/-no/-ka wasure-*]</td>
<td>282, 100%</td>
<td>0, 0%</td>
</tr>
<tr>
<td>[mat [emb ... PRES]-koto {-ol/-o/-sae/-mo} wasure-*]</td>
<td>272, 68%</td>
<td>126, 32%</td>
</tr>
<tr>
<td>[mat [emb ... PRES]-no {-ol/-o/-sae/-mo} wasure-*]</td>
<td>103, 22%</td>
<td>365, 78%</td>
</tr>
</tbody>
</table>

Figure 1. Interpretations by embedded tense and nominalizer type

![Figure 1: Interpretations by embedded tense and nominalizer type](image)
the intended interpretations for 12 occurrences, all of which are implicative. There were 3 utterances which contained errors; but we were able to identify the interpretation based on the context or by the notes by transcribers.²

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Factive</th>
<th>Implicative</th>
<th>Error</th>
<th>Unclear</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults (mother, investigator)</td>
<td>3, 14% PAST-no/-ka</td>
<td>18, 86% PRES-no</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Children</td>
<td>0, 0%</td>
<td>12, 100% PRES-no (implicative)</td>
<td>(3)</td>
<td>1</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 2. Results from child corpora

Although the data are limited, we observed that not many factive uses were found (only a few by adults; no utterances from a child). Also, we did not find any utterances where the embedded clause was headed by koto.³

5 Exploring Theoretical Options

Despite the fact that both koto- and no-arguments can be used on a factive interpretation, it is clear that neither koto nor no can mean ‘the fact that’ by their lexical meaning; see also the discussions in Makino (2003); Hiraiwa (2010); Uchibori (2000). A weaker assumption is called for. In this section, we focus on two theoretical options for an analysis of koto.

5.1 Theoretical Option I: Koto as a Definite Description Operator

A theoretical option that we have to consider is the option that koto may denote a definite description operator as proposed by Bogal-Allbritten and Moulton (2018) for Korean kes. This hypothesis is motivated against the background of the assumptions that koto is the Japanese counterpart of Korean kes, cf. Lee (2019).

Without having to go into the details of Bogal-Allbritten and Moulton (2018)’s analysis of kes, it seems to be intuitively plausible to assume that koto-arguments in construction with wasure- denote facts or actions. But this

² An example of erroneous utterance:

(ii) Roosoku tukete-nai-no wasure-ta (3:08, Arika, MiiPro).
candle light-NEG-no forget-PAST
‘I forgot to light the candle’, wrong for “Roosoku tukeru-no wasureta”

³ We list here future directions as a part of the first language acquisition project. Given that the child-directed speech does not contain many occurrences of factive uses, we would like to investigate if children know that when V-PAST or V-STATIVE is embedded a factive interpretation is more prominent or the only available. Also, we would like to find out if they know that koto works similarly as no.
intuition may have a deeper conceptual basis. Cross-linguistic evidence suggests that event- or fact-denoting DPs with ‘forget’-type predicates have to be definite and cannot be indefinite, compare (9-a) vs. (9-b) from German.

(9)  

a. Sue hat das Anstoßen vergessen.  
Sue has the toasting forgotten.  
Reading A: ‘Sue forgot to do the toasting.’ ~ implicative  
Reading B: ‘Sue forgot that the toasting happened.’ ~ factive  
b. *Sue hat ein Anstoßen vergessen.  
Sue has a toasting forgotten.

While the cross-linguistic data is compatible with the assumption that koto-arguments are definite DPs, they call into question the necessity to attribute the definiteness effect to koto since a corresponding interpretation seems to be forced on us on independent grounds. If we want to claim that koto denotes a definite description operator, we have to find further evidence.

If we have a look at the uses of koto elsewhere in Japanese grammar, we don’t find evidence in support of the assumption that koto is a definite description operator. To the contrary. It seems that koto is a regular noun that can be modified by adjectives, as in (10-a), and combine with demonstrative determiners, such as sono / ano in (10-b) – even when it picks up a proposition or a given fact from the discourse context.

(10)  

a. Sore-wa yoi koto des-u ne.  
DEM-TOP good koto be-PRES PRT  
‘This is (a) good (thing), isn’t it.’  
b. {Sono / Ano} koto-wa shira-nai.  
{DEM / DEM} koto-TOP know-NEG  
‘I don’t know this.’

If koto were a definite description operator in the examples with wasure-, koto in (1) and koto in (10) would have to be different lexical items.

Also problematic for this assumption are sentences like (11) that express an unspecific liking. Similar as in the English translation, there is no reason to assume that the object of an unspecific liking as expressed in (11) should be denoted by DP that is underlyingly definite.

(11) Terebi-o mi-ru koto-ga suki des-u.  
TV-ACC see-PRES koto-NOM liked be-PRES  
‘I like watching TV.’

We therefore conclude that koto is not a definite description operator.4

4 A Korean native speaker informs us that all the examples involving koto discussed in this paper...
5.2 Theoretical Option II: Koto as a Noun

Our theoretical conclusions with respect to koto are (a) that it doesn’t mean ‘the fact that’ and (b) that it doesn’t denote a definite description operator as proposed by Bogal-Allbritten and Moulton (2018) for kes in Korean. In this section, we explore an analysis on which koto is a transitive noun that takes a proposition as its internal argument. The proposal is more a proof of concept than a fully spelled out theory. The flexibility of koto to denote facts, events or individuals depending on the context is modelled by the assumption that the things that koto is true of are situations in the sense of Kratzer (2002), which include things, events and facts. The exemplification relation is similar to the relation that Bogal-Allbritten and Moulton (2018) assume for kes.

\[ \text{koto} \] = \lambda w. \lambda p. \lambda s'. s' is a salient part of the situation s that exemplifies p in w

We assume that koto-arguments like other nominal arguments in Japanese may come with a silent determiner. This could be a definite or an indefinite determiner or some other operator. In the case of the examples with wasure-, it is a definite determiner. Similar as is commonly assumed for overt determiners, we assume that if a definite determiner can be used, it has to be used; cf. Heim (1991). That a definite determiner can always be used with a fact- or action-denoting argument is due to the meaning of wasure-. We follow standard assumptions about the interpretation of tensed clauses in Japanese.

\[ [[[[ \text{pro, keeki-o tabe} ] -ru ] \text{koto-o} ] \varphi_{\text{the}} ]]^{t,g} = \lambda w. (\exists t')(t \leq t' & g(i) eats cake at t' in w)) \text{ in } w \]

\[ [[[[ \text{Taroo keeki-o tabe} ] -ta ] \text{koto-o} ] \varphi_{\text{the}} ]]^{t,g} = \lambda w. (\exists s')(s' \text{ is a salient part of the situation s that exemplifies } (\lambda w. (\exists t')(t \leq t' & Taroo eats cake at t' in w)) \text{ in } w) \]

The meaning of wasure- is the same on implicative and factive readings. The difference in readings is determined by the context and constrained by the tense and aspect forms in the embedded clause. wasure- means that the subject doesn’t think of the object during a time (interval) t and presupposes that it intended to do so. We assume that the second part is a presupposition.

---

5 If koto is used without an overt internal argument, the argument may be provided by the context.
(15) \[ \text{wasure-}\{t,g\} = \lambda w. \lambda x. x \text{ intended to think of } C \text{ during } t \text{ in } w. \text{ } x \text{ doesn’t think of } C \text{ during } t \text{ in } w \]

On the conceptual side, we assume that individuals that intend to think of a thing are mentally acquainted with the thing in one way or other, i.e., they have a mental file for it. This motivates the use of the definite determiner. The presupposition of the definite determiner is satisfied with respect to this mental file. This gives us: 6

(16) \[ \text{wasure-}\{t,g\} = \lambda w. \text{ Sue intended to think of } \lambda w. \text{ (s is a salient part of the situation s that exemplifies } \lambda w. \text{ (t’} \leq t’ \text{ & Sue eats cake at t’ in w)} \text{)} \text{ during } t \text{ in } w. \text{ Sue doesn’t think of } \lambda w. \text{ (s is a salient part of the situation s that exemplifies } \lambda w. \text{ (t’} \leq t’ \text{ & Sue eats cake at t’ in w)} \text{)} \text{ during } t \text{ in } w \]

(17) \[ \text{wasure-}\{t,g\} = \lambda w. \text{ Taroo intended to think of } \lambda w. \text{ (s is a salient part of the situation s that exemplifies } \lambda w. \text{ (t’} \leq t’ \text{ & Taroo eats cake at t’ in w)} \text{)} \text{ during } t \text{ in } w. \text{ Taroo doesn’t think of } \lambda w. \text{ (s is a salient part of the situation s that exemplifies } \lambda w. \text{ (t’} \leq t’ \text{ & Taroo eats cake at t’ in w)} \text{)} \text{ during } t \text{ in } w \]

A salient situation that is a part of a situation that exemplifies a proposition about the past can only be a fact or a part of a fact. A salient situation that is a part of a situation that exemplifies a proposition that is about the subject’s future actions may well be an action that the subject plans to perform. This predicts that we get an implicative reading only with an embedded non-past marked clause when the subject is correferent with the matrix subject.

6 Concluding Remarks on Koto Versus No

There are examples with wasure- where koto cannot be replaced by no, (18). The reason in (18) is that koto but not no can combine with a relative clause to denote a content 7 (= what the teacher said) that may be forgotten.

(18) Watasi-wa sensei-ga i-tta \{koto / *-no\} -o
I-TOP teacher-NOM say-PAST \{koto / *-no\} -ACC
wasure-te imasita.
forget-STATIVE
‘I forgot what the teacher said.’

6 In a more detailed analysis, the embedded subject in (16) should receive a de se interpretation.
7 “Content” is understood in the sense of Kratzer (2006); Moulton (2015); but the way to refer to it here is by way of a DP.
Against this background we speculate that the difference between *koto*- and *no*-arguments may be similar to the difference between nominal (= definite DPs) and verbal ways (= infinitivals) of referring to facts/actions in English or German. Although typically blocked by the availability of an unambiguous finite ‘that’-clause, infinitivals can in principle be used to refer to facts if the temporal/aspectual forms clearly indicate a factive use. Since there is no *that*-like clause-type in Japanese that excludes implicative readings, *no*-arguments are not blocked and may therefore be used more frequently with reference to facts than infinitivals in English; but less frequently than *koto*-arguments due to their more verbal character.

References


Flexible Theta-Marking and (Anti-)Labeling*

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1 Introduction

Japanese allows a rather flexible pattern of theta-marking, typically exhibited by so-called light-verb constructions (LVCs) involving verbal nouns (VNs), as shown in (1) (see Grimshaw and Mester 1988, Kageyama 1993, a.o.). In (1a), all the arguments of the VN keikoku ‘warning’ (in this particular case, agent-DP, goal-PP and theme-CP) appear within the domain of the VN (informally labeled as “VNP”), and they are all marked as genitive. (1b-c) are the examples of LCVs, where the VN and the light verb su- ‘do’ form a

* Earlier versions of this paper were presented at Workshop on Ellipsis in Japanese (online, September 2021) and CSLA #13 (online/Nanzan University, March 2022). I thank the participants of these workshops, especially Shun Ihara, Takumi Tagawa, Yuta Tatsumi, and Mamoru Saito, as well as the audience at JK 30, in particular Takayuki Akimoto, Yuto Hirayama, Kenta Mizutani, Nozomi Moritake and Eri Tanaka, for their helpful comments and discussions. Part of this work is supported by JSPS KAKENHI Grant Number JP18K00659 and JP23K00581. All errors are of course mine.

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complex predicate. In (1b), only the agent DP appears outside the VNP, while in (1c) all the arguments appear outside it.

(1)  
\[ \text{a. } [ \text{VNP} \text{ } [\text{DP } \text{Taroo}-no \text{ } \text{PP } \text{murabito-e}-no \text{ } \text{CP} \text{ookami-ga kuru T.-Gen villager-to-Gen wolf-Nom come to]-no keikoku}] C-Gen warning} \]
\[ \text{‘Taroo’s warning to the villagers that the wolf is coming’} \]
\[ \text{b. } [\text{DP Taroo}-ga [\text{VNP } \text{PP murabito-e}-no \text{ } \text{CP ookami-ga T.-Nom villager-to-Gen wolf-Nom kuru to]-no keikoku]-o sita C-Gen warning-Acc did} \]
\[ \text{‘Taroo did a warning to the villagers that the wolf was coming.’} \]
\[ \text{c. } [\text{DP Taroo}-ga [\text{PP murabito-ni] [\text{CP ookami-ga kuru to T.-Nom villager-to wolf-Nom come C [-VNP keikoku]-sita warning-did} \]
\[ \text{‘Taroo warned to the villagers that the wolf was coming.’} \]

To explain the constant theta-relations across (1a-c), various proposals have been made in literature, including Argument Transfer (Grimshaw and Mester 1988, Miyagawa 1989, Tsujimura 1990, Sato 1993, a.o.) and LF-incorporation (Hoshi 1994, Saito and Hoshi 2000, Saito 2006, a.o.), both of which somehow allow non-local theta-marking by VNs. However, their theoretical status is not clear, especially in the recent minimalist framework.

As for the origin of the flexibility, Saito (2003) proposes a parameter called Derivational Configurationality Parameter, which makes not only LVC but also scrambling and radical pro-drop possible, reviving Hale’s (1983) insight (see also Bošković and Takahashi 1998, Oku 1998, Sugisaki 2007). More recently, Saito (2016, 2018, 2020) argues that these properties of non-configurational languages, in particular scrambling and radical pro-drop, arise from the presence of affixal Case-markers K(ase), which function as anti-labeling device in the labeling framework (Chomsky 2013, 2015).

Against this background, this paper proposes a novel analysis of the rather flexible pattern of theta-marking found in (1) by extending Saito’s (2016, 2018, 2020) idea of K as anti-labeling devices and Takita’s (2020) Labeling-for-Linearization hypothesis (LFL). To be more specific, it is proposed that there are functional heads that introduce arguments (dubbed as Thematic), and that just like K renders arguments invisible for labeling, Th, serving as an anti-labeling device, can render predicates invisible for labeling. Then, it is illustrated that the fact that neither arguments nor predicates participate in labeling gives rise to the apparent “non-configurational” phrase structure in the sense of Hale (1983), making flexible theta-marking possible. This paper
thus puts the whole project forward by analyzing LVCs in terms of the anti-labeling framework on a par with scrambling and radical pro-drop. It is further claimed that the proposed analysis provides a novel support for the LfL-based solutions to labeling problems.

2 Theoretical Assumptions

Chomsky (2013, 2015) argues that the label of the syntactic objects (SOs) formed by Merge can be unambiguously determined only for cases like (2) (except for the cases where the head X is weak), and cases like (2c) require either movement or feature-sharing. Building on this framework, Saito (2016, 2018, 2020) proposes that no labeling problem arises in (2c) if one of the member of \{XP, YP\} contains a head functioning as an anti-labeling device, which instructs minimal search (MS) to determine the label of the SO solely based on the other member.

(2) a. \{X, Y\}  b. \{X, YP\}  c. \{XP, YP\}

As for the reason why labels are required, I assume that labels are necessary only for PF reasons, following Takita’s (2020) idea of LfL given in (3).

(3) Labels are required solely for linearization in the sense that only labeled SOs can have the relative linear order of their members determined. (Takita 2020:82)

(4) illustrates how each type of SOs is accommodated under LfL together with the linearization rules given in (5), where ‘x<y’ means “x precedes y” (see Takita 2020:83-85). One unique feature of LfL is that SOs can remain unlabeled unless they cause a linearization problem, as in (4a,c).

(4) a. \{X, Y\}: can remain unlabeled if X is an affix or null
   b. \{X, YP\}: linearized by the linearization rule in (5a)
   c. \{XP, YP\}: can remain unlabeled if XP is moved/elided/null
   d. \{<F,F> XP[F], YP[F]\}: linearized by the linearization rule in (5b)

(5) a. i. Head-initial (e.g. English): \{X, YP\} \rightarrow X<YP
      ii. Head-final (e.g. Japanese): \{X, YP\} \rightarrow YP<X
   b. \{<F,F> XP[Val\_], YP[UnVal\_]\} \rightarrow XP<YP

In particular, the case in (2a), whose treatment is not clear in the original labeling framework, can also be straightforwardly accommodated as in (4a).

3 Proposals and Analysis

This section explores the question of what makes flexible theta-marking possible in the Japanese-type language. Our answer is the following: Assuming
that each argument is introduced by a separate functional head Th, which is independent from lexical R(oot)s (Kratzer 1996, Lohndal 2014, a.o.) and categorizers such as v (Borer 2005, a.o.), I propose that Th is an acategorial (as it can appear both in verbal and nominal domains) weak head in the sense of Chomsky (2015) so that it functions as an anti-labeling device. In Japanese, arguments can come with K, which is a weak head and functions as an anti-labeling device (Saito 2016, 2018, 2020, Miyagawa, Wu and Koizumi 2019). Then, the presence of K makes arguments and predicates can be symmetric with respect to labeling, which effectively yields flexible theta-marking.

To see the function of weak heads as an anti-labeling device, let us review Saito’s (2018, 2020) proposal. He argues that if K attaches to a DP as in (6a), the DP provides the label of the whole SO since K is a weak head. At the next step in (6b), K instructs MS to ignore the DP and detect the other member (TP in this case) as the label-provider. In this way, K as a weak head serves as an anti-labeling device.

\[(6)\]
\[
\begin{array}{c}
\text{a. } \{ \text{DP, K} \} \\
\text{b. } \{ \text{T} \{ \text{DP, K} \}, \text{TP} \}
\end{array}
\]

Building on but departing from Saito (2018, 2020), this paper proposes a slightly different implementation. First, when the SO in (7a) is formed, MS immediately detects K, but since K is weak, the label of the whole SO is left undetermined. Nonetheless, (7a) is legitimate because no linear order between DP and K is required thanks to the affixal nature of K. More generally, when XP and H_{\text{weak}} are Merged, the label can be undetermined if H_{\text{weak}} is affixal or null because no linearization problem arises.

\[(7)\]
\[
\begin{array}{c}
\text{a. } \{ \text{DP, K} \} \\
\text{b. } \{ \text{T} \{ \text{DP, K} \}, \text{TP} \}
\end{array}
\]

At the next step in (7b), MS detects both K and T, and the latter becomes the label since K is weak while T is not. Given that the linearization rule in (5aii) puts the label-providing member in the SO-final position, it applies to (7b) as well, yielding the desirable linear order DP-K<TP. In other words, the asymmetry between H_{\text{weak}} and a non-weak head H provides a clue for linearization, just like the one between H and XP (see Takita 2020:99-100).

This asymmetry between heads can be generalized to head-head merger cases given in (8). As for (8a), where both heads are not weak, and (8c), where both are weak, no problem arises if one of them is affixal or null (cf. (4a)) even though the whole SOs are unlabeled.\(^1\)

\[(8)\]
\[
\begin{array}{c}
\text{a. } \{ \text{X, Y} \} \\
\text{b. } \{ \text{X, Y}_{\text{w}} \} \\
\text{c. } \{ \text{X}_{\text{w}}, \text{Y}_{\text{w}} \}
\end{array}
\]

As for (8b), where a weak head is Merged with a non-weak head, the latter can provide the label so that no linearization problem occurs.

\(^1\)Note that we assume that if a head is weak then it is affixal/null, not vice versa (see Oda 2022).
Let us then consider how arguments are introduced. Suppose that they lack K, as in English. Assuming that R is a weak head as well since it is acategorial (Chomsky 2015), the argument lacking K participates in labeling while the “predicate” in (9a-b) (the R-Th-v combination) cannot, because Th is also weak. In (9a), the DP argument Merged with \{? R_w, Th_w\} provides the label of the resultant SO, with \{? R_w, Th_w\} being “hidden” inside the argument DP. This makes v fail to find \{? R_w, Th_w\} later on. In (9b), Th is Merged after \{vP R_w, v\} is formed. Since \{vP Th_w\} is unlabelable due to the weak Th, when it is Merged with the DP, the DP provides the label. Hence, the whole SO counts as an argument DP (the R-Th-v combination hidden inside the DP), though a predicate is intended to be formed.

(9) a. 
\[ \text{DP} \quad \text{vP} \]
\[ \text{R_w} \quad \text{Th_w} \]
b. 
\[ \text{DP} \quad ? \]
\[ \text{vP} \quad \text{Th_w} \]
c. 
\[ \text{DP} \quad ? \]
\[ \text{vP} \quad \text{Th_w} \]

Notice that the problem is not the label-less SOs (i.e. the ones marked as “?”) but those with “wrong” labels, namely the DP_s. The point is that an argument lacking K is not weak so that it is visible for labeling, hence the predicate taking it must also be visible. Thus, in order to take an argument lacking K, the R-Th combination must be “strengthened” by v (more generally the categorizer) as in (9c), so as to make the structure symmetric for labeling.2

On the other hand, the predicate does not have to be strengthened in the Japanese-type languages, because both the argument and the predicate come with weak heads (K and R/Th respectively). This makes the structure symmetric even when the R-Th-v combination is formed in the way depicted in (9a-b). Taking a simple transitive sentence like (10a) as a concrete example, either of (10b-c) can yield a legitimate result.4 In (10b), \{R_w, Th_w\} (= ?!) attempts to take DP_{Obj}, just like (9a). Since DP_{Obj} has already been Merged with K_w, however, neither ?Arg nor ?! can provide a label for the resultant SO (= ?2). Therefore, the “wrong” labeling problem can be avoided. At the next step, another Th_w is Merged with ?, yielding ?. Since DP_{Subj} has been Merged with K_w, Merging with ?Arg again causes no “wrong” labeling problem. Finally, v is introduced to the structure, verbalizing the whole predicate. In (10c), On the other hand, v is first introduced to the structure

2 Following Takita, Goto and Shibata (2016), Takita (2020) assumes that lower copies are visible to labeling, so moving the argument DP does not help avoiding the “wrong” labeling problem.

3 The labeling/linearization problem at the \{? DP, vP\} level in (9c) must be resolved, but it can be done via usual ways such as subject raising.

4 The notations “?Arg”, “?” and the superscripts on them are just for the sake of illustration.
verbalizing R like (9b), and then the arguments are introduced via their respective Th-heads. Although each Th makes the resulting SO unlabeled, the arguments are also rendered unlabeled via K. Therefore, no “wrong”-labeling problems arises, unlike the cases in (9a-b).  

(10) a. Miku-ga Tenma-o hometa.
    M.-Nom T.-Acc praised
    ‘Miku praised Tenma.’

b.  

    ![Diagram of (10b)]

e.  

    ![Diagram of (10c)]

Note that in (10b) v is Merged after all the arguments have been introduced while in (10a) v is Merged before introducing any argument. Introducing v in the intermediate steps (like (9c)) also induces no “wrong”-labeling problem. In this way, languages with K allow arguments to be introduced to the structure in a highly flexible way, while those without K do not.

Turning to VNs, let us examine (11a), repeated from (1a), where all the arguments appear within the VN. Assuming that a VN shares R and Th-heads with its verbal counterpart while n appears instead of v, (11b-c) show the ways of introducing arguments which are parallel to the ones in (10b-c). Since the arguments are accompanied by K, each Th-head can occur anywhere below or above n. That is, Th-heads can be Merged either before (as in (11b)) or after (as in (11c)) the categorizer n is introduced to the structure.

(11) a. [\-VNP [\-DP Taroo]-no [\-PP murabito-e]-no [\-CP ookami-ga kuru T.-Gen villager-to-Gen wolf-Nom come to]-no keikoku] C-Gen warning
    ‘Taroo’s warning to the villagers that the wolf is coming’

5As for linearization, no problem arises within each ?Arg because K is a suffix. The SOs immediately containing ?Arg (i.e. ?2 and ?3 in (10b-c)), however, must have the linear order within them determined. This can be achieved by moving ?Arg which naturally follows from Shibata’s (2015) idea that in Japanese every argument must be moved so that morphological merger combines R-Th-v (and T) together.
When D closes off the traditionally called “VNP” domain, each argument receives genitive Case-marking. This results in “VN-internal” theta-marking.

Then, how is “VN-external” theta-marking allowed? One such case is (12a) (repeated from (1b)), which can have the structure given in (12b).

12a. 

`DP [DP Taroo]-ga [VNP [PP murabito]-no [CP ookami]-ga
T.-Nom  villager-to-Gen  wolf-Nom
kuru to]-no keikoku]-o sita
come C-Gen warning-Acc  did
‘Taroo did a warning to the villagers that the wolf was coming.’

b.
In (12b), where the “VNP” domain (namely below $nP$) contains two Th-heads and there is a higher R corresponding to the verb su- ‘do’, which has its own Th-heads. The structure in (12b) claims that the verb su- ‘do’ in the LVC of the (12a)-type is a lexical verb that takes two arguments, namely the DP denoting an event (= “VNP”/DP) and the agent DP (= Taroo-ga), and that the PP- and CP-arguments are introduced by the Th-heads associated with the R corresponding to the VN.

On the other hand, (13a), repeated from (1c), is the case where all the arguments are theta-marked VN-externally. (13b) illustrates a possible structure for (13a), where all the Th-heads are sandwiched by $n$ and $v$.

(13) a. [DP Taroo]-ga [PP murabito-ni] [CP ookami-ga kuru to] T.-Nom villager-to wolf-Nom come C

\[ \text{‘Taroo warned to the villagers that the wolf was coming.’} \]

b. 

\[
\begin{array}{c}
\text{expletive su- ‘do’} \\
\text{DP} \\
\text{?Arg} \\
\text{Kw} \\

\text{PP} \\
\text{?Arg} \\
\text{Kw} \\

\text{CP} \\
\text{?Arg} \\
\text{Kw} \\

\text{nP} \\
\text{Thw} \\

\text{Rw} \\
\text{n} \\
\text{Thw} \\
\end{array}
\]

In (13b), all the Th-heads are associated with the R corresponding to the VN and the verb su- ‘do’ in the LVC of the (12b)-type is an “expletive” verb in the sense of Saito (2006) (pace Takita 2010). In fact, the absence of the accusative Case-maker on the VN in (13a), unlike (12a), is compatible with the idea that the “VNP” is not an argument of the verb su- ‘do’ so that there is no DP-layer above $nP$ in (13b).

Before closing this section, let us confirm that the proposed analysis does not allow “too flexible” theta-marking. As shown in (14b), it is well-known that causative constructions such as (14a) involve $vP$-complementation (see Murasugi and Hashimoto 2004, a.o.). Now, if an argument is introduced by a Th-head occurring in (i) or (ii) (i.e. below -sase ‘cause’), it counts as an argument of the R-$v$ combination (i.e. home- ‘praise’). On the other hand, if
a Th-head appears in (iii) (i.e. above -sase ‘cause’), its argument is interpreted as that of -sase ‘cause’. Hence, the causer argument Miku must be introduced at the position (iii), while the causee and the theme arguments (Tenma and Ichi, respectively) must be introduced at the positions (i) or (ii).

(14) a. \[ vP \quad Miku-ga \quad [vP \quad Tenma-ni \quad Ichi-o \quad home]-sase(-ta) \]
     \[ M.-Nom \quad T.-Dat \quad I.-Acc \quad praise-cause-Past \]
     ‘Miku made Tenma praise Ichi.’

b. In this way, illicit “long-distance theta-marking” (e.g. theta-marking of Miku by home- ‘praise’) is excluded while the desirable flexibility is retained.

The gist of the proposal can be summarized as follows. In languages with K, arguments are invisible to labeling when they come with K.\(^6\) Then, the argument-introducing head Th, which is assumed to be universally weak, can appear in the structure relatively freely to the extent that the argument structure it creates is compatible with the R with which it is associated. On the other hand, in languages without K, the possible position of Th is limited. Put this way, the “non-configurational” character of the Japanese-type languages comes from the fact that neither arguments nor predicates can provide labels in the thematic domain, yielding a number of ‘?’-marked SOs.

4 Conclusion

This paper has proposed that the flexibility of theta-marking in the Japanese-type languages results from the anti-labeling nature of the Case-makers K, extending Saito’s (2016, 2018, 2020) idea. Although the universal weakness of the Th-heads may create many unlabeled SOs in the thematic domain in languages with and without K, they cause no problem under Takita’s (2020) linearization mechanism based on the Labeling-for-Linearization hypothesis.

\(^6\)See Takita (in prep.) for how arguments lacking K behave in the Japanese-type language.
This paper also has certain typological implications. Building on Hale (1980) and Kuroda (1988), Saito (2016, 2018, 2020) argues that the presence of K allows a language such as Japanese to have i) free word order (i.e. scrambling), ii) wide distribution of null arguments (i.e. radical pro-drop), iii) extensive employment of complex verb-words (e.g. V-V compounds), iv) multiple occurrences of Case markers (e.g. multiple nominative constructions), and v) flexible prenominal sentential modifiers (e.g. gap-less relative clauses). This paper adds one more property to this typological clustering of properties: flexible theta-marking typically exemplified by the light verb constructions.

**References (Selected)**


Crossover Effects with Set Indices: Evidence from Japanese Scrambling

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In Minimalist Program after Chomsky (1995), researchers have attempted to abandon indices from the syntax system. However, this paper points out that indices are still helpful (and even necessary) notions in the theory by examining crossover effects in Japanese scrambling. Furthermore, it will be argued that two different definitions of disjointness are needed for Binding Theory.

1 Introduction: Set Indices

Sportiche (1985) observes ill-formedness of the question in (1), which is intended to ask for which $x$, Bill thinks Bill and $x$ saw $x$.

(1) Strong Crossover with Split Antecedents: Sportiche (1985: 466)

*Which man$_{1}$ does Bill$_{2}$ think they$_{1,2}$ saw $t$$_{1}$?*

*We thank JK reviewers, the audience in JK30 in Vancouver, and the audience in UConn LingLunch for helpful feedback and suggestions. Usual disclaimers apply. This research is supported by JSPS KAKENHI Grant Number 21K20016 to Yuta Tatsumi.*
The example is similar to the Strong Crossover (SCO) configuration in (2), ruled out by Binding Condition C. A trace left by wh-movement, which is argued to be an R-expression, cannot be bound by a coindexed element.

(2) *Who₁ does he₁ love t₁?

However, attributing (1) to SCO calls for revision of the definition of binding. Under the standard definition of binding in (3), the trace in (1) is only bound by which man, and crucially not bound by they. The trace and they do not have an identical index.

(3)  \( x \text{ binds by } y \text{ iff } \)
    a.  \( x \text{ c-commands } y, \text{ and } \)
    b.  \( x \text{ and } y \text{ have the identical referential index.} \)

Sportiche (1985) thus suggests that a syntactic item should have a set of indices and that we should revise the definitions of binding and disjoint as (4).

(4)  a.  \( x \text{ binds } y \text{ iff } x \text{ c-commands } y, \text{ and } x \text{ and } y \text{ have identical index sets.} \)
    b.  \( x \text{ is disjoint from } y \text{ iff the intersection of the index sets of } x \text{ and } y \text{ is the empty set.} \)

An R-expressions must be disjoint from any other elements that c-command it from an A-position. The trace in (1) is not disjoint from they under the new definition because the intersection of the index set of they and the one of the trace is non-empty. In this way, ill-formedness of (1) is attributed to SCO, as expected.

In this paper, we point out that the set indices are also called for to account for a crossover effect in A-movement, namely in Japanese scrambling. It suggests the necessity of set indices in the syntax theory. The rest of this paper is organized as follows. Section 2 lays out the relevant data, and Section 3 suggests an analysis. Further empirical consequences are discussed in Section 4. Section 5 discusses a precise definition of disjointness. It is pointed out that we need two definitions of disjointness, weak disjointness and strong disjointness, to cover the data. Section 6 concludes.

2 Crossover and Set Indices in A-movement

It has been argued that short Scrambling (SS; scrambling within a local clause) is A-movement in Japanese (Saito 1992). As one of the A-movement characteristics, SS creates a new binding configuration by movement. This is shown in (5). In (5a), coreference of Taro and Hanako and reciprocal otagai 'each other' is degraded since the latter is not c-commanded by the former. SS makes it perfect.
(5) a. [otagai\textsubscript{1,2}-no sensei]-ga [Taro\textsubscript{1} to Hanako\textsubscript{2}]-o each other-GEN teacher-NOM Taro and Hanako-ACC

    hihansita. criticized

    Lit. ‘Each other’s teacher criticized [Taro and Hanako].’

b. [Taro\textsubscript{1} to Hanako\textsubscript{2}]-o [otagai\textsubscript{1,2}-no sensei]-ga

    Taro and Hanako-ACC each other-GEN teacher-NOM

    \( t_{\text{Obj}} \) hihansita. criticized

    Lit. ‘[Taro and Hanako], each other’s teacher criticized \( t_{\text{Obj}} \).’

Now consider (6), our main concern in this paper. In (6), the embedded object Ziro undergoes SS. Since Ziro and the matrix subject Taro c-command the plural pronoun karera ‘they,’ in principle, they can be antecedents of the pronoun. However, the pronoun cannot take Taro and Ziro as its antecedents.

(6) a. *Taro\textsubscript{1}-wa \( \text{karakera}_{\text{1,2}} \)-ga Ziro\textsubscript{2}-o suisen-sita to \]

    Taro-TOP they-NOM Ziro-ACC recommend-did C

    itta. said

    Lit. ‘Taro said that they recommended Ziro.’

b. *Taro\textsubscript{1}-wa \( \text{karakera}_{\text{1,2}} \)-o karera\textsubscript{1,2}-ga \( t_{\text{2}} \) suisen-sita

    Taro-TOP Ziro-ACC they-NOM recommend-did to \] itta.

    C said

    Lit. ‘Taro said that Ziro, they recommended \( t \).’

The unacceptability of (6b) is not due to Condition B violation caused by Ziro c-commanding karera in the local domain. In Japanese, one of the antecedents of a plural pronoun can be in the local domain of the pronoun, as in (7).

(7) Taro\textsubscript{1}-wa [Ziro\textsubscript{2}]-ga \( \text{karakera}_{\text{1,2}} \)-o suisen-sita to ] itta.

    Taro-TOP Ziro-NOM theyACC recommend-did C said

    Lit. ‘*Taro said that Ziro recommended them.’

Nor is it due to SCO, although the configuration of (6b) is similar to (1). A trace of A-movement is not an R-expression and it is not subject to Binding Condition C.

There are some caveats in order before moving on to our analysis of the data in (6b). First, we must show that the relevant movement operation in (6b) should be analyzed as short-distance scrambling but not as long-distance scrambling to a middle field in the matrix clause. Schematic representations are given in (8).
There are two pieces of evidence that the embedded object phrase moves within the embedded clause. Firstly, it has been observed that Japanese long-distance scrambling exhibits the so-called "radical reconstruction" effect (Saito 1992). (Recall that long-distance scrambling is a scrambling operation across a clausal boundary.) If the object noun in the embedded clause had moved into the matrix clause as in (8b), it would be expected that the scrambled object phrase undergoes reconstruction into the original position, yielding a Condition C violation. To see the nature of the movement operation in (6b), it will be helpful to consider the examples in (9).

   Taro-TOP teacher-to yet they-NOM Ziro-to vote-do-NEG C said
   Lit. ‘Taro told a teacher they have not voted for Ziro yet.’

b. *Taro₁-wa sensei-ni [mada Ziro₂-ni karera₁,2-ni ga
   Taro-TOP teacher-to yet Ziro-to they-NOM
   toohyoo-sitei-nai to] itta.
   vote-do-NEG C said
   Lit. ‘Taro told a teacher that Ziro, they have not voted for yet.’

In (9), the embedded sentence contains sentential negation and the adverb mada ‘yet/still’. The adverb mada in (9) behaves like an NPI as in (10).

    yet they-NOM Ziro-to vote-did
    Lit. ‘They have voted for Ziro yet.’

b. mada karera-ga Ziro-ni toohyoo-sitei-nai.
    yet they-NOM Ziro-to vote-do-NEG
    Lit. ‘They have not voted for Ziro yet.’

The unacceptability of (10a) tells us that mada in (9) cannot be licensed by the matrix affirmative predicate. We take this as evidence that mada has to remain within the embedded clause in (9), and hence it indicates a clause boundary. (Notice also that Japanese phrasal adverbs generally resist long-distance scrambling operation (Miyara 1982; Saito 1985; Bošković and Taka-
hashi 1998.) The scrambled phrase follows mada in (9b). This means that it undergoes clause-internal/short-distance scrambling, which generally does not exhibit the reconstruction effect.

In this connection, it should also be noted that Japanese short-distance scrambling can eliminate the violation of Condition C. Relevant examples are given in (11).

(11) a. *kare_{1}[1]-wa [NP Aiko-ga Ziro_{1}[1]-ni syookai-sita
he-TOP Aiko-NOM Ziro-to introduce-did
otoko]-o suisen-sita.
man-ACC recommend-did
Lit. ‘He recommended the man that Aiko introduced to Ziro1.’

b. [NP Aiko-ga Ziro_{1}[1]-ni syookai-sita otoko]-o kare_{1}[1]-wa
man-ACC Ziro-to introduce-did man-ACC he-TOP
Lit. ‘The man that Aiko introduced to Ziro1, he recommended.’

Since the object noun phrase in the embedded clause in (6b) undergoes short-distance scrambling as discussed above, it should not cause a Condition C violation, similarly to (11b).

Given these considerations, we assume that the unacceptability of (9b) and the same effect observed in (6b) should be analyzed as crossover effects. In the next section, we propose that the unacceptability of (6b) can be accounted for by amending Rizzi’s definition of Chain Condition.

3 Proposal

To explain the unacceptability of (6b), we propose to modify Rizzi’s (1986) Chain Condition. Rizzi’s definition of Chain Condition is given in (12).

(12) Chain Condition: Rizzi (1986)
\((x_1, \ldots, x_n)\) is a chain iff
a. for all \(i (1 \leq i < n)\), \(x_i\) is the local binder of \(x_{i+1}\).
b. \(x\) is a binder of \(y\) iff \(x\) c-commands \(y\) and \(x\) and \(y\) are coindexed.
c. \(x\) is a local binder of \(y\) iff \(x\) is a binder of \(y\) and there is no intervener \(z\) such that
   (i) \(z\) is a binder of \(y\), and
   (ii) \(z\) is not a binder of \(x\).

This condition is motivated by Italian data in (13). There, one of the objects of the verb undergoes passivization, and the other undergoes cliticization. Though each of these operations alone does not cause ungrammaticality, the combination does. This is because, according to Rizzi (1986), the clitic se
intervenes in Chain formation of Gianni and the trace $t_1$. $si$ is a local binder of $t_1$, and the Chain $\langle Gianni, t_1 \rangle$ is ill-formed.

(13) * Gianni_{11} si_{11} è stato affidato $t_{11}$

Intended: ‘Gianni has been entrusted to himself.’

Since Rizzi (1986) does not discuss cases with a plural pronoun, being a binder is defined in pre-Sportiche’s way. In order to extend Chain Condition to account for (6b), we propose to revise the condition as (14). Notice that we adopt Sportiche’s definition of bind and disjoint in (4).

(14) Chain Condition (Modified Version)

$(x_1, \ldots, x_n)$ is a chain iff

a. for all $i$ $(1 \leq i < n)$, $x_i$ is the local binder of $x_{i+1}$.

b. $x$ is a binder of $y$ iff $x$ c-commands $y$ and $x$ and $y$ have the identical index set.

c. $x$ is a local binder of $y$ iff $x$ is a binder of $y$ and there is no intervener $z$ such that

(i) $z$ c-commands $y$,

(ii) $z$ doe not c-command $x$, and

(iii) $z$ is not disjoint from $y$.

(15) is a schematic representation of (6b). The trace $t_2$ needs to form a Chain with Ziro, and Ziro must be a local binder of $t_2$ for that. However, this condition is not met there because they intervenes between them: they is not disjoint from $t_2$, so Ziro is not a local binder of $t_2$. The sentence is ill-formed because of the failure to form a proper Chain. Notice also that the new definition still accounts for the unacceptability of Rizzi’s Italian example.

(15) Taro_{11} ... [ Ziro_{22} ... they_{12} ... $t_{22}$ ]

The current analysis crucially utilizes indices and Chain, both revoked in recent Minimalist work. We argue that these two notions are still called for in the theory. In order to see this, let us consider a case where $\alpha_i [F]$, which has feature $F$ to be checked, ‘moves’ to a higher position by leaving a copy ($\alpha_i$). Suppose further that $F$ is checked and deleted in a higher position. Schematically:

(16) \ldots $\alpha_i \ldots \alpha_j [F]$

Now, how can we make sure that $F$ in the lower instance of $\alpha$, $\alpha_j$, is also checked? That $\alpha_j$ is a copy of $\alpha_i$ does not help here. By analogy: suppose that you made a file on your laptop and made a copy in a different position. Even after you edit the copied file, the original file does not get any change. Thus, to ensure that feature $F$ is checked in the higher and the lower instance of $\alpha$,
the grammar has to know that these two instances share the same properties, e.g., whether or not their features are checked. Chain is a good candidate to make this connection, and indices are valuable for defining Chain. We also believe that a similar theoretical apparatus has been pursued even in a more recent framework of Minimalism (e.g. Form Copy in Chomsky (2021)).

4 Consequences

The present proposal has further consequences. Under the definition in (14c), z is an intervener for x being a local binder of y if and only if z c-commands y. The proposed analysis predicts that the resulting sentence should be grammatical if we embed the intervening plural pronoun in (6b) to another nominal phrase. This prediction is borne out. (17) and (18) are grammatical.

(17) \[ Taro_{1}\text{-wa} [ [karera_{1,2}\text{-no zyosii}\text{-ga} Ziro_{2}\text{-o suisen-sita} \]
Taro\text{-TOP they\text{-GEN boss\text{-NOM} Ziro\text{-ACC recommend\text{-did to} } itta. }\\
\]
\[ c \text{ said } \\
\text{Lit. ‘Taro said that their boss recommended Ziro.’} \\
\]

(18) \[ Taro_{1}\text{-wa} [ Ziro_{2}\text{-o} [ [karera_{1,2}\text{-no zyosii}\text{-ga} t_{2} \]
Taro\text{-TOP Ziro\text{-ACC they\text{-GEN boss\text{-NOM suisen-sita to} } itta. }\\
\]
\[ recommend\text{-did } c \text{ said } \\
\text{Lit. ‘Taro said that Ziro, their boss recommended t.’} \\
\]

Furthermore, the proposal can be extended to a novel observation. Consider the contrast below. (19a) shows that coreference between Taro and kar e ‘he’ does not induce a Condition B violation, as long as the latter is embedded in coordination. However, (19b) is ungrammatical with coreference between Taro and kar e. The configuration there is similar to the cases we have discussed so far.

(19) a. \[ Taro_{1}\text{-ga} [ kare_{1} \text{ to } Hanako_{2} ]_{1,2}\text{-o suisen-sita. }\\
Taro\text{-NOM he and Hanako\text{-ACC recommend\text{-did Lit. ‘Taro recommended [him1 and Hanako].’} } \\
\]

b. \[ Taro_{1}\text{-o} [ kare_{1} \text{ to } Hanako_{2} ]_{1,2}\text{-ga t}_{1} \]
Taro\text{-ACC he and Hanako\text{-NOM suisen-sita. }\\
recommend\text{-did } \\
\text{Lit. ‘Taro, [he and Hanako] recommended t.’} \\
\]

The paradigm is explained away with the assumption that indices of coordinated DPs percolate. As a result, the subject in (20b) has as its index set the
union of index sets of its conjuncts, namely \{1, 2\}. As a result, the subject is counted as an intervener for Chain formation, hence ungrammatical.

It also explains the contrast between (5b), repeated in (20a), and (20b) (Koizumi 1995; Miyagawa 1996). The latter is ungrammatical because the reciprocal pronoun *otagai* ‘each other’ intervenes Chain formation of *Taro to Ziro* ‘Taro and Ziro’ and its trace.

\begin{itemize}
\item (20) a. \[ \text{Taro}_1 \text{ to } \text{Hanako}_2 \text{-o } \text{otagai}_1 \text{,2}-\text{no } \text{Hansita}. \]
\text{Taro and Hanako-ACC each.other-GEN teacher-NOM criticized}
\text{Lit. ‘Each other’s teacher criticized Taro and Hanako.’}
\item b. \[ \text{Taro}_1 \text{ to } \text{Ziro}_2 \text{-o } \text{otagai}_1 \text{,2}-\text{ga } \text{Hansita}. \]
\text{Taro and Ziro-ACC each.other-NOM criticized.}
\text{Lit. ‘[Taro and Ziro], each other criticized t.’}
\end{itemize}

Summarizing this section, we proposed the revised Chain Condition to account for (6b). The success of the analysis implies the necessity of indices and Chain in the syntactic theory.

5 Two Definitions of Disjointness

In this section, we discuss a further theoretical issue raised by the binding of plural pronouns. Recall the definition of *disjointness* in Sportiche (1985), repeated below as (21). This definition should also be adapted to the definition of Binding Condition B.

\begin{itemize}
\item (21) \text{x is disjoint from y iff the intersection of the index set x and y is the empty set.}
\item (22) Binding Condition B (First Version)
\text{Pronouns must be disjoint from any C-commanding elements in its local domain.}
\end{itemize}

(22) seems to make a correct prediction for English—coreference in (23) is ill-formed.

\begin{itemize}
\item (23) *John$_1$ said Mary$_2$ criticized them$_1$,$_2$.\end{itemize}

However, the definition makes a wrong prediction for Japanese. (7), repeated below as (24), shows that having one of the two antecedents in the local domain of a plural pronoun does not result in ungrammaticality.

\begin{itemize}
\item (24) \text{Taro$_1$-wa [Ziro$_2$-ga karera$_1$,2-o suisen-sita to] itta.}
\text{Taro-TOP Ziro-NOM they-ACC recommend-did C said}
\text{Lit. ‘*Taro said that Ziro recommended them.’}
\end{itemize}

In order to account for these differences, we propose two definitions of disjointness — *strong disjointness* and *weak disjointness*.
(25) a. $\alpha_A$ is \textit{weakly disjoint} from $\beta_B$ iff $A \neq B$.
b. $\alpha_A$ is \textit{strongly disjoint} from $\beta_B$ iff $A \cap B = \emptyset$.

As seen in Section 2, Chain Condition adopts strong disjointness to define a local binder. Strong disjointness should also be adopted for Condition B in English. On the other hand, Condition B in Japanese should adopt weak disjointness. It means that Condition B is subject to cross-linguistic variation in a way that has never been discussed.

(26) Binding Condition B (Final Version)

a. English
\begin{quote}
Pronouns must be \textit{strongly disjoint} from any C-commanding elements in its local domain.
\end{quote}
b. Japanese
\begin{quote}
Pronouns must be \textit{weakly disjoint} from any C-commanding elements in its local domain.
\end{quote}

Notice further that both strong and weak disjointness are necessary even in one language. In Japanese, for example, Condition B adopts weak disjointness, and Chain Condition adopts strong disjointness. Further variation within Japanese can be observed by considering Condition C. (27) suggests Condition C adopts strong disjointness in Japanese.

(27) *Karera\textsubscript{1,2} -ga Taro\textsubscript{1} -o hihantsita.
\begin{quote}
They-NOM Taro-ACC criticized
\end{quote}
‘They criticized Taro.’

It suggests that even within one language, different grammatical principles may adopt different definitions of disjointness. With this discussion, we argue that a thorough reinvestigation of existing grammatical principles is called for, especially for principles that are/use to be defined with indices. By considering plural pronouns, we observe a new inter- or intra-linguistic variation.

6 Conclusion

In this study, we made one empirical and two theoretical claims. Empirically, we claimed that the novel data in (6b) should be accounted for with the revised Chain Condition in (14). Theoretically, we claimed that (i) indices and Chain are still necessary theoretical devices in the syntactic theory, and (ii) plural pronouns reveal a two-way definition of disjointness, suggesting the necessity of thorough reinvestigation of grammatical principles with plural pronouns.

References


On the Absence of Minimality Effect with Japanese Cleft*

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1 Introduction

The aim of this work is to shed a new light on the discussion regarding how cleft in Japanese – one of the typical focus-related A’-movement forming an operator-variable relation (see Hoji 1987, 1990, Kuwabara 2000, Hiraiwa and Ishihara 2002, 2012, Takano 2002, Kizu 2005, Takeda 2018; a.o.) – is derived based on the novel evidence that it exhibits the absence of minimality effect. I show that this effect can be captured by the overt focus movement analysis.

* This is a revised version of the poster presentation prepared for the 30th Japanese/Korean Linguistics (March 13th, 2023, hosted by Simon Fraser University). I would like to thank JK30 three anonymous reviewers for rewarding comments and JK30 editors for editorial assistance. Usual disclaimers apply.
(Hiraiwa and Ishihara 2002, 2012) but not by the null Op(erator)-movement analysis (Hoji 1987, 1990, Kuwabara 2000, Kizu 2005, a.o.). The organization of this paper is as follows. First, in Section 2, I will introduce basic facts of Japanese clefts. Then, in Section 3, I will introduce the novel example that shows Japanese cleft is minimality-free. In Section 4, I will provide an analysis of minimality-free nature of Japanese cleft. Section 5 is a conclusion.

2 Basic Facts

As can be seen in the following, cleft in Japanese is in principle unbounded; e.g., the argument *kono biru-kara* ‘from this building’ can not only be clefted in the clause it is base-generated in as in (1), but also in higher clauses as in (2)–(3).\(^\text{1,2}\)

(1) Local cleft:

\[
\begin{array}{c}
\text{[CP2 [([Ken-ga Yui-ni [CP1 [Mari-ga t detekita]-no]-wa] \ K.-NOM Y.-DAT M.-NOM came.out-C-TOP} \\
\text{[kono biru-kara] da]-to] tsutaeta].} \\
\text{this building-from COP-C told} \\
\text{‘[CP2 Ken told Yui [CP1 that it was [from this building],} \\
\text{[that Mari came out t]]].’}
\end{array}
\]

(2) Long-distance cleft:

\[
\begin{array}{c}
\text{[CP2 [[[Ken-ga Yui-ni [CP1 [Mari-ga t detekita]-to] \ K.-NOM Y.-DAT M.-NOM came.out-C} \\
\text{tsutaeta]-no]-wa] [kono biru-kara], da].} \\
\text{told-C-TOP this building-from COP} \\
\text{‘[CP2 It was [from this building], [that Ken told Yui} \\
\text{[that Mari came out t]]].’}
\end{array}
\]

(3) Super long-distance cleft:

\[
\begin{array}{c}
\text{[CP3 [[[Gen-ga [CP2 [Ken-ga Yui-ni [CP1 [Mari-ga t detekita] \ G.-NOM K.-NOM Y.-DAT M.-NOM came.out} \\
\text{-to] tsutaeta]-to] omotta]-no]-wa] [kono biru-kara], da].} \\
\text{-C told-C thought-C-TOP this building-from COP} \\
\text{‘[CP3 It was [from this building], [that Gen thought} \\
\text{[CP2 that Ken told Yui [CP1 that Mari came out t]]].’}
\end{array}
\]

\(^{1}\) All the Japanese examples are transcribed in the Hepburn (Hebon) system Romanization. The translations in single quotes are not always meant to be the correct English translations and are sometimes intended to give the (rough) structure and/or meaning of the examples.

\(^{2}\) Here, I put aside the potential processing difficulty associated with super long-distance cleft which involves a sentence with three clauses that may affect the acceptability to begin with.
In addition, more than two clauses can host cleft; e.g., *kono biru-kara* base-generated in the embedded clause and *Yui-ni* ‘Yui-DAT’ base-generated in the matrix clause can undergo local cleft, respectively.

(4) Two local clefts in different clauses:

```
[CP2 [[[Ken-ga  tį CP1 [[[Mari-ga  tį detekita]-no]-wa]
          K.-NOM       M.-NOM      came.out-C-TOP
          [kono biru-kara], da]-to]  tsutaeta]-no]-wa] [Yui-ni], da].
          this building-from COP-C     told-C-TOP     Y.-DAT COP
          ‘[CP2 It was [Yui], that Ken told tį [CP1 that it was
          [from this building], that Mari came out tį]].’
```

3 New Fact: Japanese Cleft is Minimality-free

What is of interest is that super long-distance cleft of *kono biru-kara* moving from CP1 to CP3 ((3)) can take place, even if there is a local cleft of *Yui-ni* taking place in CP2 ((4)), as shown in (5).

(5) Super long-distance cleft crossing over the local cleft:

```
[CP3 [Gen-ga  CP2 [[[Ken-ga  tį CP1 [Mari-ga  tį detekita]-to]
           G.-NOM       K.-NOM       M.-NOM      came.out-C
           tsutaeta]-no]-wa] [Yui-ni], da]-to]  omotta]-no]-wa]
           told-C-TOP     Y.-DAT COP-C     thought-C-TOP
           [kono biru-kara], da].
           this building-from COP
           ‘[CP3 It was [from this building], [CP that Gen thought [CP2 that it
           was [Yui]], [CP1 that Ken told tį [CP that Mari came out tį]].’
```

Given that Japanese cleft is one of the typical A’-movement of focused phrase to FocP in the clause peripheral CP cartography position which forms an operator-variable relation, the super long-distance cleft moving from CP1 to CP3 in (5) can be taken as minimality-free, assuming that there is FocP in CP2 that license cleft which is filled by local cleft.

4 Analysis

I argue that the absence of minimal effect can be accounted for along the line of the overt focus movement analysis (Hiraiwa and Ishihara 2002, 2012), while the null Op-movement analysis (Hoji 1987, 1990, Kuwabara 2000, Kizu 2005, a.o.) erroneously predicts to exhibit the minimal effect. I first show how the latter analysis fails to account for the minimal effect (Section 4.1), and then I show the former analysis accounts for it (Section 4.2).
4.1 The Null Op-Movement Analysis

First, let us look at the derivation of Japanese cleft in (1)–(4) under the null Op-movement analysis. For the sake of exposition, I assume the landing site of null Op-movement to be FocP headed by -da in the cartographic CP system. Under this analysis, cleft is (i) derived by null Op-movement to FocP (headed by -da) in the presuppositional clause and (ii) the moved null Op is co-indexed with the clefted element which is base-generated in the cleft-pivot before -da. Thus, local cleft in (1) proceeds as follows (ignoring the derivation at CP2); null Op undergoes clause-internal movement into FocP in CP1 (FocP1).

(6) Derivation of local cleft under the null Op-movement:
\[
[CP2 [CP1 [FocP1 Op_i […] t_i […]-no-wa [kono biru-kara]-da]-to] […]]
\]

Long-distance cleft in (2) proceeds as follows; null Op undergoes successive-cyclic movement going through the edge of CP1 that does not have FocP (headed by -da) and hence a non-criterial position for null Op involving cleft, and then to FocP in CP2 (FocP2).

(7) Derivation of long-distance cleft under the null Op-movement:
\[
[CP2 [FocP2 Op_i […] [CP1 t_i […]-to] […]]-no-wa [kono biru-kara]-da]
\]

Super long-distance cleft in (3) proceeds as follows, essentially in the same way as long-distance one; null Op undergoes successive-cyclic movement going through the edge of CP1 and CP2 that do not have FocP (headed by -da) and hence a non-criterial position for null Op involving cleft, and then to FocP in CP3 (FocP3).

(8) Derivation of super long-distance cleft under the null Op-movement:
\[
[CP3 [FocP3 Op_i […] [CP2 t_i […] [CP1 t_i […]-to] […]-to] […]]-no-wa [kono biru-kara]-da]
\]

Two local clefts in different clauses in (4) proceed as follows, essentially in the same way as local cleft; null Op corresponding to kono biru-kara and Yui-ni undergoes clause-internal movement into FocP1 and FocP2, respectively.

\footnote{Here, I put aside the specific differences among the null Op-movement analyses. As far as I can see, the analyses utilizing null Op-movement face with the problem posed by (5).}
(9) Derivation of two local clefts in different clauses under the null Op-movement:
   a. Local cleft via null Op-movement in CP1:
      \[
      \text{CP1} \quad \text{FocP1} \quad \text{Op} \quad i \quad \ldots \quad \text{no-wa} \quad \text{kono biru-kara} \quad \text{da} \quad \text{-to}
      \]
   b. Local cleft via null Op-movement in CP2:
      \[
      \text{CP2} \quad \text{FocP2} \quad \text{Op} \quad j \quad \ldots \quad \text{t} \quad \text{CP1} \quad \text{Op} \quad i \quad \ldots \text{no-wa} \quad \text{kono biru-kara} \quad \text{da} \quad \text{-to} \quad \ldots \quad \text{Yui-ni} \quad \text{da}
      \]

Now, consider how the minimality-free cleft in (5) is derived under the null Op-movement analysis. The gist is that, under this analysis, super long-distance cleft of \text{kono biru-kara} from CP1 to FocP in CP3 must go through FocP in CP2, which inevitably causes a problem. Consider the derivation of (5) up to the point FocP in CP2 is filled by Op\text{\textsubscript{j}} (which is (to be) co-indexed with \text{Yui-ni}).

(10) Derivation of minimality-free super long-distance cleft in (5) under the null Op-movement analysis:
   a. Building CP1, with a null Op (corresponding \text{kono biru-kara}) moving to the edge of CP1:
      \[
      \text{CP1} \quad \text{Op} \quad i \quad \text{Mari-ga t \text{detekita}} \quad \text{-to}
      \]
   b. Building CP2, with a null Op (corresponding \text{Yui-ni}):
      \[
      \text{CP2} \quad \text{FocP2} \quad \text{Ken-ga Op} \quad j \quad \text{\text{CP1} Op} \quad i \quad \text{M.-ga t \ldots} \text{to} \quad \ldots \quad \text{Yui-ni} \text{-da} \quad \text{-to} \quad \ldots \quad \text{Yui-ni} \quad \text{da}
      \]
   c. Null Op (corresponding \text{Yui-ni}) movement to FocP2:
      \[
      \text{CP2} \quad \text{FocP2} \quad \text{Op} \quad j \quad \text{K.-ga t \text{\text{CP1} Op} \quad i \quad \text{M.-ga t \ldots} \text{to} \quad \ldots \quad \text{Yui-ni} \quad \text{-da} \quad \text{-to} \quad \ldots \quad \text{Yui-ni} \quad \text{da}
      \]

The problem begins to happen when Op\text{\textsubscript{i}} (which is (to be) co-indexed with \text{kono biru-kara}) undergoes movement out of CP1 and movement into CP2. As an Op, Op\text{\textsubscript{i}} must move into FocP2 (headed by \text{-da}). Suppose Op\text{\textsubscript{i}} is moved into the higher Spec of FocP2 after Op\text{\textsubscript{j}} moved into the lower Spec of FocP2. Then it is an instance of typical minimality violation, just like \text{What did who buy?} in English. Alternatively, suppose Op\text{\textsubscript{i}} is moved into the lower Spec of FocP2. At this point, this may be allowed on a par with \text{What who bought?}-type multiple Wh-question in multiple Wh-movement languages (Bošković 2002), avoiding minimality violation. However, note that the final landing site of Op\text{\textsubscript{i}} is FocP in CP3 (FocP3). This means that Op\text{\textsubscript{i}} undergoes FocP2 to FocP3. Then it is an instance of typical operator freezing effect (see Rizzi 2006, Bošković 2008, a.o.). Note also that this problem carries over when Op\text{\textsubscript{i}} is moved into the higher Spec of FocP2.

In a nutshell, the null Op-movement analysis of Japanese cleft wrongly predicts super long-distance cleft in (5) to be ungrammatical as it involves minimality violation and/or operator freezing effect.
4.2 The Overt Focus Movement Analysis

Second, let us look at the derivation of Japanese cleft in (1)–(4) under the overt focus movement analysis. Under this analysis, cleft is (i) derived from in-situ focus construction, (ii) overt focus movement of clefted element to FocP,4 and (iii) remnant FinP topicalization to TopP (see Hiraiwa and Ishihara 2012: 152–154). Thus, local cleft in (1) proceeds as follows (ignoring the derivation at CP2); *kono biru-kara* undergoes clause-internal movement into FocP in CP1 (FocP1).

(11) Derivation of local cleft under the overt focus movement:

a. Building CP1, the in-situ focus construction:

\[
\text{[CP1 [TopP [FocP1 [FinP [Mari-ga [kono biru-kara], detekita]-no]-da]]]}
\]

b. Overt focus movement of clefted element to FocP1:

\[
\text{[CP1 [TopP [FocP1 [kono biru-kara], [FinP [M.-ga t\_i detekita]-no]-da]]]}
\]

c. Remnant FinP topicalization to TopP:

\[
\text{[CP1 [TopP [FinP [M.-ga t\_i detekita]-no]-wa [FocP1 [kono biru-kara], t\_FinP-da]]]}
\]

Long-distance cleft in (2), skipping the derivation of in-situ focus construction, proceeds as follows; *kono biru-kara* undergoes successive-cyclic movement going through the edge of CP1 (via long-distance scrambling) that does not have FocP (headed by *-da*) and hence a non-criterial position for cleft, and then to FocP in CP2 (FocP2).

(12) Derivation of long-distance cleft under the overt focus movement:

a. Long-distance overt focus movement of clefted element to FocP2:

\[
\text{[CP2 [TopP [FocP2 [kono biru-kara], [FinP [Ken-ga Yui-ni [CP1 t\_i [Mari-ga t\_i detekita]-to] tsutaeta]-no]-da]]]}
\]

b. Remnant FinP topicalization at CP2 to TopP:

\[
\text{[CP2 [TopP [FinP [Ken-ga Yui-ni [CP1 t\_i [Mari-ga t\_i detekita]-to] tsutaeta]-no]-wa [FocP2 [kono biru-kara], t\_FinP-da]]]}
\]

Super long-distance cleft in (3) proceeds as follows, essentially in the same way as long-distance one; *kono biru-kara* undergoes successive-cyclic movement going through the edge of CP1 and CP2 (via successive-cyclic long-distance scrambling) that do not have FocP (headed by *-da*) and hence a non-criterial position for cleft, and then to FocP in CP3 (FocP3).

---

4 To be precise, the very first step of movement should be scrambling to TP and then to FinP, given that at this point, it remains to be seen whether derivation involves cleft to FocP without looking ahead.
(13) Derivation of super long-distance cleft under the overt focus movement:

a. Super long-distance overt focus movement of clefted element to FocP:
   \[\text{[CP}_1\text{[TopP}_1\text{[FocP}_3\text{[kono biru-kara], \text{[FinP}[\text{Gen-ga [CP}_2\text{t_i [Ken-ga Yui-ni [CP}_1\text{t_i [M.-ga t_i detekita]-to] tsutaeta]-to] omotta]-no]-da]]\text{]}\]

b. Remnant FinP topicalization at CP3 to TopP:
   \[\text{[CP}_3\text{[TopP}_1\text{[FinP}[\text{Gen-ga [CP}_2\text{t_i [Ken-ga Yui-ni [CP}_1\text{t_i [M.-ga t_i detekita]-to] tsutaeta]-to] omotta]-no]-wa [FocP}_3\text{[kono biru-kara], \text{[FinP}-da]]\text{]}\]

Two local clefts in different clauses in (4) proceed as follows, essentially in the same way as local cleft; \textit{kono biru-kara} and \textit{Yui-ni} undergoes clause-internal movement into FocP1 and FocP2, respectively.

(14) Derivation of two local clefts in different clauses under the overt focus movement:

a. Local cleft via overt focus movement of clefted element to FocP1:
   \[\text{[CP}_1\text{[TopP}_1\text{[FocP}_1\text{[kono biru-kara], \text{[FinP}[M.-ga t_i \ldots]-no]-da]]-to\text{]}\]

b. Remnant FinP topicalization within CP1:
   \[\text{[CP}_1\text{[TopP}_1\text{[FinP}[M.-ga t_i \ldots]-no]-wa [FocP}_1\text{[kono biru-kara], \text{[FinP}-da]]-to\text{]}\]

c. Local cleft via overt focus movement of clefted element to FocP2:
   \[\text{[CP}_2\text{[TopP}_2\text{[FocP}_2\text{[Yui-ni], \text{[FinP}[K.-ga [CP}_1\text{[TopP}_1\text{[FinP}[M.-ga t_i \ldots]-no]-wa [FocP}_1\text{[kono biru-kara], \text{[FinP}-da]]-to] tsutaeta]-no]-da]]\]

d. Remnant FinP topicalization within CP2:
   \[\text{[CP}_2\text{[TopP}_2\text{[FinP}[K.-ga [CP}_1\text{[TopP}_1\text{[FinP}[M.-ga t_i \ldots]-no]-wa [FocP}_1\text{[kono biru-kara], \text{[FinP}-da]]-to] tsutaeta]-no]-wa [FocP}_2\text{[Yui-ni], \text{[FinP}-da]]\]

Now, consider how the minimality-free cleft in (5) is derived under the overt focus movement analysis. The gist is that, under this analysis, super long-distance cleft of \textit{kono biru-kara} from CP1 to FocP in CP3 does not go through FocP in CP2. Thus, the relevant cleft is in fact “minimality-free in disguise,” as it does not involve minimality (nor operator freezing effect) to begin with.

(15) Derivation of minimality-free super long-distance cleft in (5) under the overt focus movement:

a. Building CP1, with \textit{kono biru-kara} scrambled:
   \[\text{[CP}_1\text{[kono biru-kara], \text{[Mari-ga t_i detekita]-to]}\]
b. Building CP2, the in-situ focus construction:
[CP2 [TopP [FocP2 FinP [Ken-ga [Yui-ni]] [CP1 [kono biru-kara]], [Mari-ga t detekita]-to] tsutaeta]-no]-da]-to]

c. Overt focus movement of Yui-ni to FocP2 in CP2:
[CP2 [TopP [FocP2 [Yui-ni] [FinP [Ken-ga t [CP1 [kono biru-kara]], [Mari-ga t detekita]-to] tsutaeta]-no]-da]-to]

d. Remnant FinP topicalization at CP2 to TopP in CP2:
[CP2 [TopP [FinP2 [Ken-ga t [CP1 [kono biru-kara]], [Mari-ga t detekita]-to] tsutaeta]-no]-wa [FocP2 [Yui-ni] t FinP-da]-to]

e. Building CP3, the in-situ focus construction:

f. Overt focus movement of kono biru-kara to FocP3 in CP3, after long-distance scrambling of kono biru-kara to Spec of CP2:

g. Remnant FinP topicalization at CP3 to TopP in CP3:
[CP3 [TopP [FinP [Gen-ga [CP2 t [TopP [FinP [Ken-ga t, [CP1 t, [Mari-ga t detekita]-to] tsutaeta]-no]-wa [FocP2 [Yui-ni] t FinP-da]-to] omotta]-no]-wa [FocP3 [kono biru-kara], [FinP-da]]]

For the present discussion, the crucial tenet of the overt focus movement analysis lies not in the overt focus movement, but the remnant FinP topicalization. After (15c), in (15d), remnant FinP topicalization at CP2 to TopP in CP2 takes place. Note here that this FinP contains to-be-clefted kono biru-kara. Furthermore, at this point, kono biru-kara is outside of the c-command domain of clefted Yui-ni. And at the time when kono biru-kara undergoes overt focus movement in (15f), which is preceded by long-distance scrambling to the Spec of CP2, it does not cross over Yui-ni. In fact, super long-distance cleft of kono biru-kara moves from CP1 to FocP in CP3 without moving into FocP in CP2. Thus, it does not trigger minimality effect nor operator freezing effect.

In a nutshell, the overt focus movement of clefted element under the overt focus movement analysis of Japanese cleft correctly accounts for the so-called minimality-free super long-distance cleft in (5) to be grammatical as it does not involve minimality violation and operator freezing effect, owing to the remnant FinP topicalization.
5 Conclusion

To conclude, the so-called absence of minimality effect with Japanese cleft supports the overt focus movement analysis over the null Op-movement analysis. Crucially, unlike the null Op-movement analysis, under the overt focus movement analysis, the super long-distance cleft from CP1 to CP3 does not cross over the local cleft in CP2 due to the remnant FinP topicalization. In other words, the so-called minimality effect with Japanese cleft is absent because the derivation does not involve minimality and it is “minimality-free in disguise.”

References

Korean Locative Alternation Revisited: Decomposing Event Structures*

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1 Introduction

Over the decades, the topic on locative verb constructions has attracted many scholars in the field of syntax, semantics, and the interface of the two fields. What is generally agreed upon is that there seem to exist some consistent syntax-semantics correspondences between the lexical item (i.e., locative verb) and the frame (i.e., syntactic structure) in which they can appear. In this paper, however, I claim otherwise: the overt syntactic “frames” and the semantic “variants” of locatives do not necessarily correspond to each other. That is, the fundamental defining feature of the so-called “locative construction” ought not to be mistaken with its representation of “V NP preposition-NP.”

This paper is organized as follows: Section 2 introduces previous studies and controversies regarding locative verbs, focusing on the work of Pinker (1989). Section 3 provides theoretical backgrounds for the syntax of ‘again,’

*I express my sincere gratitude to Heejeong Ko for her guidance throughout the development of this work. I also thank Seungho Nam, Woojin Chung, Chung-hye Han, Minju Kim, Hwanhee Lee, Hanyoung Byun, three anonymous reviewers and audiences at the 30th conference on Japanese/Korean linguistics for their valuable comments and discussion.
justifying the adoption of the restitutive *tolo* ‘again’ diagnosis on analyzing the argument structure of the locative constructions. Section 4 demonstrates the empirical results of the restitutive *tolo* ‘again’ survey, thereby reaching the following conclusion: the “NP-ul NP-lo” frame (known as the Korean equivalent of the English “DP with DP” frame) is not a genuine locative construction; the “NP-lo” is merely a manner modifier.

2 Previous Studies

Locative verbs refer to a type of predicate which denotes the location change of an argument, i.e., transfer of an entity or a set of entities (henceforth, the *figure*) into or to a position or area (henceforth, the *ground*) (Pinker 1989). Accordingly, locative construction, by their nature, involves two genuine arguments, a figure and a ground, participating in the locative event. Since there exist variations in the syntactic possibility in which the arguments can be constructed, the syntactic/semantic structure of locative construction has been a central issue.

Alternating locative verbs are known to appear in two variants, depending on whether their direct objects realize as a locatum, i.e, the figure (*books* and *the breadcrumbs*), or a location, i.e., the ground (*the shelf* and *the turkey*):

(1) Locative alternation (Pinker 1989:125, revised)

<table>
<thead>
<tr>
<th>Variants</th>
<th>Sentences</th>
</tr>
</thead>
</table>
| a. He *piled* the books onto the shelves.  
  He *piled* the shelf with books. |
| b. He *stuffed* the breadcrumbs into the turkey.  
  He *stuffed* the turkey with the breadcrumbs. |

Notably, there are non-alternating locative verbs, which as their names suggest, do not allow alternation between the figure and the ground. They can also be further divided into two variants regarding which argument they take as direct objects. The verbs in (2) only allow the Figure frame, where the figure element is encoded as the direct object and the ground element is encoded as the *into/onto*-DP. The verbs in (3), by contrast, only allow the Ground frame, where the ground element is encoded as the direct object and the figure element is encoded as the *with*-DP.

(2) a. John *poured* water *into* the glass.  
     Alice *spilled* soup *onto* the table.  
     Tim *dripped* water *onto* the floor.  

<table>
<thead>
<tr>
<th>Figure-Frame</th>
</tr>
</thead>
</table>
| a. John *poured* water *into* the glass.  
  Alice *spilled* soup *onto* the table.  
  Tim *dripped* water *onto* the floor. |

<table>
<thead>
<tr>
<th>Ground-Frame</th>
</tr>
</thead>
</table>
| b. *John *poured* the glass *with* water.  
  *Alice *spilled* the table *with* soup.  
  *Tim *dripped* the floor *with* water. |
Examples taken from Kim (1999:2)

A vast previous literature on locative verbs grounds on the lexicalist approach of Pinker (1989). Specifically, he assumes that the syntactic behavior of verbs is assumed to be semantically determined, hence the verb items classified in the same semantic verb class are expected to demonstrate idiosyncratic behavior in their syntactic realization. Accordingly, previous research has focused on classifying which verbs can appear in which syntactic frames, under the assumption that a verb’s possibility of entering a certain frame directly reflects its argument structure. However, cross-linguistic variations and even evidence from English has challenged this view (Beavers 2017; Kim 1999; Yakhabi and Lotfi 2017), and there has been doubts (Goldberg 1995; Iwata 2008) raised against the reliability of the diagnostics on the locative verbs proposed by Pinker (1989). Korean has been one of the controversial languages, with researchers showing different judgements in their classification on locative verbs.

In this paper, I aim to provide empirical evidence that the traditional lexicalist approach to locative verbs is unsuitable, at least for Korean. In doing so, I demonstrate the distinct argument structures of each locative constructions, based on a new diagnostic to classify the locative variants: the restitutive tolo ‘again’ diagnostic.

3 Background: the Syntax of ‘again’

The adverb ‘again’ is well known to be semantically ambiguous, especially when it is combined with telic predicates; Korean is not an exception:

(4) Sally-ka ku mun-ul tasi/ttololo yel-ess-ta. (Ko 2014)
Sally-NOM that door-ACC again open-PAST-DEC

i. ‘Sally opened the door again, and she had done that before’ (repetitive tto ‘again’ reading)
ii. ‘Sally opened the door again, and the door had been in the state of being open before’ (restitutive tolo ‘again’ reading)

The scope ambiguity of ‘again’ in accordance with their repetitive and restitutive readings has allowed lexical semantics to demonstrate verb decom-
position of complex event structures\textsuperscript{1} (see Dowty 1979; von Stechow 1995, 1996; Beck and Johnson 2004; Beck 2005, 2006; Bale 2007, Snyder 2001, among all).

In particular, Beck and Johnson (2004) diagnose that the core difference between the ‘repetitive’ and the ‘restitutive’ meanings is that the ‘again’ in the former modifies a ‘causing’ subevent, while the latter modifies a ‘becoming’ one. Accordingly, Ko (2014), taking a structuralist approach towards the ambiguity of ‘again,’ presents the following structure:

\[
\text{\[vP Subj \_CAUSE [VP \_BECOME [SC door open \textit{again}_{\text{REP}}]] \textit{again}_{\text{REST}}\]}
\]

Previous studies have analyzed locative constructions as complex predicate denoting change of location or change of state.\textsuperscript{2} Hence, adopting Ko’s (2014) analysis, I attempt to decompose the locative constructions via the ‘again’ diagnostics.

\section{Survey: the tolo ‘again’ Diagnostics}

For the survey, each verb items were tested whether they allow the restitutive tolo ‘again’ reading in condition where the ‘NP-ey’ or ‘NP-lo’ was modified from the initial action:\textsuperscript{3}

\begin{enumerate}
\item Context: John loaded the box \textit{onto the wagon} and unloaded it. \\
Sally loaded the box \textit{onto the truck again}.
\item Context: John wrapped the plate \textit{with cloth} and unwrapped it. \\
Sally wrapped the plate \textit{again with vinyl again}.
\end{enumerate}

The result of the survey is as the following: In general, Ground frames allowed tolo, whereas Figure frames rejected it. Each of the Figure and Ground

\textsuperscript{1}In Snyder’s (1995, 2001) terms, only “complex predicate constructions” can take part in predicate decomposition. Such constructions are as the following:

\begin{enumerate}
\item Joe wiped the table clean. Resultative
\item Joe picked up the book. Verb-particle
\item Joe put the book on the shelf. put-locative
\item Joe gave Bill the book. Double object construction
\item Joe swam to the island. Goal-PP
\end{enumerate}
Take note of (ic), that the put-locative is specifically analyzed as a complex predicate construction.


\textsuperscript{3}Minju Kim (p.c.) commented that there may exist interpersonal variation between Korean native speakers in how individuals lexicalize the word tolo, hence affecting the results of the survey. She additionally noted that adding a sentence such as ‘Then Sally unloaded the box.’ at the end would reinforce the restitutive meaning of tolo, hence clarifying the context.
frame of the alternating verbs demonstrated identical patterns to their non-alternating Figure and Ground counterparts.

(7) Non-alternating Figure-frame verb (*sitta* ‘load’)

Chulsoo-ka sangca-lul sure-ey silessta kuliko nayryutta

Chulsoo-NOM box-ACC wagon-EY loaded and unloaded

ihwu, Younghee-ka sangca-lul thuluk-ey *tolo* silessta

later Younghee-NOM box-ACC truck-EY *again* wrapped

‘Chulsoo loaded the box onto the wagon and unloaded it. Later, Younghee loaded the box again onto the truck.’

(8) Non-alternating Ground-frame verb (*ssata* ‘wrap’)

Chulsoo-ka kurut-ul pocaki-lo ssassta kuliko pulessta

Chulsoo-NOM plate-ACC cloth-LO wrapped and unwrapped

ihwu, Younghee-ka kurut-ul binil-lo *tolo* ssassta

later Younghee-NOM plate-ACC vinyl-LO *again* wrapped

‘Chulsoo wrapped the plate with cloth and unwrapped it. Later, Younghee wrapped the plate again with vinyl.’

The asymmetry between the Ground and Figure frame in the restitutive *tolo* ‘again’ diagnostics suggest that the two frames in which the locatives can be constructed has distinct internal structures. In accordance to the structure of restitutive ‘again,’ I further propose that the frames which disallow *tolo* (i.e., the Ground frame), is not a genuine locative construction.

5 Discussion

Returning back to the syntactic structure of the ‘again,’ the restitutive *tolo* ‘again’ takes scope over only the result state ((5), repeated below as (10)):

(9) \[ vP \text{Subj} v_{\text{CAUSE}} [vP v_{\text{BECOME}} [ResP door open again_{REP}] again_{REST}] \]

Recall that a genuine locative construction involves both of the Figure and the Ground elements to take part in the event, implying that the both elements are positioned inside the Res(ult)P. In the case of repetition, ‘again’ in adjunction to ResP position gives rise to restitutive reading; it is the ResP that is being repeated. Keeping these facts in mind, let’s examine the Figure frame:
(10) Restitutive reading in the Figure-frame construction

[v’ Chulsoo-ka  [ResP sangca-lul sure-ey sitta ]] ...
  Chulsoo-NOM  box-ACC  wagon-EY  load

[v’ Younghee-ka  [ResP #tolo [ResP sangca-lul thulek-ey sitta ]]]
  Younghee-NOM  again  box-ACC  truck-EY  load

Since the Ground element was replaced by thulek-ey ‘truck-EY’ in the latter event, it would fail to gain restitutive reading of the initial event subject to repetition, i.e., loading the box into the wagon. Indeed, tolo was rejected in the construction in question. In this case, both the Figure and Ground elements sangca ‘box’ and thulek ‘truck’ are located in the ResP, acting as genuine arguments that take part in the locative event.

However, it was not the case for the Ground frames: tolo was allowed in the particular constructions. What the result suggests is that in the Ground frame, the ‘NP-lo’ must be located outside of the result phrase:

(11) Restitutive reading in the Ground frame construction

[v’ Chulsoo-ka  pocaki-lo [ResP kurut-ul satta ]] ...
  Chulsoo-NOM  cloth-LO  plate-ACC  wrap

  Younghee-NOM  vinyl-LO  again  plate-ACC  wrap

That is, only the Ground element kurut ‘plate’ is the genuine argument that take part in the locative event, and the ‘NP-lo’ binil-lo ‘vinyl-LO’ is a manner modifier that modifies the locative event; hence, the genuine meaning of pocaki-lo kurut-ul ssata ‘wrap the plate with cloth’ denotes the event of wrapping the plate, with the manner that involves cloth.

In accordance with the results of the restitutive tolo ‘again’ diagnostics, I propose the following structures:
(12) Structures of the Figure and the Ground frame

(a) Figure frame

(b) Ground frame
In the Figure frame (12a), the repeated event is ResP, loading the wagon with box. Hence, in order for the construction to gain a restitutive reading, the whole ResP including both the Figure and Ground element ought to take part in the repeated event. Meanwhile, the Ground Frame (12b) is not a genuine locative construction. The event of wrapping the plate in (12b) constructs an independent result state event, whereas the Figure element pocaki-lo ‘cloth-LO’ does not participating in the ResP itself but rather modifies the entire event as an oblique PP.

Notably, there were two exceptions in the results: the non-alternating Figure verb pusta ‘pour’ and the Figure frame of the alternating verb chaywuta ‘fill.’ Although in Figure frames, the two verbs exceptionally allowed tolo, behaving just like the Ground frame verbs. The result seem to be relevant to the semantics of the verb types; I will not address the issue in detail. The results suggest that even in identical frames (e.g., “NP-ul NP-ey”), each verb items may behave differently, further providing evidence that the overt syntactic syntactic frames do not independently indicate a cue for locative construction. Moreover, given that the availability of restitutive reading under the tolo diagnostics points to non-locatives, there exists possibility that some of the Figure frame verbs, i.e., the exceptions, such as pusta ‘pour’ and chaywuta ‘fill,’ are not locative verbs in the first place; they can be simple event verbs (e.g., pure manner verbs), or complex event verbs involving only one argument, either the figure or the ground.

To sum up, genuine locative construction does not allow for restitutive reading when either the PP, “NP-ey” or “NP-lo,” of the initial event is altered in the repeated event. This was the case for only Figure frame verbs; they disallowed the restitutive reading when the “NP-ey” element was replaced. On the other hand, verbs in the Ground frame construction is not a genuine locative, hence allowing for restitutive reading if the direct object is observed.

6 Conclusion

In this paper, I provide empirical evidence that the traditional lexicalist approach to locative verbs is unsuitable for Korean. In doing so, I provide a reliable diagnostics to classify the locative variants: the restitutive tolo ‘again’ diagnostics.

The main finding is the following: the “NP-ul NP-lo” frame (known as the Korean counterpart of the English “DP with DP” frame) is not a genuine locative construction; the “NP-lo” is merely a manner modifier. Moreover, the heterogeneous behavior of the “NP-ul NP-ey” frame (known as the Korean

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4 In fact, the idea of subclassifying Figure frame verbs regarding their semantics is not new; see Jackendoff (1996) for English, Kim (2001) for adoption of Jackendoff’s (1996) account to Korean.
counterpart of the English “DP into/onto DP” frame) raise the possibility that some of the Figure frame verb are not locative verbs, demonstrating distinct behavior from genuine locative verbs in the Figure frame.

The findings suggest that the verbs previously analyzed as the “locative verbs” has been overcategorized, classifying non-locative verbs as locative verbs. Regarding the overt syntactic frames as a direct evidence for locative variants can mislead researchers from correctly characterizing the nature of locative constructions. I conclude by addressing the possibility that the findings of the present study can be further extended to languages other than Korean.

References


On the Left Branch Extraction of Adjectives in East Asian Languages

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1 Introduction

In some languages (e.g. Russian), the L(eft) B(ranch) E(xtraction) phenomenon is quite common; in others (e.g. English), LBE is disallowed.¹

(1) a. Miluju, ty uvidel [DP t dovočka].
   cute you saw cat
   'You saw a cute cat.'  (Russian) (Bondarenko 2021:3)

b. *Cute, you saw [DP a t cat].
   (English)

Uriagereka (1988:113) observes that there is a relationship between lack of articles and possibility of LBE. For example, Bulgarian and Macedonian, which are the only two Slavic languages with overt determiners, happen to disallow LBE (Bošković 2004).

¹I use Pinyin for Mandarin, Kunreishiki for Japanese and Yale Romanization for Korean in transcription. The abbreviations are as follows: ACC=accusative, DEC=declarative, EXPL=expletive, GEN=genitive, LOC=locative, NOM=nominative, PST=past tense, REL=relativizer, RET=retrospective. ¡ means preceding in the linear order.

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Kakva prodade Petko i kola? (Bulgarian/Macedonian) "What kind of a car did Petko sell?"

However, in some languages that do not have overt determiners, LBE is often disallowed. Such languages include Mandarin, Japanese and Korean (MJK). Sentences in (3) are all intended to mean "You saw the/a cute cat.", where extractions of cute all result in ungrammaticality. Whilst Japanese and Korean allow a restricted number of LBEs, i.e. extraction of genitive-marked PPs shown in (4a-b), the Mandarin counterpart (4c) is still ungrammatical.\footnote{This Korean sentence (4b) received divided judgments. Out of the four native Korean speakers I consulted in person, half rejected the sentence. Two anonymous reviews also said the sentence was not good.}

(2) *Kakva, prodade Petko i [dpt, kola]? (Bulgarian/Macedonian)
what.kind sold Petko car
'What kind of a car did Petko sell?'

(3) a. *Kë`ai-de, ní kànji`an-le [dpt, m`ao]. (M) cute-DE you see-PERF cat
b. *Kawai, anata-ga [dpt, neko]-o mi-ta. (J) cute you-NOM cat -ACC see-PST

c. *Kwuyye-un, ney-ka [dpt, koyangi]-lul pwa-ss-ta. (K) cute-REL you-NOM cat -ACC see-PST-DEC

(4) a. [Dare-kara-no], Taroo-ga [dpt, tegami]-o sute-ta-no? (J) who-from-GEN Taro-NOM letter -ACC discard-PST-Q
From whom, Taro discarded a letter?'

(Takahashi and Funakoshi 2013)

b.?*[Sewul-eyse-uy], na-nun [dpt, salm]-i cwoh-ta. (K) Seoul-LOC-GEN I-TOP life -NOM like-DEC
'I like the life in Seoul.'

(Song 2022, p.c.)

c. *[Z`ai sh´enme gu´oji¯a de?], ní xıhu¯an t, sh¯enghu´o? (M) LOC what country DE you like life
Intended: 'In what country, you like the life (there)://'

It is thus clear that the lack of overt articles may be only a necessary but insufficient condition for whether one can have LBE or not. There must be other factors that restrict LBE. The fact that Japanese and Korean can have LBE of genitive-marker PPs but cannot have adjectival LBE(4a-b) further indicates that different types of LBE have different restricting factors. In this paper, I focus on the impossibility of adjectival LBE in MJK as exemplified in (3a-c). I argue that the theory of C(yclic) L(inearization) (Fox and Pesetsky 2005; Ko 2014) combined with a matching R(elative) C(lause) analysis for MJK adjectives provides a good explanation for the ban on the LBE of adjectives.
2 A Brief Overview of Cyclic Linearization

The main claim of CL is as follows.

(5) Information about linearisation, once established at the end of a given Spell-out domain, is never deleted in the course of derivation.

(Fox and Pesetsky 2005:6)

CL is very different from the Phase Impenetrability Condition (PIC) proposed by Chomsky (2000). The PIC stipulates that after the spell-out of a phase, all the constituents will be frozen forever in this phase save for its edge. Therefore, under the PIC, a constituent has to first move to the escape hatch of its mother phase in order to be extracted in later stages of the derivation. In contrast, under CL, constituents can move out of a phase freely after its spell-out. What matters is that each spell-out establishes a linearization of all the elements it contains and sends it to P(honological) F(orm). The order of these spelt-out syntactic elements should be preserved once and for all, and order contradiction will cause crash at PF. Illustrations adapted from Ko’s (2014:11) are shown below in (6).

(6) a. $[\alpha_P \ X \ \alpha' \ Z]]$:  
   $X_i Y_i Z$  
   (Original Order at $\alpha_P$)

b. $[\gamma_P \ X \ [\gamma' \ Y \ [\beta_P \ X \ Y \ [\beta' \ Z]]]]$:  
   $X_i Y$ at $\alpha_P$, $\beta_P$, $\gamma_P$  
   (Order Preserved→Good)

c. $[\gamma_P \ Y \ [\gamma' \ X \ [\beta_P \ X \ Y \ [\beta' \ Z]]]]$:  
   $X_i Y$ at $\alpha_P$, $\beta_P$, $\gamma_P$  
   (Order Contradicted→Bad)

3 Prenominal Adjectives in MJK

There is ample evidence showing prenominal adjectives in MJK start out in RCs. I will start with Mandarin adjectives first, and then move on to the Korean and Japanese cases.

Cinque (2010) proposes that there are two sources for adnominal adjectives cross-linguistically, direct modification and indirect modification. Sproat and Shih (1988), among others, argue that Mandarin overtly distinguishes direct modification from indirect modification, and that adjectives

3 For Mandarin, it is adjectives with -de that start out in RCs.
with the -de ending start out in reduced RCs and predicate of nouns indirectly. A superficial piece of evidence is that -de is also used for connecting relative clauses and nouns. Upon that, Sproat and Shih observe that for adjectives without -de, there is a particular order for them to appear before a noun, but that for those with -de, such a restriction is lifted. This is shown in (7).

(7) a. OK hˇao yu´an p´anzi V.S. *yu´an hˇao p´anzi good round plate *round good plate
   b. OK hˇao-de yu´an-de p´anzi V.S. OKyu´an-de hˇao-de p´anzi good-DE round-DE plate round-DE good-DE place
(Sproat and Shih 1987:466)

Additionally, it is possible only for de-adjectives to be preceded by temporal adverbs such as c´eng as shown in (8). That is, there is an available T head in the structure where de-adjectives are generated.

(8) mˇei(-de) r´en V.S. c´eng mˇei*(-de) r´en beautiful(-DE) person before beautiful*(-DE) person ‘beautiful person’ V.S. ‘previously-beautiful person’

For de-less adjectives, I assume that they are head-adjoined to N, following Sproat & Shih (1987). This automatically explains why adjectives without de tend to have a strict order before a noun. Shih (1986) also provided a piece of strong evidence that a de-less adjective and a noun form a compound: an A-N structure can be expanded into \[A_2 A_1 - N\] by adding a contrary phrasal modifier. Consider the examples in (9). In both sentences, two contradictory adjectives \(A_1\) and \(A_2\) can co-occur when the structure is \[A_2 - de A_1 - N\] but not \[A_2 - de A_1 - de N\].

(9) a. hu ¯ı-de báı(*-de) zhˇı grey-DE white(*-DE) paper ’greyish white-paper’
   b. t´engt`ong-de w´ut`ong(*-de) rénl`u painful-DE painless(*-DE) abortion ’painful painless-abortion’

(Shih 1986:143)

Now let’s turn to Korean. Kim (2002) points out Korean adjectives modifying nouns show a high similarity with relative clauses as a relativizer is needed, as in (10a). Second, the order of prenominal adjectives does not matter, as in (10b). Also, prenominal adjectives can be tensed, as in (10c).
As to Japanese, though there exist many differences, we still see evidence showing adjectives participate in indirect modification. The relative order of prenominal adjectives are free, shown in (11a), and they can be tensed also, shown in (11b).

(11) a. marui akai e V.S. akai marui e
    round red picture red round picture
    (Sproat and Shih 1987:479)

b. utukushi-katta hana
    beautiful-PST
    '(the/a) previously-beautiful flower’

So far, we have seen that there is ample evidence that suggests adjectives in MJK start out in RCs. RCs are generally considered to be strong islands that prevent any element from moving outside of them, so it might already seem clear at this point as to why adjectives in MJK can not be extracted. However, the islandhood of RCs might not be universal as some Scandavanian languages do allow extraction from RCs, as shown in (12).

(12) [Dat språket], finns det många islänningar [som talar tl].
    the language exist EXPL many Icelanders REL speaker
    'There are many Icelanders who speak that language’
    (Swedish, Lindahl 2014)

Therefore, I argue for an explanation without recourse to the a priori knowledge of the strong-islandhood analysis for RCs. I adopt the matching

---

4 One significant difference is that there is no need for relativizer for a prenominal adjective. But since Japanese verbs in a relative clause can directly precede nouns, the absence of a relativizer does not suggest that they do not start out in relative clauses.

5 As will be shown below, if the Swedish sentence (12) involves a true extraction out of the RC, the RC structure in Swedish must be different from that in MJK.
analysis for RCs, following Ham & Kim (2004). The postulated structures for prenominal adjectives MJK are given in (13). A relative clause projects the RelP, wherein the AP is predicated of OP—a silent copy of the head noun—by means of the RP (Relator Phrase) as defined by Den Dikken (2006). The Rel head probes down to OP merged in Spec,RP and raises it to Spec,RelP.

(13) a. Mandarin

\[
\begin{array}{c}
\text{NP} \\
\text{RelP} \\
\text{OP}_i \\
\text{Rel'} \\
\text{TP} \\
\text{T} \\
\text{RP} \\
\text{R'} \\
\text{R} \\
\text{AP} \\
\end{array}
\]

b. Japanese/Korean

\[
\begin{array}{c}
\text{NP} \\
\text{RelP} \\
\text{OP}_i \\
\text{Rel'} \\
\text{TP} \\
\text{T} \\
\text{RP} \\
\text{R'} \\
\text{R} \\
\text{AP} \\
\end{array}
\]

4 CL’s Restriction on Adjectival LBE in MJK

This section illustrates how the theory of CL can nicely explain the ban on adjectival LBE in MJK. Consider the Mandarin example (3a), repeated below in (14). Three steps in the derivation of this ill-formed sentence are given in (15).

(14) *Kˇe`ai-de ni kˇanjiˇan-le [DP\text{t}i m\ddot{a}o].

cute-DE you see-PERF cat

‘You saw the/a cute cat.’

(15) a. [RP\text{CAT} [\text{R}\text{R} [\text{AP}cute]]]:

\[
\text{CAT;R;\text{cute}}
\]

b. [NP [RelP\text{CAT}] [Rel\text{Rel} [TP\text{T} [RP\text{R} [\text{R}\text{R} [\text{AP}cute]]]]]]\text{NP}\text{cat}):

\[
\text{CAT;Rel;T;R;\text{cute;cat}}
\]

c. [XP [\text{AP}cute], [TP\text{you} [\text{vsee} [\text{NP}\text{CAT} \text{Rel} \text{T} \text{R} \text{t} \text{cat}]]]]:

\[
\text{cute;\text{you;CAT;Rel;T;R;you;see;cat}}
\]

Severe order contradictions arise here, which are banned by CL. If cute follows CAT (the operator i.e. the silent copy of the head noun) at the spell out of the RP as in (15a), cute should always follow CAT in the later course of derivation. At the spell-out of NP in (15b), we have cat following CAT, Rel, T and R. However, if cute undergoes LBE and get final word order (15c),
we end up having *cute* preceding *CAT*, *Rel*, *T* and *R*, which contradicts the previously established linearization.

Though one could argue that the AP first moves to the edge of the RP and to the edge of the RelP, this is impossible because it violates antilocality (Abels 2003, among others) whereby it is too uneconomical for a head to raise its complement unto its own specifier (Ko 2015). Also, RP movement or TP movement cannot happen under CL either since otherwise it will still violate the relative order between *CAT* and *cute*. The RelP cannot move either because we need *CAT* to be C-commanded by the head noun. An illustration is given below in (16a).

(16) a. Mandarin

```
NP           RelP           cat
      CAT₁       Rel'       Rel TP
      Rel          T           RP
      *           RP
      t₁          R'         R  cute

||
||
||
||
```

b. Japanese/Korean

```
NP           RelP           cat
      CAT₁       Rel'       TP
      Rel          RP         T
      *           RP
      t₁          R'         cute  R
```

As Korean and Japanese are very similar at this point, let’s only consider Korean. Three steps in the derivation of the ungrammatical Korean sentence (17) are given in (18). We again find order contradictions. Though the head-finality of Korean can spare *cute* the danger of forming contradictory ordering with regards to *R*, *T* and *Rel*, the presence of the silent copy *CAT* will still require *cute* to follow it once and for all. If *cute* was to undergo LBE, we would want the AP to move to Spec,RP, or we would want either remnant RP movement or remnant TP movement to happen, each of which is impossible under CL as seen in the Mandarin case.

(17) *Kwuyye-un* NEYKA  [DP₄ koyangi]-lul  pwa-ss-ta.
    cute-REL  you.NOM  cat  -ACC  see-PST-DECL
The straightforward intuition behind this is that in a matching RC, the operator must be sitting on the very edge of the RelP. The spell-out of this RelP will result in a linearization where the operator precedes all the other elements inside the RC.

5 Conclusion and Implications

Many languages that lack overt articles allow LBE from NP (Bošković 2004). However, though Mandarin, Japanese and Korean all lack overt articles, LBE from NP rarely happens. In this paper, I focus on why adjectives cannot be fronted in MJK. I have shown that this impossibility of adjectives LBE can be explained by the analysis that MJK all have a matching RC structure for adjectival modification and that CL disallows adjectives from being extracted from RCs. It is expected that languages that allow adjectival LBE should not have a matching RC structure for adjectives. In other words, if a language employs a relative clause in adjectival modification, we can predict that adjectives in this language must not be fronted away from nouns. The necessary conditions of adjectival LBE, besides the lack of overt determiners as mentioned by Bošković (2004), should also include a non-RC structure for adjectival modification.

Acknowledgments

I express my gratitude to Stephanie Harves. I also want to thank anonymous reviewers and all the audience at the 30th conference on Japanese/Korean linguistics. All errors are mine.

References


SECTION III
Poster Papers

Part 3
Experimental Linguistics and Acquisition
The Role of Complementizers in Korean Subject and Object Control Constructions*

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1 Introduction

Control constructions involve a dependency between two argument positions: controller and controllee (Kwon and Polinsky 2006). The former is overt and determines the referential properties of the latter, represented as PRO, which is an invisible subject in the embedded infinitival clause:

(1) a. John₁ promised Mary₂ [PRO₁/*₂ to wash].
b. John₁ persuaded Mary₂ [PRO₁/₂ to wash].

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*This paper is based upon work supported by the University of Hawai‘i at Mānoa Research in Linguistics Award. For help of various kinds, I would like to thank William O’Grady, Yu-Tzu Chang, Kimin Cho, In Ji Chun, Kamil Ud Deen, Theres Grüter, Jienn Kim, Yusuke Kubota, Miseon Lee, Rex A. Sprouse, Akari Ohba, Hajime Ono, Anu Reddy, Jeannette Schaeffer, Amy J. Schafer, Bonnie D. Schwartz, Fukuda Shin, Nozomi Tanaka, Jue Wang, Hongsoak Yun, Mayuko Yusa, Fred Zenker, SLS673 (Spring 2021) classmates, the Language Acquisition Research Group and the Experimental Approaches to Theoretical Syntax at the University of Hawai‘i at Mānoa, the audience at the 30th Japanese/Korean Linguistics Conference, and all the participants.

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Despite having the same superficial structure, the interpretation of a pair in (1) varies depending on the matrix verb predicates. When an infinitival clause is embedded under predicates like *promise*, as shown in (1a), a subject control interpretation arises, where the referent of PRO is the matrix subject NP (i.e., John). On the other hand, when an infinitival clause is embedded under predicates like *persuade*, as in (1b), an object control interpretation emerges, with the referent of PRO being the matrix object NP (i.e., Mary). Therefore, in English control constructions, the matrix verbs play a crucial role in identifying the antecedent of PRO.

Previous studies on incremental sentence processing have primarily focused on verbs (Pollard and Sag 1994). Specifically, verbs facilitate the predictive processing of argument structure and upcoming information, just as lexical heads do in verb-initial languages (Altmann 1999). Boland et al. (1990) discovered that comprehenders immediately utilize verb information for dependency formation during the online comprehension of English control constructions. However, this is not possible in verb-final languages such as Korean, where matrix verb information is delayed until the end of the sentence, as demonstrated in (2):

\[(2) \quad \text{a. John-i Mary-eykey [PRO ssis-}kilo\text{] yaksokhae-ss-ta} \]
\[
\text{J.-NOM M.-DAT [PRO wash-COMP] promise-PST-DECL}
\]
\[\text{John promised Mary to wash.}
\]

\[
\text{b. John-i Mary-eykey [PRO ssis-}tolok\text{] seltukhae-ss-ta}
\]
\[
\text{J.-NOM M.-DAT [PRO wash-COMP] persuade-PST-DECL}
\]

\[\text{John persuaded Mary to wash.}
\]

In addition to control verbs, Korean counterparts of (1) have different complementizers: *kilo* for subject control construction (i.e., 2a) and *tolok* for object control construction (i.e., 2b). According to the Standard Korean Language Dictionary by the National Institute of Korean Language, *kilo* attaches to the verb root, indicates a promise or decision, and is limited to certain verb types (e.g., *kyelsimha* ‘determine’, *kveyhoykha* ‘plan’, *yaksokha* ‘promise’). On the other hand, *tolok* is used with a limited set of verb predicates (e.g., *cwungkoha* ‘advise’, *kwenkoha* ‘recommend’, *myenglyengha* ‘order’) (Gamerschlag 2007; Park 2011; Yang 1985).

While there is robust evidence supporting the use by parsers of preverbal constituents in head-final languages (Inoue and Fodor 1995; Kamide, Yuki, Altmann, and Haywood 2003), the extent to which they rely on this information remains unclear. This study aims to explore whether and to what extent native speakers of Korean rely on alternative cues, such as the complementizer, before encountering the control verb to interpret control relations in online sentence comprehension.
The remainder of this article is organized as follows: Section 2 provides a brief review of previous findings from the processing of control constructions. Section 3 presents the methodological details of the current study. Section 4 reports the results. Finally, in Section 5, I conclude with the discussion of the findings and their implications.

2 Processing of Control Constructions

Empirical research on control sentence comprehension has yielded various findings, explained by the notion of ‘filler-gap dependency.’ That is, in processing of (3a) and (3c), for example, parsers initially assign the fronted wh-phrase ‘which horse’ (a filler) to an object of the matrix verb ‘signal’ (the potential gap) at the matrix verb ‘signal’ but revise the assignment at the embedded verb ‘surrender’ due to the implausibility of the context (i.e., the horse cannot surrender to the authority).

Boland et al. (1990) reported that verb control information guides the interpretation of PRO in online sentence comprehension. They manipulated the plausibility of the controller (i.e., plausible ‘outlaw’ vs. implausible ‘horse’) and the distance between a controller and PRO (i.e., wh-interrogatives vs. declaratives):

(3) a. Wh-interrogative with an implausible subject:
   Which horse\textsubscript{2} did the cowboy\textsubscript{1} signal PRO\textsubscript{1/2} to surrender to the authorities?

b. Declarative with an implausible subject:
   The cowboy\textsubscript{1} signaled the horse\textsubscript{2} to surrender PRO\textsubscript{1/2} to the authorities.

c. Wh-interrogative with a plausible subject:
   Which outlaw\textsubscript{2} did the cowboy\textsubscript{1} signal PRO\textsubscript{1/2} to surrender to the authorities?

b. Declarative with a plausible subject:
   The cowboy\textsubscript{1} signaled the outlaw\textsubscript{2} PRO\textsubscript{1/2} to surrender to the authorities.

The results demonstrated that sentences with implausible subjects were read slower at a control verb compared to sentences with plausible subjects, regardless of whether they were in interrogative and declarative form.

In contrast, it has been reported that comprehenders of verb-final languages predictably utilize morphological, syntactic, and contextual cues in addition to control verbs. Witzel and Witzel (2011) compared the reading times of control sentences by Japanese comprehenders, where an embedded subject is either overt (i.e., \textit{karejishin} ‘himself’ or \textit{kanojojishin} ‘herself’) or
omitted (i.e., PRO). They discovered that sentences with overt subjects were read faster than those with null subjects upon encountering a control verb. This indicates that control interpretation is readily available to Japanese comprehenders, enabling them to provisionally identify the referent of PRO.

Considering the rich verbal morphology of Korean, Song and Yun (2016) argued that verb modal or mood suffixes of the embedded clause could serve as cues in online processing of Korean control constructions. They compared the reading times at a control verb by manipulating the verbal suffix attached to the embedded verb, either the volitional modal suffix -keyss or the imperative mood suffix -la. The results proposed that the suffixes -keyss and -la provided readers with control information (i.e., subject control information for -keyss and object control information for -la), triggering the licensing of PRO identity. They also reported that the words before control verb were read more slowly when the controller was a subject than it was an object, indicating that the object control interpretation is more accessible to Korean comprehenders.

3 The Study

This study, inspired by Song and Yun (2016), examined the online processing of control constructions by Korean comprehenders. The research question addressed was: Do Korean comprehenders immediately utilize complementizer information to interpret control constructions?

3.1 Participants

Forty-nine native speakers of Korean (28 males, age range=16-69, M=44.2, SD=17.32) participated in the study. Four participants were excluded from the analysis due to their performance (for exclusion criteria, see §4).

3.2 Procedure

All the experimental tasks were conducted fully online, implemented using Gorilla. After filling out the consent forms, participants completed the main task, a Stop-making-sense Task (Boland et al. 1990). The experiment began with onscreen instructions that described the task. Participants were informed that they would be reading sentences one word at a time in the center of a computer screen, and that pressing the ‘F’ key would allow them to proceed to the next word. They were also instructed that they could stop the current trial and move on to the next one as soon as they felt the sentence no longer made sense by pressing the ‘J’ key. Two types of data were recorded for each participant for each word region: reading times and rejection rates. Reading times were measured in milliseconds for each word.
Following the main task, participants completed two untimed judgment tasks: a Coreference Judgment Task (CJT) and an Acceptability Judgment Task (AJT). In the CJT, participants were asked to select the agent of the event described in the embedded clause from two choices: a subject NP and an object NP. In the AJT, participants were instructed to rate the naturalness of each sentence on a 5-point scale, with 1 indicating ‘very unnatural’ and 5 indicating ‘very natural’. The two untimed judgment tasks were conducted only for target sentences to prevent participant fatigue. The entire experimental session took approximately 30–45 minutes.

### 3.3 Design and Materials

A total of thirty-two experimental sentences were used. The experiment crossed Complementizer (*kilo* vs. *tolok*) with Context (Match vs. Mismatch) in a Latin square design, resulting in four conditions (*k*=8 each). Additionally, 64 fillers were included encompassing syntactic structures such as conjunctive constructions, raising, relativized clause, and others.

The plausibility of Context was manipulated, taking into account previous findings that plausible information (e.g., the subject NP ‘waiter’ taking a customer’s order in (4a)) can be automatically and effortlessly processed based on general world knowledge (Yoon et al. 2015). Similarly, implausible contextual information (e.g., the subject NP ‘customer’ taking a waiter’s order in (4b)) disrupts general knowledge, leading to increased processing demands.

Importantly, to see just the effect of complementizer integration, the specific control verbs at R7 were replaced with a neutral verb *ha*–‘do’. This decision was informed by the results of a preliminary experiment, the Coreference Judgement Task, conducted with 32 native Korean speakers. In this experiment, when the complementizer *kilo* was used, the matrix subject was chosen as the controller 82.98% of the time. On the other hand, when the complementizer *tolok* was used, the matrix object was chosen as the controller 95.31% of the time.

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2 Details of the experimental materials, hypotheses, results (e.g., model outputs), and analysis can be accessed on the Open Science Framework ([https://osf.io/4tv2a](https://osf.io/4tv2a)).

3 Twenty-five participants received unbalanced lists (e.g., 7 items in Condition A and 9 items in Condition B, or 9 items in Condition A and 7 in Condition B) as two experimental items in Lists 2 and 3 were mistakenly swapped.
(4) a. *kilo*-Match condition

Today R1 | waiter-NOM R2 | customer-DAT R3 | quickly R4 |
| order-ACC R5 | take-*KILO* R6 | do-PST-DECL-COMP R7 |
say-PRS-DECL R8

'It is said that a waiter, decided PRO, to take an order quickly from a customer, today.'

b. *kilo*-Mismatch condition

Today R1 | customer-NOM R2 | waiter-DAT R3 | quickly R4 |
| order-ACC R5 | take-*KILO* R6 | do-PST-DECL-COMP R7 |
say-PRS-DECL R8

?‘It is said that a customer, decided PRO, to take an order quickly from a waiter, today.’

c. *tolok*-Match condition

Today R1 | customer-NOM R2 | waiter-DAT R3 | quickly R4 |
| order-ACC R5 | take-*TOLOK* R6 | do-PST-DECL-COMP R7 |
say-PRS-DECL R8

‘It is said that a customer, had a waiter, PRO, take their order quickly today.’

d. *tolok*-Mismatch condition

Today R1 | waiter-NOM R2 | customer-DAT R3 | quickly R4 |
| order-ACC R5 | take-*TOLOK* R6 | do-PST-DECL-COMP R7 |
say-PRS-DECL R8

?‘It is said that a waiter, had a customer, PRO, take an order quickly today.’

4 Results

Three participants who had accuracy rates below 70% in the Coreference Judgment Task for the target items in the Match conditions (i.e., scoring 12 out of 16 or lower) were excluded from the analysis. Additionally, one participant who had unusual RTs patterns were also excluded. As a result, a total of 45 participants remained for the analysis (25 males, $M=42.1$, $SD=16.5$).

4.1 Stop-making-sense Task

The goal of this task was to investigate the time course of utilizing control information extracted from complementizers in the processing of control constructions. It assessed two types of information: participants’ reading times and rejection rates per region. Longer reading times indicate increased processing difficulty for participants, while higher rejection rates suggest an
inability to consider the possibility of a gap in the syntactic structure at a conscious level (Kim et al. 2015). The regions of interest are Region 6 (i.e., where the complementizer appears) and Region 7 (i.e., where the generic verb ha- ‘do’ appears, as a spill-over region).

### 4.1.1 Rejection Rates

The number of trials in each condition on which a participant rejected the sentence was recorded at each region. These results were analyzed using generalized linear mixed-effects models (Baayen 2008) with the lme4 package in the statistical software environment R (Bates et al. 2014). The fixed effects included Context and Complementizer, while the random effects included Participants and Items.

Results show significant main effects of Complementizer ($\beta=.33$, $SE=.08$, $z=4.05$, $p<.001$) and Context ($\beta=-.77$, $SE=.08$, $z=-9.23$, $p<.001$). This indicates that sentences with an incorrect complementizer were rejected more than sentences with a correct complementizer. The interaction between Complementizer and Context was not significant ($\beta=.00$, $SE=.08$, $z=.04$, $p=.97$). At the spill-over region, R7, there was an interaction between Complementizer and Context, and it was approaching significance ($p=.053$), although there was no significant Complementizer effect ($\beta=.05$, $SE=.07$, $z=.66$, $p=.51$). Specifically, there was a highly significant main effect of Context ($\beta=-.86$, $SE=.07$, $z=-11.64$, $p<.001$).

**Figure 1.** Cumulative percentages of rejections in the critical regions (i.e., R6 and R7).  

**Figure 2.** Mean log transformed reading times (R6: complementizer region).

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4 Prior to analysis, the fixed effects were transformed into numerical values by sum coding: Context was coded as 1 for Match and -1 for the Mismatch conditions; Complementizer was coded as 1 for kilo and -1 for tolok conditions. Starting with the maximal model, random effects were reduced step by step until the model converged. The final model was conducted by using the following code: glmer(Cumulative_Reject ~ 1 + Complementizer * Context + (1 | Participant) + (1 | Item).

5 Up until R8, participants had rejected 64% of kilo-Mismatch sentences, 57% of tolok-Mismatch sentences, 29% of kilo-Match sentences, and 29% of tolok-Match sentences.
The percentage of rejection sharply increases at R6, where a complementizer appeared, and continued to rise until the end of the sentence for Mismatch conditions, as shown in Figure 1.

4.1.2 Reading Times (RTs)

Prior to analysis, the RT data were trimmed in two steps: (1) extreme RTs that were faster than 200 milliseconds or greater than 15,000 milliseconds were removed to prevent misleading results due to inflated estimations. (2) Long reading times were removed based on by-participant standard deviations. After applying the trimming procedure, a total of 868 data points were discarded, which accounted for 8% of the data. RTs were analyzed by region for all the trials that participants accepted by pressing ‘yes’ key. For example, if a participant terminated a given sentence at region 6, the RTs at regions 1 through 5 were included in the analysis. The raw RTs were then log-transformed to adjust for the skewing that is typical of RT data.\(^6\)

The results show that the complementizer was read significantly slower in Mismatch sentences compared to Match sentences (Figure 2), indicating a main effect of Context. Among the Match conditions, the RTs at R6 were longer when the complementizer was \textit{kilo} compared to \textit{tolok}, indicating a Complementizer effect.

As in the analysis of rejection rates, linear mixed-effects models were employed.\(^7\) At R6, the interaction between Complementizer and Context (\(\beta=.05, SE=.02, t=2.09, p<.05\)) and a main effect of Context (\(\beta=-.04, SE=.02, t=-2.11, p<.05\)) were significant, although the Complementizer effect was not significant (\(\beta=.02, SE=.02, t=1.33, p=.19\)). The Context effect was statistically significant at R7 (\(\beta=-.86, SE=.07, t=-11.64, p<.001\)). The interactions between two factors (\(\beta=-.13, SE=.07, t=-1.93, p=.05\)) and the Complementizer effect (\(\beta=.05, SE=.07, t=.66, p=.51\)) were not significant. This indicates that participants immediately use control information to identify the antecedent of controller as soon as they arrive at the complementizer.

4.2 Coreference Judgment Task

As each participant made multiple categorical judgments (i.e., subject NP or object NP) for target sentences, a mixed-effects logistic regression model was

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\(^6\) Reading time data in linguistics are typically positively skewed due to a natural lower limit on reading speed. This limit is determined by cognitive factors such as how quickly the brain can recognize and process a word and initiate a motor response to press a button. As a result, extremely short reading times are not possible, while very long reading times can occur in a stop-making-sense or self-paced reading tasks.

\(^7\) \text{lmer(Log.RT ~ Complementizer * Context + (1 + Complementizer * Context | Participant) + (1 + Complementizer * Context | Item)\)
conducted. Results show that the percentage of the correct interpretation was higher in Match sentences compared to Mismatch sentences (Figure 3). There were significant main effects of Complementizer ($\beta=.74, SE=.24, z=3.07, p<.01$) and Context ($\beta=1.35, SE=.22, z=6.21, p<.001$), which supported our hypothesis. However, the interaction between the two predictors was not significant ($\beta=.26, SE=.16, z=1.65, p<1$).

4.3 Acceptability Judgment Task

The raw judgment scores were first transformed into standardized z-scores to eliminate any bias (Cowart 1997). These standardized scores indicate how far each rating deviates from the mean score of each participant. If our hypothesis is supported, it was expected that the acceptance rates would be higher in Match sentences than in Mismatch sentences.

For the statistical analysis, cumulative link mixed models were used as they are suitable for handling ordered categorical data (Christensen 2018). The main effect of Context was observed, indicating that Match sentences were rated as more acceptable than Mismatch sentences (Figure 4). Results show that the Context effect appeared to be the significant predictor of the acceptability of the experimental sentences ($\beta=1.32, SE=.14, z=9.25, p<.001$). Furthermore, the interaction between Complementizer and Context was found to be statistically significant ($\beta=.27, SE=.14, z=2.03, p<.05$).

\[ \text{8} \text{glmer(Accuracy ~ 1 + Complementizer * Context + (1 + Complementizer + Context | Participant) + (1 + Complementizer + Context | Item).} \]

\[ \text{9} \text{clmm(Acceptability ~ Complementizer * Context + (1 + Complementizer * Context | Participant) + (1 + Complementizer * Context | Item).} \]

Figure 3. Mean rates (%) of correct judgments by Complementizer and Context. The error bars show standard errors.

Figure 4. Mean z-scores of acceptability ratings in the AJT. The error bars show standard errors.
5 Discussion

This experimental study investigated the effects of complementizers on the interpretation of control constructions by Korean native speakers. The results from the untimed judgment tasks, the Coreference Judgment Task and the Acceptability Judgment Task, indicate that the complementizer alone can influence the interpretation of PRO in Korean control constructions. Specifically, when the complementizer information did not align with the plausibility of Context (evident in cases such as (4b) and (4d) where the control interpretation triggered by the complementizer conflicted with the contextual information), participants exhibited lower accuracy in their interpretations and rated the sentences as less natural.

The interaction between Complementizer and Context reached statistical significance in the online task, the observed increase in reading times and rejections at the point of the complementizer suggests that complementizer may play a role in linking the controller and PRO.

Overall, these findings suggest that complementizers can aid in establishing the dependency between controller and PRO in control constructions, especially in verb-final languages where control verb information would otherwise be delayed. Consequently, the control information conveyed by complementizers serves as a constraint that guides controller choice in the comprehension of control constructions in Korean.

References


Acquisition of Japanese Negative Polarity Item Licensing by English-speaking Second Language Learners

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1 Introduction

In language, there are certain lexical items which behave in an interesting fashion; they are sensitive to the polarity of the sentence in which they appear. These items are called either affirmative polarity items or negative polarity items, depending on whether they must appear in affirmative or negative environments. Their full linguistic characteristics are determined beyond the lexical level and restricted at the syntactic and semantic levels, and

* We appreciate the audience of the 30th Japanese/Korean Linguistics Conference for their helpful comments. We are also grateful to the University of Kansas Department of Linguistics for providing funding for this study, and to Dr. Yuka Naito Billen, Dr. Tingting Wang, and Ayumi Nobuki for their assistance with stimulus development and recruitment.

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as such, they are of special interest to the field of linguistics. The specifics of how these items are restricted varies between languages, making them particularly relevant for the study of language acquisition. Japanese and English are two such languages which govern negative polarity items in different ways, making the pair an ideal test case for the study of second language acquisition of polarity items. The licensing conditions for Japanese negative polarity items are a subset of the licensing conditions for English negative polarity items, so it is particularly relevant to look for transfer in the second language acquisition of Japanese polarity items by first-language English speakers.

2 Literature Review

2.1 Negative Polarity Items

Negative polarity items (NPIs) are a subset of polarity sensitive items, which are lexical items sensitive to the affirmation or negation of a sentence. NPIs must occur within the scope of negation. However, what exactly it means to be ‘within the scope of negation’ varies crosslinguistically, and is the subject of much debate even within English.

One main analysis of English NPIs comes from Ladusaw (1980), who put forth a theory of licensing through downward entailment.\(^1\) Downward entailing environments are those in which a logical entailment is validated from a set-denoting expression to its subset-denoting expression. For instance, (2) must be true if (1) is true, but the opposite is not the case; note that, between (1) and (2) where the minimal difference is the set-subset relation between the two nouns, ‘man’ in (1) (set) and ‘tall man’ in (2) (subset), an entailment is validated from (2) containing the subset-denoting noun ‘tall man’ to (1) containing the set-denoting noun ‘man’.

\begin{align*}
(1) & \text{ No man walked.} \\
(2) & \text{ No tall man walked.}
\end{align*}

The above example of downward entailment involves a sentence with an overtly negative operator, ‘no.’ However, there can be ‘covertly’ negative downward entailing environments as well. For instance, English NPIs are licensed by yes/no question sentences and by certain semantically negative phrases like ‘rarely’ and ‘to be surprised.’ This is demonstrated below with the NPI ‘ever’ in overt negation, a yes/no question, a semantically negative

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\(^1\) The exact nature of English NPI licensing is under debate, with Ladusaw’s theory of licensing through downward entailment being only one of several (cf. Giannakidou 2006). This theoretical debate is outside of the scope of the present study.
environment, and unlicensed in an upward entailing environment, respectively.

(3) I have not ever been there.
(4) Have you ever been there?
(5) I am surprised that you have ever been there.
(6) *I have ever been there.

Japanese NPIs work differently, having much stricter limitations on the environments in which they can appear. According to Kato (1985), Japanese NPIs can only appear when they are within the same clause as an overtly negative operator. This is demonstrated in (7), with the NPI *sika* (‘anything but’).

(7) Yumiko-wa gyunyu-sika noma-na-katta
    Yumiko-TOP milk-anything but (NPI) drink-NEG-PAST
    ‘Yumiko did not drink anything but milk.’

Additionally, Japanese differs from English in the sense that the majority of its negativity-sensitive items are argued to be not NPIs, but negative concord items (NCIs). NCIs differ from NPIs in that they carry their own inherent negation marker, and so they can appear in positions such as ellipticals that do not overtly express negation (Watanabe 2004). *Sika* is argued by researchers such as Kishimoto (2018) to be a true NPI in Japanese, as it cannot appear alone in ellipticals. For this reason, it mirrors English NPIs to a greater extent than other Japanese negativity-sensitive items, and thus it was chosen as the item at the focus of this study.

In summary, the licensing conditions for Japanese NPIs such as *sika* are a subset of the conditions for English NPIs. English NPIs are licensed by both overtly and covertly negative environments, while Japanese NPIs are only licensed in overtly negative ones. This invites questions as to how English-speaking second language learners of Japanese learn to restrict the set of environments in which they are able to use NPIs such as *sika*.

### 2.2 Second Language Acquisition of NPIs

Two factors have been of interest in previous studies of second language acquisition of NPIs: transfer, or the influence one’s L1 exerts on their L2 (e.g. Schwartz and Sprouse 1994), and metalinguistic knowledge, or one’s explicit knowledge about their L2 (Roehr 2007). A series of studies conducted by a group of researchers (Gil and Marsden 2011; Marsden et al. 2018; Gil et al. 2019) looked at the influence of these factors on second language acquisition of the English NPI ‘any.’ The studies targeted two groups of learners, L1 Arabic and L1 Mandarin Chinese, compared to a target group of L1 English
speakers. All three studies measured this through use of acceptability judgment tasks (AJT).

Arabic and Mandarin Chinese were chosen as the L1s for these three studies because of their own NPI licensing conditions. Arabic NPIs are licensed in essentially the same conditions as English, while Chinese NPIs are licensed in a more restricted set of contexts. Those researchers used these properties to make between-groups predictions regarding transfer, with the L1 Arabic group expected to outperform the L1 Chinese group on structures allowed in their own language. However, this was not borne out. Instead, Gil and Marsden (2011) and Gil et al. (2019) found that both groups performed closest to native English speakers on sentences with NPIs used with overt negation, and that both struggled most with NPIs in covertly negative environments such as questions and lexical semantic negation. Some evidence that was taken in partial support of transfer was within the L1 Chinese group, who performed better on a type of lexical semantic negation that is expressed as overtly negative in Chinese than one that is not.

Results from these studies were similarly inconclusive in regard to the question of metalinguistic knowledge. Marsden et al. (2018) included a question designed to measure metalinguistic knowledge by asking participants directly what the English rule was determining whether ‘any’ could be used. They counted answers correct if participants stated that ‘any’ can be used with negation and questions. Ultimately, only 9 of 86 participants stated a correct rule, with the majority (67 participants) answering that they did not know the rule. As such, they were unable to run analyses looking for correlations between this knowledge and AJT results.

Note that, in these studies, the target L2 grammar is English, and the NPI licensing conditions in learners’ L1 were either identical to (Arabic) or a subset of (Chinese) the target L2 licensing conditions in English. This left open the question of what would occur with a group whose L1 licensing conditions were a superset of their L2. While this poses a potential learnability problem (Inagaki 2011), it also leads to more clear-cut predictions regarding the influence of transfer. In particular, we thought that for L1 English speakers, Japanese, with its straightforward NPI licensing conditions that are taught explicitly to learners as needing to occur with negation, would be an ideal test case. This led us to the following three research questions.

1. Are L1 English, L2 Japanese learners aware of the licensing conditions for Japanese NPI *sika*?
2. What role does L1 transfer play in their judgments about this NPI?
3. What role does metalinguistic knowledge play in their judgments about this NPI?
3 Participants

Two groups of participants were recruited for this study. The test group was an L1 English, L2 Japanese group (n = 9), age 20;1-23;3 (mean 21;4). They were recruited from students enrolled in second- and third-year Japanese classes at U.S. universities. The control group was an L1 Japanese group (n = 9), age 22;3-26;9 (mean 24;5). All participants provided full informed consent and were paid for their participation in the study.

4 Measures

Participants were first given a questionnaire collecting demographic and, for the L1 English group, language background information. After that, three measures were administered in the following order: an AJT looking at participants’ judgments of *sika*, a metalinguistic knowledge task designed to test participants’ understanding of Japanese NPI licensing conditions, and a proficiency exam adapted from the Japanese Language Proficiency Test (Association of International Education, Japan and The Japan Foundation 2003).

The AJT crossed grammaticality (negated being grammatical vs. affirmative being ungrammatical) and sentence structure (declarative vs. question) for the four target conditions in (8), (9), (10), and (11) below. Sentences were presented in Japanese orthography, with pronunciation guides (*furigana*) above each kanji character.

**Negative declarative (Neg-dec-G) [Grammatical in both languages]**

(8) Yuuta-san-wa, sports-o suru-toki, mizu-sika noma-nai

Yuuta-Mr.-TOP, sports-ACC do when, water-*sika* drink-NEG

‘Mr. Yuuta doesn’t drink anything but water when he plays sports.’

**Affirmative declarative (Aff-dec-UG) [Ungrammatical in both]**

(9) *Yumiko-san-wa, yama-ni nobo-tta toki, ki-sika mi-ta

Yumiko-Ms.-TOP, mountain-DAT climb-past when, tree-*sika* see-past

‘*When Ms. Yumiko climbed the mountain, she saw anything but trees.*’

**Negative question (Neg-Q-G) [Grammatical in both]**

(10) Satosi-san-wa, senshuu-no nomikai-de, beer-sika noma-na-katta-no

Satosi-Mr.-TOP, last week-GEN get-together-LOC, beer-*sika* drink-NEG-past-QP

‘Didn’t Mr. Satosi drink anything but beer at last week’s gathering?’
Affirmative question (Aff-Q-UG) [Grammatical in only English]

(11) *Mei-san-wa, game-o suru tameni, pasokon-sika tsukau-no Mei-Ms.-TOP, video game-ACC do for, computer-sika use-QP
‘Does Ms. Mei use anything but a computer to play video games?’

There were eight sentences in each target condition, mixed in with an additional forty-eight filler sentences that were either grammatical or targeting ungrammatical constructions not involving NPIs. The affirmative question (Aff-Q-UG) condition in (11) was of crucial interest. Affirmative question sentences in English allow NPIs, due to the covertly negative nature of questions, but Japanese realizations of (11) do not allow NPIs, and result in ungrammatical sentences. This condition thus allows us to directly measure which of the two competing grammars may contribute to participants’ acceptability judgment.

While L1 Japanese participants only took the AJT, L2 participants were asked to take a subsequent metalinguistic knowledge task adapted from that in Roehr (2007). This task presented participants with an ungrammatical sentence with the section containing an error underlined, then asked participants to first correct, then explain the error. The item used for target construction sika is reproduced below in English glossing. There were also filler questions targeting other ungrammatical constructions that had appeared in the AJT.

(12) George-san-wa, ocha-to coffee-o mora-tta kedo, coffee-sika non-da George-Mr.-TOP, tea-COMP coffee-ACC receive-past but, coffee-sika drink-past
‘Mr. George received tea and coffee, but only drank the tea.’

In order to receive credit for a correct answer on (12), participants were expected to add the negative morpheme correctly to the verb, and to explain this by stating that sika could only appear with negation.

The final task administered was a proficiency test adapted from old materials from levels N3 and N4 of the Japanese Language Proficiency Test. Through this, participants were judged to be low-intermediate level learners.

5 Predictions

It was predicted that if participants showed evidence of transfer from their L1, they should incorrectly judge the critical target condition of Aff-Q-UG as grammatical, as its equivalent in English would be grammatical. However, if participants had sufficient metalinguistic knowledge of Japanese NPI licensing, they may correctly judge this condition as ungrammatical instead.
6 Results

6.1 Acceptability Judgment Task

Each participant’s AJT ratings were z-score transformed following Schütze and Sprouse (2013). Averaged results for each group on the four main target conditions are plotted in Figure 1.

A linear mixed effects model crossing Group (L1 or L2), Grammaticality (grammatical/negated or ungrammatical/affirmative), and Structure (declarative or question) yielded main effects of Group ($t = -2.684, SE = 0.093, p < .01$), Grammaticality ($t = -19.179, SE = 0.102, p < .001$), and Structure ($t = -2.154, SE = 0.102, p < .05$). It also yielded a two-way interaction of Group x Grammaticality ($t = 3.52, SE = 0.128, p < .001$). However, no three-way interaction of Group x Grammaticality x Structure was found. This is crucial, as, if L1 English participants were rating *sika* in affirmative questions specifically as more acceptable than their L1 Japanese counterparts, it was expected to show in the form of a three-way interaction here. This suggests that, while there are differences between the two groups’ ratings in the sense that L1 speakers have sharper judgments than do L2, there is no evidence for transfer.

6.2 Metalinguistic Knowledge Task

Participants showed 100% accuracy on the metalinguistic knowledge task questions related to *sika* usage. As such, no further analyses were carried out.
7 Discussion

Our first research question asked if learners were aware of Japanese NPI licensing conditions. Given that they performed qualitatively similarly to their native speaker counterparts, judging grammatical conditions as acceptable and ungrammatical as unacceptable, it seems that they are broadly aware of these licensing conditions.

Our second research question asked what role transfer played in these judgments. Transfer was not observed on the group level in this experiment, although one individual participant did show evidence of it in their judgments of sentences in the Aff-Q-UG condition as grammatical.

Research question three asked what role metalinguistic knowledge played in learners’ judgments. Participants showed ceiling metalinguistic knowledge of sika, matching their broadly nativelike response pattern in the AJT. This could indicate that metalinguistic knowledge was guiding judgments, but a larger sample with more variability would be needed to make strong conclusions.

In summary, participants in this study showed a qualitatively nativelike understanding of NPI licensing conditions in both their AJT and metalinguistic knowledge task results, with no group evidence of transfer observed. These findings do not align with those of past studies (Gil and Marsden 2011; Marsden et al. 2018; Gil et al. 2019), which found that learners had difficulty judging English NPIs and had very low levels of metalinguistic knowledge about them. One possible reason for this difference between studies is the straightforward nature of Japanese NPI licensing compared to English. Typically, a structure which is more restricted in one’s L2 than L1 is thought to pose a learnability problem, since learners must infer through a lack of evidence in the input that this usage is not allowed in the L2 (Inagaki 2001). In this case, though, all participants were classroom learners who had been explicitly taught that sika must be used with negation, and their metalinguistic knowledge scores indicate that they retained this explicit knowledge. Since the main test was an AJT in which participants had ample time to consider judgments of each sentence before recording them, this ‘textbook’ knowledge about sika may have masked any tendencies towards transfer from English.

Another possibility lies in the way that sika is taught to classroom learners. In the textbooks learners in this study used, it is translated as ‘only,’ but needing negation, rather than as ‘anything but’ (Abe Hatasa et al. 2018). This may not have navigated learners to associate sika with any one specific English NPI. Due to the common analysis of Japanese as being an NCI-language with only sika as an NPI (Kishimoto 2018), we chose not to include other options that may have had more straightforward mapping, but would have belonged to a different class of negativity-sensitive items.
8 Conclusion

This study explored the roles of transfer and metalinguistic knowledge in L1 English, L2 Japanese classroom learners’ judgments of the NPI sika. It revealed no evidence of transfer, with learners performing in a broadly native-like manner on the AJT, and demonstrating ceiling level metalinguistic knowledge regarding the NPI’s licensing conditions. Further research involving a larger sample would be called for to better understand this issue. Ideally, this will also reveal more variability in responses to the metalinguistic knowledge task, allowing for a more detailed look at the relationship between metalinguistic knowledge and judgments on sentences with NPIs.

References


1 Introduction

In cleft constructions, it has been noted that focused phrases show exhaustivity (Kiss 1998, Hedberg 2000, among others). Furthermore, it is reported that children’s acquisition of exhaustivity in clefts delays in various conditions.

In Japanese, clefts and right dislocations (RDs) both include dislocated items and they may have similar word orders (e.g. SVO, OVS, etc), but they are different with regard to the exhaustivity of dislocated phrases. This study examines whether children are aware of the difference between clefts and RDs in Japanese with regard to their exhaustivity.

In an example of a Japanese cleft (1) below, the presuppositional clause comes first and the focus phrase appears at the end. According to Hiraiwa and Ishihara (2012), the focused phrase in (1), itigo ‘strawberry,’ moves to FocusP. And then, the presuppositional phrase usagisan-ga tot-ta no ‘that the rabbit took’ moves to TopicP, which is placed before FocusP linearly. In Japanese clefts, like clefts in English and other languages, the focused phrase needs to be exhaustive. That is, adults interpret it as ‘only the item taken by the rabbit was strawberry.’ In (1), if the rabbit took not only a strawberry but also a pineapple and a kiwi, the sentence sounds infelicitous.

(1) Japanese cleft

<table>
<thead>
<tr>
<th>Presuppositional clause</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ Zousan-ga tot-ta no wa ]</td>
<td>itigo-(o) da.</td>
</tr>
<tr>
<td>elephant-Nom take-Past C Top strawberry-Acc Cop</td>
<td></td>
</tr>
<tr>
<td>‘It was a strawberry that the elephant took.’</td>
<td></td>
</tr>
</tbody>
</table>

Now let us look at an example of Japanese RD in (2). In Japanese RD, there is a gap in the first part of the sentence before the pause, and the right-dislocated item, itigo ‘strawberry-Acc,’ comes at the end, but the dislocated phrase does not have to be exhaustive (Ko 2017). Takami (1995) points out that, in Japanese, right-dislocated elements are informationally non-focused. For example, even if it is in a situation where the rabbit took not only a strawberry but also a pineapple and a kiwi, the RD in (2), which mentions only the strawberry, is felicitous:

(2) Japanese right dislocation (RD)

| Zousan-ga e tot-ta yo, itigo-wo. |
| elephant-Nom take-Past Prt strawberry-Acc |
| ‘The elephant took (it), a strawberry.’ |

To our knowledge, children’s acquisition of the non-exhaustivity in RDs and its comparison with the exhaustivity in clefts in Japanese have not been examined. Therefore, this study investigates whether Japanese children are sensitive to the difference between RDs and clefts concerning their (non)-exhaustivity.
2 Previous Acquisition Studies

There are several studies which tested children’s knowledge of exhaustivity in clefts in different languages. Heizmann (2007) tested the exhaustivity of English clefts with 33 children (3;2 – 5;11). The method was the Truth Value Judgment Task (Crain and Thornton 1998), and the children were asked to judge whether exhaustive and non-exhaustive cleft test sentences uttered by Kermit the Frog were correct after stories were given with movies. In a sample story, Cookie Monster had a nice book, a hat and a football, but he threw away the football and the hat. Examples of cleft test sentences are given in (3). As for the non-exhaustive test sentence in (3a), only one of the two items, e.g. the football, was given in the underlined focus position. In the exhaustive test sentence (3b), both items, the football and the hat, were given exhaustively in the underlined focus position:

(3) a. Non-exhaustive:
   It was the football that Cookie Monster threw into the trashcan.

b. Exhaustive:
   It was the football and the hat that Cookie Monster threw into
   the trashcan.

Heizmann’s results were as follows. 3- and 4-year-olds were able to accept exhaustive test sentences well, but they could not correctly reject the non-exhaustive answers and the correct response rates were quite low: 27.2% for 3-year-olds and 54.5% for 4-year-olds. The correct response rate of non-exhaustive sentences for 5-year-olds was 72.7% and much better than those of 3-year-olds and 4-year-olds. These results have shown that children at the age of 3 and 4 are not quite sensitive to the exhaustivity of English clefts.

Furthermore, Dansako and Mizumoto (2008) examined the exhaustivity of Japanese clefts with 45 children (4;0-6;7, Mean=5;4). They used the Truth Value Judgment Task and similar test sentences as those in Heizmann (2007). Dansako and Mizumoto’s results also show that 3- and 4-year-olds were not quite sensitive to the exhaustivity of Japanese clefts: the correct response rates were 12.1% for 3-year-olds and 35.3% for 4-year-olds. The correct response rate for 5-year-olds becomes better, 54.9%, but it is still not very high.

The studies by Heizmann and Dansako & Mizumoto both show that 3- and 4-year-olds were not sensitive to the exhaustivity of clefts in English and Japanese. In the next section, we introduce our experiment, which examined Japanese-speaking children’s sensitivity of (non-)exhaustivity for clefts and RDs.
3 Experiment

In our experiment, we examined 16 Japanese monolingual children (4;7–6;4, Mean=5;6). We divided the children into two groups: eight children in the Cleft group (3 six-year-olds, 3 five-year-olds, 2 four-year-olds), and eight children (3 six-year-olds, 3 five-year-olds, 2 four-year-olds) in the RD group.

We used the method called the Ternary Judgment Task (Katsos and Bishop 2011). The previous studies reviewed in Section 2 used the Truth Value Judgment Task, which led children to give binary answers: whether test sentences were correct or wrong. Instead of leading children towards binary answers, we considered that the Ternary Judgment Task may give more options and the task may reveal children’s knowledge in more detail. Let us explain how we used the Ternary Judgment Task below.

A child listened to recorded stories with the animations on the computer screen. In the stories, an animal found three items and took three items with him. At the end of each story, the child listened to a recorded test sentence (either clefts or RDs) including one or two (i.e. non-exhaustive), or three items (i.e. exhaustive). Those test sentences were given as the utterances by an anime character, *akachanman*, appeared beside the last picture. The child was asked to judge whether the test sentence matched the story. The child was asked to give the anime character a large cookie (L) if the test sentence matched the story perfectly, a medium cookie (M) if the sentence matched the story fairly well but not perfectly, and a small cookie (S) if the sentence did not match the story. By using three different-sized cookies, we urged children to judge test sentences in a ternary way.

As for the test sentences, we included 2 exhaustive sentences with three items, either clefts or RDs in each group, 2 non-exhaustive sentences with two items, 2 non-exhaustive sentences with one item, and 4 fillers. A sample story, the picture of the last scene of the story, and test sentences are given below:

(4) Sample story (originally in Japanese and translated in English here):
There was an elephant in the grass field. He was looking for some food. Then, he found a strawberry. It looked delicious, so he took it. Walking through the grass field, he found a pineapple. He wondered whether he took it because he didn’t like it, but he took it since he was hungry. Walking further, he found a kiwi fruit and took it.
Figure 1. Last Picture of the Story

(5) Sample test sentences
a. Exhaustive cleft (All the three items):
Zousan-ga tot-ta no wa itigo to painappuru to kiui
elephant-Nom take-Past C Top strawberry and pineapple and kiwi
da yo.
Cop Prt
‘It was a strawberry, a pineapple and a kiwi fruit that the elephant took.’
b. Non-exhaustive RD (Two items among three):
Zousan-ga tot-ta yo, itigo to painappuru-o.
elephant-Nom take-Past Prt, strawberry and pineapple-Acc
‘The elephant took (them), a strawberry and a pineapple.’

(5a) is an example of an exhaustive cleft sentence with all the three items, i.e. a strawberry, pineapple and a kiwi, in the focus position. (5b) is an example of a non-exhaustive RD sentence with two items, i.e. a strawberry and a pineapple, given in the right-dislocated position. The next section gives the results and discussion.

4 Results and Discussion

Let us show the results by age groups. Table 1 shows the results of 6-year-olds (L = large cookie, M = medium cookie, S = small cookie).
Table 1. Response Rates for 6-year-olds

<table>
<thead>
<tr>
<th></th>
<th>6-year-olds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clefts (N=3)</td>
</tr>
<tr>
<td>Exhaustive</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>100% (6/6)</td>
</tr>
<tr>
<td>M</td>
<td>0.0% (0/6)</td>
</tr>
<tr>
<td>S</td>
<td>0.0% (0/6)</td>
</tr>
<tr>
<td>Non-exhaustive (with 2 items)</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>0.0% (0/6)</td>
</tr>
<tr>
<td>M</td>
<td>83.3% (5/6)</td>
</tr>
<tr>
<td>S</td>
<td>16.7% (1/6)</td>
</tr>
<tr>
<td>Non-exhaustive (with 1 item)</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>0.0% (0/6)</td>
</tr>
<tr>
<td>M</td>
<td>50.0% (3/6)</td>
</tr>
<tr>
<td>S</td>
<td>50.0% (3/6)</td>
</tr>
</tbody>
</table>

With regard to the exhaustive test sentences, 6-year-olds gave large cookies to both clefts and RDs 100% of the time. This shows that 6-year-olds know that exhaustive answers are perfect for both clefts and RDs.

As for non-exhaustive test sentences with 2 items and 1 item (the cells highlighted with gray color), 6-year-olds gave large cookies to the puppet 0% of the time for clefts. This clearly shows that 6-year-olds judged the non-exhaustive answers as not perfect for clefts and that they have knowledge of exhaustivity of clefts. The results of clefts for 6-year-olds look much better than those of Dansako and Mizumoto (2008). The use of the Ternary Judgment Task, instead of the binary Truth Value Judgment Task, may have captured subtle differences regarding children’s sensitivity to exhaustivity.

Concerning RDs, 6-year-olds judged the non-exhaustive sentences as perfect more than clefts (33.3% vs. 0.0%, highlighted by gray). This shows that 6-year-olds are aware of the non-exhaustivity of RDs, and that 6-year-olds are sensitive to the difference between RDs and clefts with respect to their (non-)exhaustivity.

Next, let us look at the results of 5-year-olds and 4-year-olds together in Table 2 and 3:
The contrast between clefts and RDs among 5- and 4-year-olds was not as clear as that in 6-year-olds. As shown in Table 2, for both exhaustive clefts and RDs, 5-year-olds gave large cookies 100% of the time, which is correct. However, the performance of 5-year-olds did not show much difference between clefts and RDs for non-exhaustive sentences and 5-year-olds did not seem to distinguish those two clearly.

Table 3 shows the results of 4-year-olds. If we focus on non-exhaustive sentences with one item, as shown in the highlighted part, 4-year-olds seem to distinguish clefts and RDs since they gave large and medium cookies more for RDs (25.0% and 75.0%) than for clefts (0.0% and 25.0%). Still, 4-year-olds accepted non-exhaustive test sentences with two items for clefts to some extent (i.e., giving large and medium cookies). Goro (2007) suggested Japanese children’s late acquisition of the exhaustive list implicature of subjects with the nominative case marker -ga, and our results of 4 and 5-year-olds
may have shown the similar tendency regarding the acquisition of exhaustivity of clefts in Japanese.

To summarize, the overall results suggest that 6-year-old Japanese children have knowledge of the exhaustivity of clefts and the non-exhaustivity of RDs, and that 4- and 5-year-old children are still acquiring those properties of clefts and RDs in Japanese.

5 Conclusion

This study examined children’s sensitivity to the exhaustivity of clefts and the non-exhaustivity of RDs in Japanese. We tested Japanese monolingual children from 4 to 6 years old by using the Ternary Judgment Task. The results of our experiment have shown that 6-year-olds are sensitive to the exhaustivity of clefts and the non-exhaustivity of RDs in Japanese, but the results suggest that 4- and 5-year-olds are still in the course of acquiring those properties.

References

SECTION III
Poster Papers

Part 4
Discourse Analysis, Historical Linguistics, and Grammaticalization
-aku Nominalization in Early-Heian Japanese Kundoku Discourse: A Preliminary Study*

JOHN BUNDSCHUH
Swarthmore College

1 Introduction

Nominalized sentences in Japanese—those ending with a nominal construction, rather than a finite predicate—often express a speaker’s attitude toward an event (Shin’ya 2009) and interact much more closely with modality when compared to Indo-European languages (Narrog 2009). This has been the case throughout the history of the language, although there have been shifts in the morphemes involved and how the nominalization process interacts with the predicate paradigm system.

There were three primary clause nominalization strategies in Old Japanese (ca. 8th century CE) texts—paradigmatic nominalization (using the adnominal form of the verb paradigm), following the adnominal verb form with the noun koto, and following the adnominal form with the suffix -aku. Although -aku lost its productivity by the 10th century (Kobayashi 1957, Majtczak 2009), it was a productive morpheme in the agglutinating predi-

* My thanks to the organizers and audience of JK30 for feedback, particularly John Whitman for introducing me to Janick Wrona’s research.
cate paradigm in earlier Japanese (Vovin 2005). Omodaka et. al (1967: 251) suggest that the original meaning of the morpheme may be indexing a “psychological place” and Mukai (2019) uses a possible-world model to argue that -aku is a subjective modal that marks suppositions, convictions, and expressions of emotion in Old Japanese. Although Mukai does not take early-Heian glossed texts into account, following the long-standing convention that all material from the Heian period is Early Middle Japanese, Ōtsubo (1961) and other scholars have written extensively on how early-Heian Japanese glossed translations of Sinitic texts contain Old Japanese constructions and Osterkamp (2021) argues convincingly that the language of 9th-period glossed texts should be understood as Old Japanese.

In these texts, the nominalizer -aku could be used sentence-finally, as in (1), clause-initially, as in (2), and to introduce a quotation, as in (3).1

1) 苦哉、我が愛子を失ひつラク。 (Kasuga 1942a: 194)
   kanasiki ka ya. Wa ga aiko wo usinapi-turaku.
   painful Q SPF. I GEN beloved.child ACC lose-PFV-NMLZ
   ‘Oh how painful! That I have lost my beloved child.’

2) 庶ハクハ此（の）教を⾧ク懸（け）て永ク來者を濟せむ。
   (Nakada 1958: 3)
   Negapaku pa ko no wasipe wo nagaku kake-te nagaku raisya wo
   sumu-se-mu.
   what.I.hope TOP this GEN teaching ACC long cover-GER long
   seeker ACC be.satisfied-CAUS-MOD
   ‘What I hope is that this teaching will satisfy seekers (of the way) for
   a long time.’

3) 婆羅門の言（は）ク「...」といふ。 (Kasuga 1942a: 11–12)
   baramon no ipaku [Quotation] to ipu.
   brahman GEN say-NMLZ “[Quotation]” COMP say
   ‘The brahman’s saying, “[Quotation]” he says.’

1 I use the following abbreviations: ACC (accusative), CAUS (causative), COMP (complementizer), COP (copula), EPIS (epistemic modal), FOC (focus particle), GEN (genitive), GER (gerund), IMP (imperative), INDIR (indirect evidential), LOC (locative), MIR (mirative), MOD (modal), NMLZ (nominalizer), PFV (perfective), PST (past), Q (question particle), SFP (sentence-final particle), TOP (topic).

2 All quotations use the transliteration methodology of the cited texts. Hiragana are from wokototen glosses, katakana are from kanai-esque glosses, and hiragana in parentheses are the cited scholar’s educated guess based on the context.
All -aku nominalizations form event, rather than participant, nominalized clauses, and when they are used sentence-finally, such as in (1), they are referential predicates that characters evaluate with heightened emotions, such as being wonderful, sad, fearful, painful, etc. Sentence-final -aku nominalizations only occur in dialogues quoted by narrators in these texts. -aku is found sentence-initially as an adverb, as in (2), in both in narration and quotations. Outside of dialogue, narrators use -aku before almost every quote, as in (3), before concluding with, most often, the same utterance or thinking verb in a finite form.

This study examines -aku nominalizations in 9th-century Japanese kundoku narrative discourse and argues that, as it is used in 8th-century sources, -aku primarily serves a modal function, marking predicates as facts that can be targets of evaluation by characters in emotional scenes. This paper proceeds as follows. Section 2 overviews literature on nominalizations in 8th-century poetic discourse. Section 3 focuses on these nominalizations in Sinitic Buddhist narratives translated in the 9th-century. Modern-day remnants of -aku nominalization are discussed in Section 4. Section 5 concludes the paper with a discussion on -aku’s modal function, which has changed little over time even after the suffix’s loss of productivity.

2 Nominalization in 8th-Century Poetic Discourse

As mentioned in §1 there are three nominalization strategies used in 8th-century Japanese poetic discourse. The first is paradigmatic nominalization, or using the adnominal form of the verb paradigm known in Japanese as rentaiiku (連体句). The second is following the adnominal verb form with the noun koto, known in Japanese as juntaiku (準体句). The nominalization strategy that is the focus of this paper is known in Japanese as kugohō (ク語法), following the adnominal form with the suffix -aku. This construction generally results in the deletion of the final -u in the adnominal form, such that, for example, ipu ‘say’ followed by -aku results in ipaku rather than *ipuaku. This structure is referred to as the “verbal noun” in Mątćzak (2008) and the “Nominal form” in Wrona (2009), but it will be referred to as “-aku nominalization” throughout this paper. Regarding how these nominalizations relate to the predicate, Wrona concludes that “[the Old Japanese] system of complementation pivots around Nominal [(-aku)] complements and to-complements” and that “[a]dnominal and koto-complements are clearly making their way into the [Old Japanese] complement system, but are not yet fully integrated” (Wrona 2008: 392). In other words, among the three nominalization strategies, -aku was most likely to be a complement selected by the predicate.
The following chart, based on data from Mukai (2019: 7), shows how the different nominalization strategies interacted with auxiliaries (inflecting suffixes) in 8th-century poetic discourse.

<table>
<thead>
<tr>
<th>governed auxiliary</th>
<th>adnominal</th>
<th>koto</th>
<th>-aku</th>
</tr>
</thead>
<tbody>
<tr>
<td>negation -zu</td>
<td>3</td>
<td>7</td>
<td>124</td>
</tr>
<tr>
<td>modal -mu</td>
<td>0</td>
<td>12</td>
<td>62</td>
</tr>
<tr>
<td>other</td>
<td>206</td>
<td>211</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 1. Nominalization of auxiliaries in 8th-century poetic discourse

We can see that among the nominalization strategies, -aku is most likely to follow negation -zu and modal -mu, both of which govern the irrealis stem. Mukai (2019) also argues that “when we consider [-aku’s] association with auxiliaries that govern the irrealis stem, thinking verbs, and hypothetical expressions, we can say that it is an expression of the situation based on the subjective perception of the speaker” (Mukai 2019: 11). While -aku likely originated from a bound noun meaning ‘place’ or ‘thing’ (Sansom 1928) and has been described as semantically equivalent to periphrastic koto nominalizations (Ōno 1952), its ties to the evaluation of the predicate have been suggested in a definition of the suffix in (Omodaka et. al 1967) as “psychological place” and Mukai’s (2019) conclusion that it is a “subjective modal.” In the following section, we will compare -aku with the other two nominalization strategies in the earliest extended narratives in Japanese, 9th-century gloss translations of Sinitic Buddhist texts.

3 Nominalization in 9th-Century Kundoku Discourse

The sources of data for this investigation are early-Heian, or 9th-century, kundokubun (訓読文 ‘vernacular reading language’) Buddhist texts. The method for reading Sinitic texts as Japanese, known as kundoku (‘vernacular reading’), came to be known for being highly codified translationese with each sentence rendered without regard to the surrounding discourse, but evidence from glossed 9th-century texts show rich use of predicate morphology reflecting the narrative context (Bundschuh 2021).

Thus, we are looking at a particular register of early Japanese, one used to translate sutras and commentaries written in Literary Sinitic. The data in this study come from a Saidaiji temple late-9th-century translation of the Golden Light Sutra (J. 金光明最勝王経 Konkōmyō saishō ō kyō) transliteration (J. 書き下し文 kakikudashibun) found in Kasuga (1942a) and a

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3 See Nakada (1954: 151–154) for a discussion on the differences between kundokubun and futsūbun (‘normal language’).
Tōdaiji temple translation of the Kṣitigarbha Ten Wheels Sutra (J. 地蔵十輪経 Jizō jūrin kyō) in Nakada (1958) and Nakada (1980).

3.1 Adnominals and Periphrastic Koto Nominalizations in Early-Heian Kundoku Discourse

To begin, adnominals and periphrastic koto nominalizations are much more prevalent in the translated narratives of the 9th-century compared to the 8th. As we find in earlier data, adnominal noun phrases can operate in both object position, as in (4), and subject position, as in (5).

(4) 「...」といふなるを聞（き）つ (Kasuga 1982a: 193)
   “[...]” to ipu naru wo kiki-tu
   “[...]” COMP say(NMLZ) COP(NMLZ) ACC hear-PFV
   ‘I heard that it was that they said “[...]”‘.

(5) 随といふは能（く）二種の事業を造作す。 (Nakada 1958: 39)
   zui to ipu pa yoku nisyu no zigyau wo zausa.su
   accordance COMP say(NMLZ) TOP able.to two.kinds ACC create
   ‘That which is called accordance is able to create two kinds.’

Periphrastic koto nominalizations are found in periphrastic predicates, such as the extended potential using u (得 ‘attain’), found in (6), and in object positions, such as (7), among other uses.

(6) 未曾有なること得つ。 (Kasuga 1982a: 14)
   mizou naru koto e-tu
   unprecedented COP NMLZ attain-PFV
   ‘They were able to attain the unprecedented.’

(7) 願フ、此の人を食すること（を）聽（し）たまへ。 (Nakada 1958: 70)
   kopu, ko no pito wo ziki.suru koto wo yurusis-tamape
   please this GEN person ACC eat NMLZ ACC permit-HON(IMP)
   ‘Please allow me to eat these people.’

3.2 -aku Nominalization in Early-Heian Kundoku Discourse

Although less common than adnominal or periphrastic koto nominalizations, suffix -aku nominalization was common and varied in early-Heian discourse. Tsukishima (1969: 494–501), in a comparison of -aku nominalization in vernacular poetry and vernacular glossing language, finds the following uses in the latter: 1) Marking a speech/thought predicate leading a
quoted sentence with \textit{to ipu} or another speech/thought predicate at the end of the quotation. 2) Making a declarative adverb of hoping, which is generally followed by a predicate stipulating that condition. This use is often followed by \textit{pa}. 3) Ending the sentence with \textit{-aku} or adding the emphatic particle \textit{nomi}. Regarding this third function, Tsukishima writes that this form creates an exclamatory nominalized predicate and adding \textit{nomi} strengthens the exclamatory function. However, Kasuga (1942b: 203) had previously noted that \textit{nomi} is most often added when the \textit{-aku} clause is not preceded by an interjection, such as \textit{kanasiki ka ya ‘how sad!’}, as seen in (1) above, and \textit{zenya ‘good!’} as seen in (10) below.

We will now look at examples of types 1–3 in Early Heian \textit{kundoku} discourse. We saw a pre-quotation \textit{-aku} in (3) above, but these can be verbs of thinking or evaluation as well, such as (8).

(8) \textit{是の念を作（さ）ク「...」トオモフ。} (Kasuga 1942a: 6)
\textit{ko no nen wo nasaku [Quotation] to omopu.}
\textit{this GEN thought ACC make-NMLZ [Quotation] COMP think}
\textit{‘creating this thought, “[Quotation]” they think.’}

Although the final verb of speaking or thinking is predominantly the same as the pre-quotative \textit{-aku} predicate, examples where a different verb with similar semantics, such as (8), or the same verb with a different tense or aspect auxiliary found after the quotation are possible.

An example of an adverbial function of \textit{-aku} was presented in (2) above. It contains a pattern common in these constructions—that of the finite predicate containing a modal expression. We see this in the following example as well.

(9) \textit{我も今疑（は）ク弟は其の身を捨（てつ）ラむ。}
\textit{ware mo ima utagapaku pa otouto pa no mi wo sute-tu-ramu.}
\textit{I also now suspect-NMLZ TOP younger.brother TOP that GEN body ACC discard-PFV-MOD}
\textit{‘I, too, now suspect that our younger brother has likely discarded his body.’}

While we see \textit{negapaku pa} (‘I hope that’) in (2), here we find \textit{utagapaku pa} (‘what I suspect’). These adverbial constructions most often contain verbs that present the speaker’s evaluation of the predicate, which most often ends in a modal construction, reflecting the fact that adverbial \textit{-aku} phrases are always modal in nature. The adverbial phrase is found on the left periphery of the sentence, allowing it to better interact with the discourse context.
Sentence-final -aku nominalizations highlight the structure’s use in expressing speaker evaluation. We saw an expression of pain in (1) above, but -aku is more often found in these texts following exclamations of joy, as we see in the following example.

(10) 善哉善哉。汝等乃能ク此の誓願を発サク。 (Nakada 1980: 183)
zenya zenya. Nandi-ra sunapati yoku ko no seigwan wo okosaku.
good good. you-PL thus able.to this GEN vow ACC make-NMLZ
‘How good, how good! That you are thus able to make this oath!’

Unlike adverbial -aku phrases, sentence-final -aku is the result of a cleft construction consisting of a nominative noun phrase moving to the right periphery, where it interacts with the discourse context and indicates speaker evaluation. However, unlike adnominal and koto nominalizations, we never find -aku constructions as complements in the standard subject-object-verb sentence structure. Now we will look at these three nominalization strategies involved in a single quotation in an embedded narrative.

3.3 9th-century Nominalizations in Context

The following is a section from the Golden Light Sutra depicting a grieving king in which we find all three nominalization strategies.

(11) a. 王是の語を聞(き)て悲歎して(而)言(は)ク、
wao ko no go wo kiki-te pitan.si-te ipaku,
king this GEN words ACC hear-GER painfully.lament-GER say-NMLZ
‘The king heard this story and painfully lamented, saying,’

b. 「苦哉苦哉、我が愛子を失ひつラク。
“kanasi ki ka ya, kanasi ki ka ya. wa ga aisi wo usitapi-turaku.
“sad(NMLZ) Q SFP, sad(NMLZ) Q SFP. I GEN beloved.child
ACC lose-PFV-NMLZ.
‘Oh how painful, oh how painful! That I have lost my beloved child!’

c. 初に子の有し時には歡喜すること少(か)リキ。
uo ni ko no yuu.si-si toki ni pa kanki.suru koto sukunakariki.
first LOC child GEN exist-PST time LOC TOP rejoice NMLZ
few-PST.
‘When I first had a child there was little rejoicing.’
The selection begins with a common quotation-introducing -aku nominalization in (11a). The first line spoken by the king, (11b), is the same as (1) above, with a repeating ‘how sad!’ followed by an -aku noun phrase presenting what is sad. Both (11c) and (11d) contain parallel koto nominalizations, both of which are the subject of what are few and many. In (11d) we also find a cleft-construction (J. 係り結び kakari-musubi) with quasi-copular focus particle zo followed by a predicate nominalized in the adnominal form. The king says two more lines without nominalized predicates, but the quotation ends with to notamapu, an honorific verb of speaking not seen in the pre-quotative -aku nominalization ipaku. The sentence-final exclamative use of -aku is found in earlier Japanese (Wrona 2008: 130), but falls out of use by the vernacular narratives of the 10th-century. In the following section we will consider how the suffix endures in Japanese today.

4 -aku Nominalization in Japanese Today

Although -aku constructions came to be fossilized by the 11th-century (Kobayashi 1957, Majtczak 2009), modality remains ingrained in the semantics of fossilized -aku lexemes, as we can see in the following examples.

(12) 恐らく行くだろう。
Osoraku iku darō.
probably go EPIS
‘They will probably go.’

(13) 田中曰く行くらしい。
Tanaka iwaku iku rashī.
Tanaka according.to go EPIS/INDIR
‘According to Tanaka, they will go.’

(14) 願わくは行くことを。
Negawaku wa iku koto o.
what.I.hope TOP go NMLZ ACC
‘What I hope is that they will go.’
Osoraku, seen in (12), is largely constrained to being followed by the epistemic modal darō. While iwaku (the modern-day pronunciation of ipaku, seen in (3) above) is still largely constrained to quotative constructions, it can be used with the auxiliary rashī, as seen in (13). Rashī is often used to present second-hand evidence, but may index the speaker’s epistemic stance of vouching for the information provided. Finally, we see in (14) negawaku wa, the modern-day pronunciation of negapaku pa (seen in (2) above), which still presents the speaker’s hopes. In sum, the adverbial predicates nominalized by -aku that have endured in Japanese, although they have become lexicalized with -aku no longer acting as a productive morpheme, all interact with modality.

5 Conclusions

In this paper we have seen how the predicates nominalized by the suffix -aku have maintained their modal function diachronically. Just as in the 8th century, each phrase nominalization strategy had a distinct function in 9th-century kundoku discourse. Mukai’s (2019) findings on the modality of -aku nominalization in 8th-century texts are also consistent with the 9th-century narrative data discussed in this paper. It marks sentence-final predicates as facts that can be targets of evaluation by characters in emotional scenes, paralleling right periphery modality nominalizations today, and its adverbial function interacts with the left periphery, most often with modal auxiliary -mu governing the following finite predicate.

Among its three primary functions in early-Heian kundoku discourse, its pre-quotative use is the most removed from the periphery and, thus, interacts the least with modality. It can be understood as an extension of -aku’s modal semantics by presenting a predicate as a fact to be the target of qualification—rather than evaluation—by first noting the manner in which words are said before qualifying the contents of the speech act. This hypothesis is supported by the potential modal use of iwaku in Japanese today.

By taking the discourse context into consideration, we can better understand the pragmatics of -aku beyond its surface function as a nominalizing morpheme. Furthermore, rather than focusing on poetic texts, taking kundoku narrative texts into account as well provides us with a greater range of language use, showing us that speakers use varied nominalization strategies to perform different communicative functions, even in early gloss translations. These data support the fact that -aku nominalizations have maintained their interactions with modality over time after their loss of productivity, even in the fossilized forms that remain today.
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Dynamic Identity Shifts through Code-switching Strategies in Multilayered Online Interactions of Korean

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1 Introduction

This research aims to examine the multi-layered online interactions between online gaming streamers and their viewers, wherein Korean online interlocutors dynamically shift and display their identity through various code-switching strategies. Specifically, this study focuses on one distinctive code-switching practice: speech level elevation from non-honorifics to honorifics, as observed in video live-streaming platforms. In offline or face-to-face interactions, social norms, contexts, and the relationship between interlocutors typically confine the use of a specific speech style, namely
either non-honorific panmal or honorific contaysmal style. However, online communication platforms provide a unique space where participants actively change their speech styles across speech levels, depending on the identity they want to construct and display moment-by-moment.

Analysis of online gaming interactions reveals that speakers can construct various identities, including (1) an obsequious and submissive player, (2) an official commander who displays knowledge and authority, and (3) a skilled player, by abruptly elevating their speech level from panmal to contaysmal. These code-switching practices as contextualization cues (Gumperz 1982) signal a shift in frame and footing during interaction, enabling the interlocutors to dynamically change their interactional roles.

2 Methodology and Data

Drawing on Bucholtz and Hall's sociocultural linguistics framework (2005), which perceives identity as a discursive construction within social interaction rather than a pre-existing, fixed concept of self or others, this study investigates how online interlocutors dynamically transform their interactional identities through various code-switching strategies. To achieve this objective, the research adopts Goffman's concepts of "frame" and "footing" (1981). The term "frame" pertains to the definition of a speech event, while "footing" represents the participant's orientation towards the ongoing interaction, reflecting how interaction participants express their alignments towards other interactants or referents (Goffman 1981; Choe 2020).

The data analyzed for this proceeding consists of eighty videos uploaded by six popular gaming YouTubers on the video-sharing/streaming platforms YouTube and Twitch. The length of each video varies from ten to thirty minutes. The interaction between streamers and their audience was transcribed using a three-line format. The Korean utterances are romanized in the first line according to the Yale Romanization system. Spoken utterances are marked in italics, while typed chats are transcribed in regular font. A morpheme-by-morpheme glossary is provided in the following line, where the speech level will be marked in bold. The third line of the transcripts provides idiomatic English translations of the utterances.

3 Analysis

A close examination of the video data through the lens of sociocultural linguistics framework shows when and how online interlocutors employ speech level elevation in order to change footing and frame, in which to display various identities. The following three excerpts illustrate three representative identities indexed by the speech level shift practice.
3.1 Submissiveness of a Vulnerable Player

Online gaming interlocutors frequently use non-honorific expressions when addressing opponent players, who cannot technically hear the utterance, in gameplay. However, when discovering that their opponents in the game are well-equipped and likely overpower him, online users tend to index this unlevel power relationship with opponent players through the speech level elevation. The following excerpt illustrates how online interlocutors adjust their footings and frames to display the submissiveness of a weak player.

Prior to the following excerpt, the streamer MI announced the start of his gameplay, stating that he will enjoy the game using the deferential style - (su)mita, as in onul chapwunha-key kyengcayng han pen culkye-po-torok ha-keyss-supnita ‘I’m going to calmly enjoy the competition today.’ While controlling his avatar to land in a secluded area for safety, MI shifts the screen and notices another opponent player landing right next to him, targeting the same area. In lines 1 and 2, MI informs the player about a motorcycle located in a building and then asks if the player will leave without engaging in combat, both expressed in non-honorific plain style sentence enders. It is important to note that the opponent player, whom MI addresses as a ratified hearer, cannot hear the streamer's utterance or respond to it. Despite the player's inability to hear MI's words, MI encourages him to leave the site to avoid potential conflict by posing a rhetorical question in line 2.

Excerpt 1 Mercy

1 MI: an-ey odopai iss-ta.
in-LOC motorcycle exist-PLN
There is a motorcycle in the building.

2 ya ne ku-ke tha-ko ka-l ke-ci?
hey you that-thing ride-and go-will thing-COM
Hey, you’re gonna take that and leave, aren’t you?

3 V1: hay-po-ca-ko?
try-do-PRP.PLN-QUT
Do you wanna fight?

4 MI: >o i sayikki chong mek-ess-ta. ssipa<
gosh this pun gun eat-PST-PLN damn
Damn, this punk picked up a gun.
After both players land in the same area, they quickly enter different buildings to search for weapons and eliminate each other. Once MI equips his avatar with a crowbar, he begins searching for the player and chasing him, in which to establish a confrontational frame. This shift to a confrontational frame is supported by one of MI's viewers, who further provokes a fight with the opponent player, as seen in line 3, "Do you wanna fight?" It is evident that this viewer cannot directly control the avatar, and the opponent player cannot read or respond to the viewer's chat. Nonetheless, the viewer aligns with the confrontational frame established by MI and demonstrates his footing shift by duplicating MI's non-honorific style utterance to threaten the opponent player. This confrontational frame continues until the streamer spots the player and briefly reports on the status of the player, using the Korean derogatory address term saykki (lit. young animal) to call him/her and a Korean vulgar interjection ssipa ‘damn’, as in line 4. However, as soon as MI and his viewers encounter the enemy behind the door, who is already equipped with more powerful weapons than MI’s crowbar, they abruptly shift their footing.

Subsequently, MI makes the decision to flee from the player, closes the door, and returns to the building where he initially found his weapon in order to search for another one. Meanwhile, the opponent player starts chasing MI's avatar, prompting MI to scream and plead for mercy, utilizing speech level elevation to the honorific style with the subject honorific suffix -(u)si and the -a/eyo form, as seen in line 7. By employing the honorific speech level, which includes the use of the subject honorific suffix -(u)si and the polite sentence ender, MI adjusts his footing towards the dominant enemy and reframes the interaction as one of desperation. Furthermore, MI's exaggerated facial expression contributes to the dramatization of the begging frame, making the interaction more entertaining. This is followed by several viewers expressing their amusement with laughter tokens such as khkhkhkh ‘lol’ in the subsequent lines.
3.2 Authority of an Official Commander

Online interlocutors often engage in constructing pretend play frames, allowing them to assume various identities. Prior to the following conversation, a viewer assigned a challenging task called *misyen* 'mission' to the streamer MI. In order to receive a significant amount of money promised by the viewer, MI and his friend must play the game as a team and win a round. Although they succeeded in winning the first round and received the prize from the viewer/donator, MI expressed dissatisfaction with the outcome. This was because his avatar was killed early in the round and had little contribution to their victory. Subsequently, the same viewer suggested another mission where MI takes on the role of a commander, and SK follows his orders to achieve another victory.

Excerpt 2 Airplane

1 MI: *chinku-ya ka-ca. khameysukhi.*
   friend-VOC go-PLN.PRP. ((NAME))
   Bro, let’s go to Kameshki.

2 *Wonseka >cha thala-ing ppali.< ((NAME)) car ride-PLN.IMP.NAS quickly*  
   Wonsek, get in the car. Hurry.

3 SK: *ung.*  
   okay
   Okay

4 SK: *eti-lo ka-yo?*  
   where-to go-POL
   Where should we go?

5 MI: *pihayngki chac-ulo ka-lkey-yo. khameysukh wi-ey*  
   airplane find-to go-will-POL ((NAME)) above-LOC
   We will go find an airplane.

6 *e pihayngki hana nao-nta-pnita.*  
   um airplane one appear-QUT-DEF
   Someone said we can find one in the northern area of Kameshki.
In lines 1 through 3, both MI and SK discursively establish a joint operation and index intimacy. MI suggests their course of action (line 1) and orders SK to get in his car quickly in the non-honorific style. In response, SK confirms MI's directive in the same non-honorific style. MI addresses his fellow player as *chinkwu* ‘friend’ in line 1 and even uses his real name, *Wonsek*, in line 2. These choices contribute to indexing their casual relationship. Furthermore, MI adds nasality -*ing* to his plain style imperative sentence ending -*la*, enhancing the casualness of his utterance. In response, SK aligns with MI's casual imperative utterances by providing a non-honorific style response, using *ung* ‘yes’ in line 3. Thus, these two friends establish an intimate and casual frame, where the emphasis is on their equal relationship between the streamer MI and co-player SK, rather than a commander and follower dynamic.

However, the initially established intimate frame transitions into a hierarchical operation frame as SK reminds MI of their assigned roles as a commander and follower, as suggested by the viewer/mission giver. SK positions himself as a follower, indicating low authority and dependence in decision-making within the operation. To convey his subordination, SK employs the polite style sentence ending *-yo* (line 4) and poses an interrogative utterance *edi-lo ka-yo ‘where are we going?’*, which further reinforces his submissive position.

In response to SK's frame shift through the speech level elevation, MI also elevates his speech style from non-honorific to honorific. This elevation serves to index authority and enhanced epistemic stance (Chang 2014; Kim 2022) as he provides a briefing on his operation plan. The plan involves finding an airplane to quickly move to the battlefield where other players are engaged in combat (line 5). Furthermore, MI enhances his authoritative identity by sharing new information obtained from one of the viewers. He presents this information in a deferential style (line 6), indicating "newness" (Strauss and Eun 2004) and formality.

### 3.3 Expertise of a Skilled Player

In the following excerpt, we observe how online interlocutors establish or switch frames by utilizing the speech level elevation strategy to position themselves as experts or teachers, demonstrating a high epistemic stance. The interaction involves the streamer GP and her viewers.

Prior to this interaction, GP showcased her exceptional skills by defeating nine other players in the game. Impressed by her gameplay, a
viewer V1 requests GP to provide a lesson on how to play the game well (line 1). In response to this request, another viewer, V2, compliments GP's streaming as a valuable resource for improving gaming skills. Following this exchange, V1 poses a question to V2 regarding whether GP ever streams her gameplay in an educational manner, teaching viewers how to enhance their gaming skills (lines 5 and 6). Upon reading V1's question as a request, the streamer GP positions herself as a teacher and aligns with the teacher-and-learner frame introduced by the viewer from line 8.

Excerpt 3 Educational Channel

1  V1: kelppo-nim payku com allya-cwu-sey-yo ((NAME))-HON ((NAME)) little inform-give-SH-POL
     Please teach me how to play this game well.

3  V1: kulay-yo?
     right-POL
     Really?

5  kyooywuk pangsong-sik-ulo-to ha-nayo?
     education broadcasting-style-as-also do-Q.POL
     Does she also teach like an educational broadcasting channel?

6  sensayngnim khenseyp
teacher concept
     Just like a teacher.

7  GP: kyokywuk pangsong-ulo hay-tal-lako?
     education broadcasting-as do-give-QUT
     Do you want me to teach, like an educational channel?

8  ca i chinkwu kath-un kyengwu-nun
     so this friend same-RL case-TOP
     So, for this guy,

9  etteh-key cap-usi-myen toinya-myen
     how-ADV catch-SH-if become-if
     if you want to kill him,

10  iltan-un akka cap-un sichey-lul han ip ha-si-ko
     first-TOP ago catch-RL corpse-ACC one bite do-SH-and
     First, loot some items from the death crate of the player I killed
     a while ago,
In line 8, the streamer adjusts her orientation towards the viewers, signaling a shift in the frame. This shift is marked by the speech level elevation from non-honorific to honorific style. She does not complete her utterances with the use of the honorific style sentence enders, -(a/eyo or -(su)pnita, up until line 12. Instead, she positions her viewers as students by using the subject honorific suffix -(u)si (lines 9, 10, 11, and 12) while providing detailed explanations on how to defeat an enemy hiding in a building. The construction patterns of this frame exhibit similarities to other discourses such as classroom interactions, where teachers utilize honorific speech styles, particularly the -(a/eyo and -(su)pnita forms, to convey their formal role as educators (Park 2015: 84). Additionally, this framing resembles TV interview programs, in which hosts employ the honorific style to indicate formality between themselves and their guests (Chang 2014).

While maintaining the informative teaching frame, the streamer GP “laminates” frames (Choe 2020; Goffman 1974), in which seriousness/formality and casualness coexist. In line 14, GP provides instructions to her viewers on how to detect the footsteps of an enemy when entering a building, employing the deferential -(su)pnita style. This style enhances the seriousness and formality of her instruction, emphasizing the importance of the information she is conveying.

However, GP then abruptly shifts her physical gesture by putting her right hand next to her ear and enacting her avatar in the game. This action conveys a sense of casualness and playfulness, as she pretends to listen for the sound of footsteps made by the opponent player. In addition, the use of the polite style sentence ender -(a/eyo and the subject honorific suffix -(u)si
followed by the nasal sound ng (token of aykyo\(^1\) ‘winsomeness’ or baby talk) signals the lamination of the teaching frame with the play frame, in which the streamer takes up the ambivalent position of an informative teacher and cute young girl, as in line 14. This oxymoronic footing and frame lamination, in which the streamer GP enacts an authoritative teacher using the baby-talk speech style, contributes to making the interaction more layered and ironic and thereby more entertaining.

4 Discussion and Conclusion

This study presents three excerpts where online interlocutors in Korean online gaming interactions employ code-switching strategies, particularly speech level elevation, to shift and display their identity. Analyzing the video data shows that the actual usage of the honorific system transcends the traditional boundary between non-honorifics panmal and honorifics contaysmal. In the first excerpt, the sudden transition to the honorific style can be utilized to convey submissiveness toward an enemy, allowing the speaker to assume the role of a vulnerable, subordinate player. Conversely, the same strategy can be employed by the interlocutor to assert authority and take up the role of an authoritative figure, as in Excerpt 2. Furthermore, this code-switching mechanism can also serve to highlight the speaker's elevated epistemic stance, thereby enabling the interlocutor to position themselves as a skilled player, as in the last excerpt.

References


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\(^1\) Puzar and Hong (2018) identified that one of the functions of aykyo ‘winsomeness’ is to "soften the atmosphere of certain situations."


Inverse Construction as a Solution to the Mismatch Between Perception and Cognition

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1 Introduction

This research paper aims to: (i) analyze a cognitive-functional definition of inverse voice based on topicality from the perspective of Cognitive Linguistics; (ii) compare and contrast the use of inverse voice in Korean and Japanese with motion verbs (e.g., come) and benefactive verbs (e.g., give); and (iii) elucidate the Japanese benefactive -te morau construction and adversative passive using this cognitive-functional definition of inverse voice.

The paper addresses two main research questions: (i) how a cognitive-functional definition of inverse voice provides a comprehensive explanation for various phenomena related to inverse voice, and (ii) what the similarities and differences between the use of inverse voice in are Korean and Japanese.

Section 2 discusses a topicality-oriented functional definition of inverse voice and proposes a cognitive-functional definition based on the discrepancy between perceptual and cognitive prominence. Section 3 offers a brief overview of previous studies on inverse voice in Korean and Japanese, providing a unified explanation for its usage in both languages. In Section 4, the cognitive-functional definition of inverse voice is further applied to the Japanese benefactive -te morau construction and adversative passive. Finally, Section
5 concludes the paper with a brief summary and a discussion on its theoretical implications.

2 Cognitive-Functional Characterization of Inverse Voice

2.1 Background

Dixon (2012: 218) argues that some grammars include an ‘inverse system’ where core arguments are cross-referenced on the verb in different fashion depending on whether the referent of the A argument is higher than that of the O on the nominal hierarchy (direct) or lower (inverse).\(^1\) In a conventional two-participant event structure, the active/direct voice designates the participant with greater topicality as the agent, as exemplified in (1a). Conversely, the inverse voice is employed in specific language families, such as Algonquian languages as below:

1 a. [1→3] Direct alignment with a direct morpheme
   \[\text{ni-se:kih-a-wak. (direct)}\]
   1.SG-frighten-DIRECT-3.PL
   ‘I frighten them.’

1 b. [3→1] Inverse alignment with an inverse morpheme
   \[\text{ni-se:kih-ik-wak. (inverse)}\]
   1.SG-frighten-INV-3.PL
   ‘They frighten me.’ (Dahlstrom 1991: 69, 70)

This contrasts with the active/direct construction that emphasizes the topicality of the agent, and it also differs from the passive construction, where the agent is radically suppressed (Givón [ed.] 1994). The prominence of the agent and patient can be illustrated as in Figure 1 below:

![](image)

Fig. 1 Prominence of the agent and patient in anti-passive, active/direct, inverse, and passive voices

\(^1\) All languages distinguish between intransitive and transitive clauses: an intransitive clause has a single core argument, in S (intransitive subject); a transitive clause has two core arguments, in A (transitive subject), and O (transitive object).
The subsequent section will delve into the examination of the functional definition of inverse voice, which centers around the relative topicality of the agent and non-agent. This analysis will be conducted within the framework of Cognitive Linguistics.

### 2.2 Cognitive-Functional Analysis of Inverse Voice

DeLancey (1981) introduces two cognitive concepts, namely attention flow and viewpoint, to provide a comprehensive explanation for both person-based and aspect-based split-ergative systems. The arrangement of NP constituents in a clause reflects attention flow, representing the sequence in which the speaker anticipates the addressee's focus. Conversely, events can be described from various alternative viewpoints. However, the default viewpoint aligns with that of the speech act participants. When attention flow and viewpoint align, an unmarked active/direct voice is employed. However, in cases where they diverge, a marked passive or inverse voice is utilized. Example (2) can be elucidated in terms of attention flow and viewpoint.

(2) Noote (Payne 1997: 210)

\[
\begin{align*}
\text{a. } & \quad \text{nga-ma ate hetho-ang.} \\
& \quad 1\text{-ERG 3 teach-1.SG} \\
& \quad \text{‘I will teach him.’}
\end{align*}
\]

\[
\begin{align*}
\text{b. } & \quad \text{ate-ma nga-nang hetho-h-ang.} \\
& \quad 3\text{-ERG 1-ACC teach-INV-1.SG} \\
& \quad \text{‘He will teach me.’}
\end{align*}
\]

In example (2a), the NP ordering from first person singular "nga" (‘I’) to third person singular "ate" (‘he’) aligns with the natural viewpoint from Speech Act Participant (SAP) to non-SAP, reflected in the unmarked verb. In contrast, example (2b) has NP constituents ordered from third person singular "ate" to first person singular "nga," conflicting with the natural viewpoint. This conflict is resolved through the use of a marked verb with an inverse marker -h.

Kim (2009) adopts a Cognitive Linguistics approach to examine the interplay between perception, cognition, and linguistic encoding. Language can be traced back to its conceptual origins in perception and cognitive construal. The construal process is contingent upon the distribution of attention.

Moreover, any disparity between perceptual and cognitive prominence requires overt marking. For instance, the English passive construction overtly marks "be/get + past participle," directing the addressee's primary focus of attention to the perceptually secondary but cognitively primary patient, encoded as the subject. Simultaneously, this overt marking suppresses the perceptually
primary but cognitively secondary agent, demoting it to an oblique position or omitting it.

This paper proposes that the inverse voice construction serves as a communicative device to resolve mismatches between perceptual prominence (e.g., figure/ground segregation) and cognitive prominence. The inverse voice manifests the disparity between a perceptually secondary but cognitively primary non-agent and a perceptually primary but cognitively secondary agent within an event structure. Example (2), hereafter denoted as (3), is analyzed using this cognitive-functional definition of the inverse voice.

(3) Nocte (Payne 1997: 210)

a. nga-ma ate hetho-ang.
   1-ERG 3 teach-1.SG
   ‘I will teach him.’

b. ate-ma nga-nang hetho-h-ang.
   3-ERG 1-ACC teach-INV-1.SG
   ‘He will teach me.’

In (3a), the agent "nga" ('I') is more perceptually and cognitively prominent than the patient "ate" ('he') because the agent controls the event, and the speaker (first person) holds the highest position in the empathy hierarchy. Conversely, in (3b), the agent "ate" ('he') is more perceptually prominent than the patient "nga" ('I') as the agent controls the event structure. However, cognitively, the patient "nga" ('I') holds higher prominence than the agent "ate" ('he') since the first person ranks highest in the empathy hierarchy. This mismatch between perceptual and cognitive prominence results in morphological markedness, represented by the inverse morpheme -h.

The primary function of the inverse voice is to capture the addressee's attention by signaling a discrepancy between the perceptually secondary yet cognitively primary non-agent and the perceptually primary yet cognitively secondary agent.

3 Inverse Voice in Korean and Japanese

3.1 Previous Studies on Inverse Voice in Korean

The phenomenon of object-fronting in Korean has received considerable attention in linguistic studies, primarily focusing on its discourse functions related to topic and focus (Lee 2002, Sohn 2001, Storbeck et al. 2004, among others). Notably, Kwak (1994) stands as one of the pioneering works to examine OSV clauses featuring an accusative-marked object, conceptualizing it as an instance of inverse voice construction in Korean:
'(We) don't know if your grandfather looked for the cow or not, but ...'

The clause-initial position in Korean usually reserved for the main topical NP typically corresponds to the subject/agent in active clauses, resulting in the common SOV word order. However, there are instances, like example (4), where an object is fronted and marked with an accusative case. According to the person/animacy hierarchy, human entities take precedence over animate beings. Thus, the fronted object in (4) - the 'cow' - indicates that the cow has higher relative topicality compared to the referent 'your grandfather'.

Kwak (1994) proposes that the fronted OSV clause with an object marker can be analyzed as an inverse voice construction. However, this analysis has two limitations: it only covers OSV clauses with an accusative-marked object, ignoring other constructions, and it primarily relies on quantitative data analysis from a novel, offering limited explanatory depth.

In addition to OSV clauses with an accusative-marked object, this paper extends its analysis to include beneficiary-fronted and possessor-fronted OSV clauses, exemplified in (5) and (6) respectively:

(5) na, nachsen salam-i ike sa-cwu-ess-ta.
1.SG strange person-NOM this buy-give[INV]-PST-DECL
‘A stranger bought this for me.’

(6) cay, caknyeyn-ey emma-ka tolaka-si-ess-tay.
that.person last.year-LOC mom-NOM pass.away-HON-PST-QT
‘They say that his mom passed away last year.’
(lit. As for him, his mom passed away last year.)

In example (5), the agent is represented by the third person singular "nachsen salam" 'a stranger', while the non-agent first person singular "na" 'I' is fronted. Similarly, in example (6), the experiencer, signified by "emma" 'mom', has passed away, yet the non-experiencer "cay" 'that person' is fronted. This fronting of non-agent participants, both in (5) and (6), indicates that both "na" and "cay" (proximate participants) hold a higher relative topicality compared

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2 The commas in (5), (6), and (7) indicate that some pause usually follows after na and cay.
to the agent "nachsen salam" and the experiencer "emma" (obviative participants). Despite being perceptually secondary, "na" and "cay" possess cognitive prominence, resulting in their higher ranking.

Furthermore, it is noteworthy to observe in example (7) that the benefactive verb "cwuta" 'give' is obligatory in this context, as illustrated below:

(7) *na, nachsen salam-i ike sa-ss-ta.
   1.SG strange person-NOM this buy-PST-DECL
   'A stranger bought this for me.'

The auxiliary verb "cwuta" in the beneficiary-fronted inverse construction allows for the fronted beneficiary dative object. This falls under the grammatical inverse construction category, as it shows syntactic features associated with inverse voice. Moreover, like the possessor-fronted OSV inverse construction, the beneficiary OSV inverse construction can also be classified as a functional pragmatic inverse due to its pragmatic functions in discourse beyond its grammatical structure.

3.2 Inverse Voice in Korean and Japanese

This section explores the Korean inverse voice phenomenon by comparing it with two Japanese inverse voice constructions proposed by Koga (2010): the neutral/malefactive inverse with the directional verb "kuru" 'come' and the benefactive inverse using the verb "kureru" 'give to the speaker'. Additionally, I argue that the Japanese -te morau construction, traditionally viewed as a benefactive offering/receiving construction (Morita 1981, Masuoka 2001, among others), also functions as an inverse voice construction.

While Nariyama (2000) initially asserts that the Japanese directional verb "kuru" 'come' and the benefactive verb "kureru" 'give' belong to an inverse verb construction, this paper presents examples of the neutral/malefactive inverse with the directional verb "kuru" and the benefactive inverse with the verb "kureru" from Koga (2010: 115), which offers a comprehensive analysis of inverse voice in Japanese. The corresponding Korean translations for these examples are provided by me.

(8J)³ Ken-wa boku-ni booru-o nage-te {ki-ta/kure-ta.}
   Ken-TOP 1.SG-to ball-ACC throw-AND come-PST/give-PST

³ 'J' and 'K' indicates Japanese and Korean examples, respectively.
Kheyn-un na-eykey kong-ul tenci-e {*wa-ss/cwu-ess-ta.}  
Ken-TOP 1.SG-to ball-ACC throw-AND come-PST/give-PST-DECL  
‘Ken threw me the ball.’

Koga (2010: 116) argues that the Japanese verb "kuru" does not depict the physical motion of the subject Ken. Instead, it indicates that the event expressed by the main verb "nageru" is directed towards the speaker. This directional aspect is usually unexpected from the speaker's perspective and often carries a negative impact, though not always.

In example (8J), the inclusion of "kuru" is mandatory due to the hierarchical ranking of the goal/recipient argument (1st person non-agent) above the agent (3rd person). However, in the corresponding Korean example (8K), "ota" ('come') cannot be used after the verb "tencita" 'throw'. Normally, example (8K) in Korean is described without the inclusion of "ota," as shown below:

(9) Kheyn-un na-eykey kong-ul tenci-ess-ta.  
Ken-TOP 1.SG-to ball-ACC throw-PST-DECL  
‘Ken threw me the ball.’

In contrast, the inverse construction with the verb "kureru" in Japanese consistently benefits the speaker, retaining its positive impact (Koga, 2010: 116). Similarly, the Korean benefactive verb "cwuta" in the previous example (9) also follows this pattern. However, it's worth noting that Korean has a single benefactive verb "cwuta," similar to the English verb "give," while Japanese uses "kureru" when the giver is not the first person and "ageru" when the receiver is not the first person, as shown below:

(10) a. [1→2] Direct alignment with a direct verb  
*J. watashi-wa anata-ni omiyage-o age-ta.  
1.SG-TOP 2.SG-DAT present-ACC give-PST  
K. na-nun ne-eykey senmul-ul cwu-ess-ta.  
1.SG-TOP 2.SG-DAT present-ACC give-PST-DECL  
‘I gave you the present.’

b. [2→1] Inverse alignment with a direct verb  
*J. anata-ga watashi-ni omiyage-o age-ta.  
2.SG-NOM 1.SG-DAT present-ACC give-PST  
2.SG-NOM 1.SG-DAT present-ACC give-PST-DECL  
‘You gave me the present.’
c. [2→1] Inverse alignment with an inverse verb

1. anata-ga watashi-ni omiyage-o kure-ta.
   2.SG-NOM 1.SG-DAT present-ACC give[INV]-PST
   ‘You gave me the present.’

In Japanese, the verb "kureru" functions as an inverse voice construction, unlike the Korean verb "cwuta," which does not serve as a main verb in the inverse voice context. However, "cwuta" does exhibit an inverse function when used as an auxiliary verb within a beneficiary-fronted OSV construction, as seen in example (5).

It is important to emphasize that while "kureru" serves as a primary verb expressing inverse voice in Japanese, "cwuta" functions as an auxiliary verb in the beneficiary-fronted OSV construction in Korean. This distinction highlights the different linguistic mechanisms employed by the two languages to convey the concept of inverse voice.

4 Application to the Other Related Voice Constructions

4.1 Japanese -te morau Construction as an Inverse Voice

The Japanese construction -te morau has traditionally been recognized as a benefactive offering/receiving construction (Morita 1981; Masuoka 2001, among others). Previous studies on inverse voice in Japanese have primarily focused on the verbs "kureru" and "kuru" (Shibatani 2003; Koga 2010, among others). However, to the best of my knowledge, this study is the first to propose that the -te morau construction can be classified as both an inverse construction and a benefactive and causative construction.

In the context of inverse voice, the Japanese -te morau construction exhibits a hierarchical relationship in which the non-agent participant outranks the agent participant. The inverse voice function becomes apparent when comparing example (11a) with (11b), as illustrated below:

(11) a. (watashi-wa) okaasan-ni hon-o yon-[de-morat]-ta.
   1.SG-TOP mother-by book-ACC read-[and-receive]-PST
   ‘I had my mom read a book (for me).’
   (lit. I received a favor of my mom’s reading a book.)

b. (watashi-wa) okaasan-ni hon-o yon-[de-age]-ta.
   1.SG-TOP mother-DAT book-ACC read-[and-give]-PST
   ‘I read a book for my mother.’
   (lit. I gave my mother a favor of reading a book.)

In sentence (11b), the agent "watashi" (first person singular pronoun) takes precedence over the non-agent "okaasan" (third person singular noun),
resulting in a natural sentence structure with aligned perceptual and cognitive prominence. However, in sentence (11a), the roles are reversed, with the non-agent "watashi" outranking the agent "okaasan." To reconcile this mismatch, the non-agent becomes the subject, and the agent is demoted to a dative role using the -te morau inverse construction in (11a). This prioritizes cognitive prominence at the expense of perceptual prominence.

This functional inverse voice construction also applies to the Japanese adversative passive, where the speaker is adversely affected by an event described by a verb without being its obligatory participant. It indicates that the non-obligatory participant, who is perceptually secondary but cognitively primary (e.g., "I" in sentence 12), takes precedence over perceptually primary but cognitively secondary participants (e.g., "ame" 'rain' and "kodomo" 'child').

(12) a. (watashi-wa) ame-ni hura-re-ta.  
1.SG-TOP rain-by fall-PAS-PST  
‘I got rained on me.’  
d. (watashi-wa) kodomo-ni naka-re-ta/shina-re-ta.  
1.SG-TOP child-by cry-PAS-PST/die-PAS-PST  
‘I had a child cry/die.’

In this section, we offer evidence supporting the classification of Japanese -te morau construction and adversative constructions as instances of inverse voice. These constructions establish a hierarchy where the non-agent participant, who is perceptually secondary but cognitively primary, holds a higher rank than the agent participant, who is perceptually primary but cognitively secondary.

5 Conclusion

This paper demonstrates that the cognitive-functional definition of an inverse voice construction comprehensively explains diverse linguistic phenomena involving a disparity in relative topicality between agent and non-agent participants. The primary role of the inverse voice is to signal to the addressee a mismatch between a participant that is perceptually secondary but cognitively primary and a participant that is perceptually primary but cognitively secondary within an event structure. Korean predominantly uses word order to express inverse voice, while Japanese employs morpho-syntactic constructions using "kuru," "kureru," and -te morau. Comparing inverse voice construction in Korean and Japanese enhances our understanding-
ing of how these similar languages address perceptual and cognitive prominence differently. This cognitive-functional approach to inverse voice also has typological implications for the relationship between perception, cognition, and linguistic representation.

References

Historical Changes of the Japanese Adverb Kamahete

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1 Introduction

The Japanese adverb kamahete, which was once commonly used in Japanese but has fallen out of use in modern times, played a significant role in expressing modality. Its etymology remains uncertain, but it is believed to have derived from the verb kamafu, which signified the act of assuming a stance and maintaining vigilance while taking action or dealing with something. See example (1) below (estimated year is provided after each example):

(1) Hisokani kamahete shasatsu samu “Sanpōe” (10th C.)
‘Secretly assuming a stance and intending to shoot and kill’

In this example, kamahete is a continuous form of the verb kamafu and represents the specific action of assuming a stance. It is hypothesized that the
adverb kamahete’s subjective meanings such as “by all means” or “somehow” derived from this specific action.

(2) Kamahete fumi naorite tatereba  “Uji Shūi Monogatari” (13th C.)
‘(He) somehow got back on his feet while not being overthrown’

In (2), kamahete is used to convey the notion of “somehow” getting back on one’s feet. It maintains its concrete nature as it relates to a tangible physical action or an ongoing event. Now, let us consider the following example:

(3) Kamahete mai rī tamahe  “Uji Shūi Monogatari” (13th C.)
‘By all means, please do visit’

In this case, kamahete is associated with the realm of “irrealis,” not describing past or ongoing events. It signifies the modality of “by all means,” attempting to fulfill the irrealis world portrayed in the predicate. As this sentence does not describe a current event, the adverb kamahete acquires a more abstract meaning.

Kamahete played a significant role in highlighting the speaker’s modality across diverse contexts. It was used in both positive and negative contexts, emphasizing the speaker’s modalities. In positive contexts, kamahete functioned to express the strength of the speaker’s positive modalities, including notions of “definitely,” “by all means,” and “truly.” Additionally, the reinforced form of kamahete, referred to as ahikamahete, also served to intensify the speaker’s modalities.

In negative contexts, kamahete conveyed the intensified negativity of the speaker’s modalities. For instance, consider the following example (4):

(4) Kamahete kamahete arumajiki koto nite sōrō  “Maigetsushō” (13th C.)
‘This should never, never happen’

In (4), kamahete carries a negative meaning such as “never.” When used in negative contexts, it can also express concepts such as “absolutely (do not do something)” and “definitely (do not do something).”

Although kamahete initially encompassed a diverse array of meanings, it gradually lost its lexical meaning and transformed into a negative adverb.

This paper aims to examine the historical changes of kamahete, illustrating the breadth of its meanings in its initial stage and the restricted meaning it acquired in the later stage. Furthermore, it will explore the reasons behind its transformation into a negative adverb, providing valuable insights into the evolution of this linguistic phenomenon.
2 Historical Changes of Kamahete

This chapter explores the historical changes of the adverb kamahete, focusing on two distinct stages: the first stage, up to the 17th century, and the second stage, beginning from the 18th century onwards. All analysis is based on the collected data. A total of 259 tokens were collected in the first stage, and 57 tokens were collected in the second stage. The primary objective is to investigate the historical development associated with kamahete in each stage and to shed light on the characteristics of diachronic grammaticalization that manifested during the transition from the first stage to the second.

2.1 Kamahete Up to the 17th Century

In the first stage, kamahete was employed as an adverb of modality in both positive and negative contexts, encompassing a range of meanings such as “somehow,” “surely,” and “never.” The following data from this stage provide illustrative examples of these usages:

(5) Yorimori kamahete tasuke sase tamahe “Heike Monogatari” (13th C.)
   ‘Please, somehow, aid and save us’

(6) Ahikamahete buji kokyo he hokan iri tozo “Genpei Seisuki” (13th C.)
   ‘Surely, he must return safely to his homeland’

In the positive contexts above, the utilization of (ahi-)kamahete effectively conveyed the speaker’s modality, encompassing notions like “by all means” and “no matter what.” This usage was often associated with making strong requests or soliciting the listener’s cooperation. In some instances, the prefix “ahi-” was added to further intensify the tone and meaning of the word.

Furthermore, kamahete was also employed for lexical negation, where the predicate itself held a negative meaning.

In negative contexts, kamahete co-occurred with negative particles and auxiliary verbs such as “maji (inappropriate/prohibition),” “nakare (ban),” “na (prohibition),” and “bekarazu (should not).” Kamahete in negative contexts held pragmatic significance, strengthening the meaning of a sentence when prohibiting or admonishing the listener. Examples include:

(7) Kamahete sata suru koto nakare “Kōshoku Ichidai Onna” (17th C.)
   ‘Do not take action without careful consideration’

(8) Aikamahete nembutsu okotari tamau na “Heike Monogatari” (13th C.)
   ‘By all means, do not neglect reciting the Nembutsu’
Kamahete in the negative contexts above exhibited a robust expression of negative intentions, effectively reinforcing prohibitions or admonitions directed at the listener. It also served as a powerful word for conveying a firm and unwavering negative determination.

2.2 Kamahete from the 18th Century Onwards

During the second stage, starting from the 18th century, kamahete predominantly found its usage in negative contexts, particularly in prohibitions or negative requests targeted at the listener. This negative usage was the dominant form during this period. The various usages of kamahete in this stage can be categorized based on the types of final particles and auxiliary verbs that co-occur with kamahete. Numerous data involved the particle “na,” which signifies prohibition. Several examples include:

(9) kamahete kono ebi kuyaru na  “Fūryū kyoku Shamisen” (1706)
    ‘Don’t (never) bite this shrimp’

(10) kamahete nukari tamafu na  “Keisei Denju Kami ko” (1710)
    ‘Never let your guard down’

(11) kamahete uchi morashi tamafu na  “Gijo no Hanabusa” (1795)
    ‘Never fail to kill’

Moreover, there were instances where kamahete co-occurred with negative auxiliary verbs such as “nu,” “maji,” and “zu” in negative contexts. The auxiliary verb “nu” was utilized to convey negative intentions and requests, as demonstrated by the following examples:

(12) kamahete midomo ha kane ha harawa nu zo ya  “Sonezaki Shinjyū” (1703)
    ‘I will never pay the money’

(13) kamahete nukara nu yō ni shi tama he  “Waei Gorin Shūsei” (1886)
    ‘Be careful to make no blunder’

The auxiliary verb “maji” was employed to emphasize negative intentions, as shown in (14) below:

(14) kamahete ashiku ha hakarahi mōsu maji  “Seidanmine Hatsuhana” (1819-1821)
    ‘Absolutely I will never make it bad.’
The auxiliary verb “zu” was used in conjunction with kamahete to express negation, as demonstrated in (15) below:

(15) kamahete ware no shinbō zuyoki niha arazarishi nari
    “Fugen Fugo” (1895)
    ‘It is definitely not due to my patience to live without any troubles.’

In the second stage, kamahete was predominantly used in negative contexts, co-occurring with negative particles and auxiliary verbs. These usages served as adverbs with a pragmatic function, emphasizing the speaker’s negative intentions and requesting restraint from the listener. On the other hand, kamahete in positive contexts was found only a few. (16) below is one of them:

(16) kamahete kamahete oinochi ga daiji nari
    “Yōmei Ten’na Shokunin Kagami” (1705)
    ‘Really, really, your life is important.’

The usage of kamahete in the positive context in (16) represents an older sense and usage. Older meanings do not immediately vanish but instead gradually diminish over time, and some coexist with new usages and meanings. This phenomenon is referred to as “layering.” As Hopper (1991) suggests, older layers of meaning are not necessarily discarded but persist alongside and interact with the newer layers. The above example (16) illustrates that a few data of kamahete having old meaning persisted within the latter stage.

2.3 Reduction of Lexical Meaning

In this section, we delve into the transformation of the lexical meaning of kamahete from the first stage to the second stage. Throughout the first stage, until the 17th century, kamahete encompassed a broad spectrum of lexical meanings as it was employed in both positive and negative contexts. Contemporary dictionaries provide numerous descriptions of kamahete’s meaning, including synonymous words such as “definitely,” “by all means,” and “never,” among others. It is important to note that these meanings are subjectively perceived by the reader. Furthermore, it is common for a single word to have multiple lexical meanings, indicating the presence of diverse interpretations. According to the dictionary definitions, kamahete had fifteen distinct meanings in the first stage.

However, during the second stage, spanning from the 18th to the 19th century, kamahete ceased to be used in positive contexts and retained only its
negative usage as “never (do not)” and “absolutely not,” etc. Consequently, the number of lexical meanings of *kamahete* that could be expressed through different words experienced a significant reduction, decreasing from fifteen in the first stage to three in the second stage. This change can be visually represented in Figure 1.

The First Stage
Numerous Lexical Meanings
Adverb of Modality

| 1 somehow  | 2 be mindful  | 3 definitely |
| 4 by all means | 5 without failure |
| 6 with care    | 7 carefully    | 8 pay attention |
| 9 concentrate  | 10 surely      | 11 really     |
| 12 be very careful | 13 never (do not) |
| 14 absolutely not | 15 definitely not |

The Second Stage
Fewer Lexical Meanings
Adverb of Negative Modality

| 1 never (do not) |
| 2 absolutely not |
| 3 definitely not |

**Figure 1. Reduction of the Lexical Meaning of Kamahete**

The words illustrated in Figure 1 represent synonyms for *kamahete* in various contexts, with many of them derived from the dictionary definitions of *kamahete*. The transition from the first stage to the second stage of *kamahete* signifies a shift from an “adverb of modality” to an “adverb of negative modality.” This shift ultimately leads to a significant reduction in the lexical meaning of *kamahete*. Adverbs of modality have a broad range of usage contexts and encompass numerous lexical meanings, as they can be employed in both positive and negative contexts. On the other hand, adverbs of negative modality possess fewer lexical meanings, as they are exclusively used in negative contexts.
Why, then, did kamahete come to be exclusively used in negative contexts? Negative adverbs in Japanese play a crucial role in signaling that the forthcoming context will be negative. In Japanese sentence structure, the verb appears at the end of the sentence, making it unclear whether the sentence is negative or not until the very end. However, when a negative adverb precedes the verb, it provides knowledge in advance that a negative expression will follow. Accordingly, the Japanese language requires adverbs that serve a grammatical function to induce negative expressions. Examples of such negative adverbs include "tsuyu," "yume," and "yomo." However, these negative adverbs were already in use in Japanese literature dating back to the Heian period and had become archaic by the 18th century. Furthermore, the adverb kamahete was primarily employed in works belonging to genres of military chronicles and setsuwa collections (e.g., "Heike Monogatari" and "Konjaku Monogatari"). These works featured a writing style that combined Japanese and Chinese elements, utilizing a mixture of kanji and kana characters. Within these genres, there were no negative adverbs other than the archaic ones mentioned above at that time. It is plausible that kamahete strengthened its grammatical function, transitioning from an adverb of modality to an adverb of negative modality, due to the existence of a vacant space within the lexical system. This vacant space allowed kamahete to fulfill the role of a negative adverb. The availability of grammatical functions in language is inherently limited, and as a result, the linguistic elements that fulfill those functions are also constrained. In cases where there are gaps or a need for linguistic elements to serve abstract and grammatical functions, words that have undergone grammaticalization acquire more abstract meanings and functions in order to occupy those linguistic gaps.

2.4 Loss of Syntactic, Morphological, and Contextual Variability

In this section we examine the transformations in the syntactic, morphological, and contextual variability of kamahete. During the first stage, kamahete could be followed by the particle "to." For example:

(17) kamahete kamahete to shōsei su beshi  "Mumei shō" (13th C.)
   ‘By all means, invite and gather everyone to this occasion’

However, in the second stage, kamahete lost its syntactic variability in terms of not being followed by the particle "to."

In the first stage, it was possible to add the prefix "a(h)i-" to kamahete. Examples of "ahikamahete" can be found in the first stage, such as:
(18) Ahikamahete, fukaku nageki tamafu bekarazu
“Soga Monogatari” (14th-15th C.)
‘Please never mourn deeply’

There were numerous data of ahikamahete in the first stage, while in the second stage, only a few data with the prefix ahi- were found, as shown in (19) below:

(19) aikamahete, sonshi no sue made niō no kuchi he kami uchikomu na
“Hanashi hon Karukuchi Omae Otoko” (1703)
‘Do not (never) put paper into Nio’s mouth until the end of Sonshi.’

The existence of this example can be attributed to the gradual nature of change, where some instances retained the old meaning and usage. However, it is evident that the morphological flexibility of kamahete in terms of adding the prefix ahi- was almost lost in the second stage.

In the first stage, kamahete had a broad spectrum of usage in various contexts, encompassing expressions of orders, invitations, requests, prohibitions, and will, etc. The examples below vividly depict the contextual diversity of kamahete in this stage.

(20) kamahete konokoto shiraba ya “Konjaku Monogatari” (12th C.)
Wish: ‘If (you) surely know this.’

(21) Kamahete mairi tama e “Uji Shui Monogatari” (13th C.)
Invitation: ‘By all means please do visit.’

(22) Kogane kamahete horidase “Tsukubashū” (14th C.)
Order: ‘Somehow dig out the gold’

(23) kamahete sata wo shite kudasan na “Isshin Onna Kaminarishi” (1699)
Prohibition: ‘Don’t bother yourself and meddle with the matter.’

(24) aikamahete higagoto wo seji “Genpei Seisuiki” (13th C.)
Intention: ‘I will never do wrong thing’

(25) kamahete ga no koto deha orinai zo“Torahiro bon Kyogen” (16th C.)
Will: ‘I will not compromise when it comes to painting.’

(26) aikamahete nounou isame san seyo “Heike Monogatari” (13th C.)
Request: ‘Please take good care of yourself’
As demonstrated above, kamahete was used in both positive and negative contexts in the first stage. However, in the second stage, its usage became restricted to negative contexts such as prohibition, negative request, negative command, and negative intention, as evidenced by the examples provided in (9)-(15) in Section 2.2.

In summary, during the first stage, kamahete possessed a rich lexical meaning and was employed in a diverse range of contexts. It functioned as an adverb with flexibility in terms of context, syntax, and morphology. In contrast, during the second stage, the lexical meaning of kamahete underwent a significant reduction, and its contextual diversity was lost. Additionally, there were losses of syntactic variability and morphological flexibility. These historical transformations in kamahete demonstrate the characteristics of diachronic grammaticalization, including the attenuation of lexical meaning and the diminishment of contextual, syntactic, and morphological variability.

3 Disappearance of Kamahete

Kamahete, in the course of diachronic grammaticalization, underwent a decrease in lexical meaning, limited contextual variation, and the loss of syntactic and morphological flexibility. Eventually, kamahete ceased to be used by the end of the 19th century. The last recorded example is shown in (27) below:

(27) kamahete sato wo seoute saki he yuki tamahu na “Hototogisu” (1898)
‘Never go ahead with your family on your back.’

The question arises: What led to the disappearance of kamahete? Its disappearance can be attributed to the emergence of the adverb kesshite (never). Initially, kesshite functioned as an adverb of modality in both positive and negative contexts (Takahashi 2018). However, during the mid-18th century and throughout the 19th century, kesshite increasingly became predominantly used as an adverb expressing negative modality. Although kamahete continued to be employed in negative contexts until its eventual disappearance by the end of the 19th century, there are no records of its usage in the 20th century, indicating its complete disappearance. Conversely, kesshite, serving as a synonym for kamahete, gained widespread usage as the primary adverb for expressing negative modality starting from the mid-18th century onwards. Therefore, the disappearance of kamahete can be attributed to the rise of kesshite, which fulfilled its role as the primary adverb for expressing negative modality.
4 Conclusion

In conclusion, kamahete underwent a transformation into a negative modality adverb to fill a gap within the lexical system of that time. The diachronic process of grammaticalization of kamahete advanced further when it was needed to fulfill a grammatical function. The dynamics within the lexical system had a notable influence on the emergence and decline of negative adverbs. Previous studies have shown that negators in many languages can be descended from full-content words with no negative meaning at all originally (Fortson 2003). Kamahete, derived from the content word kamafu, entirely shed its original meanings and acquired new meanings and functions unrelated to its original senses. Similar diachronic changes can be observed in other adverbs as well. For instance, the Japanese adverb kesshite and the English adverb hardly were initially unrelated to negation and functioned as adverbs of modality in both positive and negative contexts. However, through the process of diachronic grammaticalization, they gradually became exclusively employed in negative contexts, discarding all positive meanings and transforming into negative adverbs (Takahashi 2016, 2018). The diachronic grammaticalization of kamahete aligns with the evolution of other Japanese and English negative adverbs. These findings underscore the dynamic nature of language and the trajectory of negative adverbs. The case of kamahete in this study serves as a valuable example, illustrating how adverbs can undergo semantic shifts, relinquishing their original meanings and becoming negative adverbs. Further research into historical changes of negative adverbs across different languages can deepen our understanding of language change and provide insights into universal mechanisms at play.

References


