

Clausal Complement or Adverbial Clause?: Toward an Integral Account of the Japanese Internally-Headed Relative Clause*

Chiharu Uda Kikuta
Doshisha University

1 Introduction

This paper proposes a constraint-based, comprehensive analysis of the Internally-Headed Relative Clause (henceforth, IHRC) in Japanese which is able to accommodate the synchronic properties as well as the diachronic change that IHRC went through. Various types of syntactic analyses have been proposed to date to explain the peculiar traits of IHRC as it is today. Philological studies in Japanese have documented the gradual historical change in the system of Japanese that gave rise to IHRC. With a few exceptions such as Kuroda (1975-77), syntactic studies have mainly focused on the synchronic aspect of IHRC, and have not attempted to unify the two perspectives to draw a more complete picture of IHRC within the system of the Japanese language. This paper claims that IHRC should be defined as a special type of non-head daughter of a head-complement structure. It explicitly denies that IHRC in isolation designates a certain entity (or a target). The proposed analysis not only accounts for the peculiar traits of IHRC in today's Japanese, but provides a rational explanation for the process of grammatical change that IHRC has gone through.

IHRC has been observed in various genetically unrelated languages including Navaho, Lakhota, Dogon, Quechua, as well as in Japanese and Korean, although the Japanese one (and plausibly Korean ones as well) is deemed rather exceptional by Culy (1990). The defining characteristic of IHRC, according to Culy (1990) is (1) that it has the basic structure of a sentence, (2) that it refers to a noun which occurs internal to the clause, and (3) that the semantic head (=target) typically bears no syntactic or morphological marker as such. Thus IHRC by definition presents challenge in reconciling the apparent type conflict of NP and S, and in finding a proper mechanism of identifying the target. The first point of challenge motivated Culy (1990) to propose an exocentric structure where an N-bar dominates an S, while the second motivated him to rely on a coindexation mechanism common to both IHRC and EHRC (i.e. the usual type of relative clause.)

Japanese IHRC apparently share all of the above defining properties. This is not surprising, given that Japanese also meets the generalizations given by Cole (1987) and Culy (1990) of those

*I wish to thank Bob Levin, Rob Malouf, Ivan Sag, and two anonymous referees of the 8th International Conference on Head-Driven Phrase Structure Grammar for their comments and criticism on earlier versions of this paper. I have also been benefitted from comments by Kaz Fukushima, Akira Ishikawa, Jong-Bok Kim, and Gunji Takao in developing the argument. Very special thanks also go to Kei Yoshimoto, who helped me enormously with many \LaTeX formatting problems. All errors of course remain mine.

languages which have IHRC; that is, it has (1) *pro*, (2) SOV word order, and (3) elaborated nominal structures.

Whether Japanese IHRC is really exceptional or not, at least the analysis given by Culy (1990) is inadequate in several respects. While Culy (1990) assumes the IHRC and EHRC are semantically very similar, if not completely identical, Japanese IHRC and EHRC are even truth-conditionally different, particularly when quantification is involved (Shimoyama 1999). Besides, in some IHRCs the target is not necessarily given explicitly in the preceding clause. In such cases of implicit target IHRC, it is simply impossible to assume an EHRC-type analysis. Another peculiarity of the Japanese IHRC is that it is often compared to a class of adverbial clause. The analogy with either EHRC or clausal complement follows directly from the definition of IHRC, but Japanese has a class of adverbial clause which is comparable to IHRC. The adverbial clause and IHRC are closely connected both synchronically and diachronically. Japanese IHRC is also peculiar in its vague status as a grammatical construction. The data are documented in novels and in other publications, and yet they are far from being unanimously accepted. To date no standard textbooks of the Japanese language include IHRC as an independent structure to teach.¹

Building upon the idea of Argument Realization and Argument Extension proposed in Bouma et al. (2001), I will show how the proposed analysis manages to draw the link between the clausal complement and IHRC, on the one hand, and between IHRC and the adverbial clause on the other, thus providing a structural motivation behind the diachronic change.

This paper proceeds in the following way. Section 2 overviews the problems of IHRC from a synchronic point of view. I will show, in particular, that (1) IHRC and EHRC are semantically distinct, hence no simple modification structure is available, (2) the target and the I-clause are much more referentially independent from each other than has generally been understood, and (3) IHRC is structurally and semantically close to adverbial clause as well. Section 3 gives a brief and critical survey of previous studies. I will then turn to diachronic evidence in Section 4 to show that the relationship among clausal complement, IHRC, and adverbial clause is real in the sense that it is justified by the diachronic data of language change. Section 5 proposes a new analysis of IHRC as a transient and marked structure. Section 6 considers the consequences of the proposal.

2 Synchronic Problems of IHRC

2.1 Clausal Complement and IHRC

According to the general definition of IHRC, the distinction between clausal complement and IHRC is made not by a morphological or syntactic clue of any sort but by the selectional restriction of the main verb. That is, the apparent clausal complement counts as IHRC when the main verb requires an entity rather than an event as its argument. Thus, observe the contrast between (1) and (2); exactly

¹Generally, the scarcity of acceptable data is ascribed to the amount of constraints. Passives are generally difficult to obtain in Japanese, for example. This is considered due to semantic constraints (such as animacy) on subjects and on verbs to be passivized, as well as to pragmatic constraints involving point of view and other concepts. Notice, however, that such interplay of constraints does not necessarily lead to the negation of the construction per se. If some passives are not readily available, nobody questions the legitimacy of passives as a class of structure in Japanese. Admittedly, IHRC is under many semantic and pragmatic constraints, and it is possible to explain the low acceptability in terms of such constraints. However, IHRC is peculiar in that the scarcity of acceptable data is interpreted as a reason to doubt IHRC as a construction.

the same sequence within the square brackets counts as a clausal complement in (1), and as IHRC in (2), depending on the main verb:²

- (1) [[Kinoo ringo -o moratta]no] -o oboeteita.
 yesterday apple acc receivednmlzr acc remembered
 ‘I remembered that I had received some apples yesterday.’
- (2) [[Kinoo ringo -o moratta]no] -o tonari -ni osusowake-sita.
 yesterday apple acc receivednmlzr acc neighbor dat shared
 ‘I received some apples yesterday, which I shared with my neighbor.’

Now, the examples of (1) and (2) suggest that the choice between IHRC and clausal complement is complementary, determined by the selectional restriction of the main predicate. However, the complementarity is not complete, but the clausal complement NP seems to take precedence. So when the main predicate is compatible either with the entity reading or with the event reading as its complement, only the clausal complement NP (=event reading) obtains. The IHRC is available only when the event reading is blocked (or when the event reading naturally entails the entity reading, as with certain verbs of perception. (cf. *to see Tom run*.) The main predicate in the sentence (3), *to remember*, for instance, is compatible with either event reading or entity reading: *to remember some event* and *to remember something/someone*, and *to remember some event* does not necessarily entail *to remember something/someone involved in the event*. In this situation, (3) only allows clausal complement interpretation:

- (3) [[Kodomo -ga ano toki asobi -ni kita] no] -o omoidasita.
 children nom that time play to camenmlzr acc remembered
 ‘I remembered that children had come to play at that time.’
 *‘I remembered the children, who had come to play at that time.’

Thus, the availability of the IHRC seems coercive; it is coerced when the other possibility fails. Unlike EHRC, the syntactic structure of IHRC is not enough to secure the entity reading.

2.2 IHRC and EHRC

Although IHRC and EHRC are semantically similar, there are several important differences. Observe (4) and (5). (4) gives another typical IHRC, and the sentence in (5) is an example of EHRC which roughly paraphrases (4):

²The following is a terminological note. The structure in (2), more specifically the part enclosed in the innermost square brackets, is called the IHRC. When it is followed by the nominalizing [no] (abbreviated as NMLZR) to form a noun phrase (or more exactly IHR-phrase), it is supposed to refer to ringo ‘apple,’ which occurs internal to the innermost clause. For convenience’s sake, I henceforth use the term IHRC to refer either to the IHRC as a construction or, loosely, to the IHR-phrase. I use the I-clause when I want to refer to the clause followed by [no] without committing myself to its syntactic identity (i.e., clausal complement, IHRC or adverb).

In addition, the translation of the IHRC is not accurate due to the lack of corresponding structure in English. The sentence (1), for instance, could also be glossed as “I received some apples yesterday, and I ate them.” Non-restrictive relative clause as in (1) is used to highlight (i) the difference from the conjunctive clause as well as (ii) the difference from the EHRC. This practice is by no means optimal, and it admittedly produces helplessly awkward translation at times.

(4) [[Kinoo ringo -ga okutte-kita]no] -o tabeta.
 yesterday apple nom sent-came nmlzr acc ate
 ‘I received some apples yesterday, which I ate.’

(5) [[Kinoo okutte-kita] ringo] -o tabeta.
 yesterday sent-came apple acc ate
 ‘I ate the apples which I received yesterday.’

One of the differences concerns restrictiveness of modification. When a speaker asks specifically for the identity of something, only the EHRC can give an appropriate answer (Kuroda 1975-77, Ohara 1996, Kim & Lim 2001). So, (5) makes an appropriate answer to the question, “Which apple did you eat?,” while (4) does not. This is because only the EHRC appropriately restricts the target. The modification in IHRC is more descriptive; it does not restrictively modify the target:

Similarly, EHRC in isolation can (and in fact must) designate the head NP, while IHRC cannot.

(6) a. [[Kinoo okutte-kita] ringo] dayo.
 yesterday sent-came apple copula
 ‘(These are) the apples which arrived yesterday.’

b. [[Kinoo ringo ga okutte-kita] no] dayo.
 yesterday apple nom sent-came nmlzr copula
 ‘(lit.) It’s that I received some apples yesterday.’
 NOT ‘I received some apples yesterday, and these are the ones.’

This is an important point in considering the semantics of IHRC and in properly understanding the relations among IHRC, EHRC, and clausal complement. (6b) shows that IHRC in isolation fails to designate an NP target. The sentences (2)-(3) above and (6) suggest that the IHRC not only takes the form of a sentence (clausal complement) but has the meaning exclusively of a sentence (clausal complement) unless it is subcategorized for by a certain main predicate requiring an entity as its complement.

For another thing, when the target occurs with adjectival modifiers, the modification in EHRC and the adjectival modifier must be semantically compatible, while such restriction is not imposed on IHRC. Observe the contrast in (7) and (8) below (cf. Kuroda 1975-77, Ohara 1996):

(7) a. [[Nama-no hourensoo -o yudeta] no] -o tabeta
 fresh spinach acc boiled nmlzr acc ate
 ‘(Someone) cooked uncooked spinach, which I ate.’

b.#[[Yudeta] nama-no hourensoo] -o tabeta
 boiled fresh spinach acc ate
 ‘(Lit.) I ate uncooked spinach which was cooked.’

(8) a. [[Kyoko -ga simi-hitotu-nai siitu -o yogosita] no] -o awatete aratta
 nom spotless sheets acc stained nmlzr acc hurriedly washed
 ‘(Lit.) Kyoko had spotted clean sheets, which I hurriedly washed.’

- b.#[[Kyoko -ga yogosita] simi-hitotu-nai siitu] -o awatete aratta
 nom stained spotless sheets acc hurriedly washed
 ‘(Lit.) I hurriedly washed the clean sheets which Kyoko had spotted.’

If fresh (uncooked) spinach is boiled (cooked), the spinach is no longer uncooked, and the modifier *uncooked* and the modification *which was cooked* are incompatible, leading to the unavailability of the EHRC as in (7b) and (8b). The corresponding IHRCs, however, present no problem at all, as (7a) and (8a) show.

Moreover, as Shimoyama (1999) observes in her E-type anaphora approach, IHRC and EHRC can be truth-conditionally different when the target is quantified: (modified on her data)

- (9) a. Taroo -wa [[Yoko -ga reizooko -ni hotondo-no kukkii -o irete-oita] no] -o
 top nom fridge dat most cookies acc put nmlzr acc
 paatii-ni motte-itta
 party-to took-went
 ‘Yoko put most of the cookies in the refrigerator, which Taro brought to the party.’
- b. Taroo -wa [[Yoko -ga reizooko -ni irete-oita] hotondo-no kukkii] -o paatii-ni motte-itta
 top nom fridge dat put most cookies acc party-to took-went
 ‘Yoko put most of the cookies in the refrigerator, which Taro brought to the party.’
 ‘Taroo brought most of the cookies that Yoko had put in the refrigerator to the party.’

As the translation suggests, (9a) implies that Taroo brought all the cookies Yoko had put in the fridge, while such implication is only optional in (9b). Since *hotondo* ‘most’ in (9b) can take either wide or narrow scope, it can also imply that Taroo brought most of the cookies Yoko had put in the fridge. Therefore, if there were 30 cookies, out of which Yoko put only 10 cookies in the fridge, and Taro took out 9 of them, (9b) is true while (9a) is false.

Given these contrasts, it is clear that treating IHRC and EHRC similarly lacks due justification.

2.3 Implicit Target and Multiple Target

The term Internally-Headed Relative Clause implies that its target is identifiable with a specific argument internal to the clause. However, it has been noted in the literature that the target of the IHRC is not necessarily identifiable as such. In some cases more than one argument are collectively identified as the target (Kuroda 1975-77), while in others the target is not linguistically made explicit at all (Nomura 1996, 2000). In the following, (10) illustrates the multiple (or collective) target, and (11), the implicit target:

- (10) [[Keikan ga doroboo -o oikakete-ita] no] -ga hutaritomo kawa ni otita.
 policeman nom thief acc chase-be nmlzr nom both river to fell.
 ‘The policeman was chasing the thief, both of whom fell into the river.’
- (11) a. [[Nikai -no huroba -no yokusoo -ga ahureta] no] -ga sita made morete-kita
 upstairs gen bathroom gen bathtub nom overflowed nmlzr nom downstairs to leak-came
 ‘The bathtub in the bathroom upstairs overflowed and (the water) leaked to downstairs.’

- b. [[Kesa kao -o sotta] no] -ga yuugata -niwa mata nobite-kita
 this morning face acc shaved nmlzr nom evening in-top again grow-came
 ‘I shaved my face this morning, and yet (the beard) came out in the evening.’

The target in (10) is neither the *policeman* or the *thief* alone but the set of the two. On the other hand, the target of the IHRC in (11a-b), which is the subject argument of the main clause, is *water* and *beard*, respectively; however, no such argument appears in the IHRC. Such data of multiple target and implicit target pose a serious challenge to a syntactic analysis which tries to identify the target on the basis of subcategorization of the verb of I-clause.

Looked at in a different way, this is also a serious challenge to the analyses which assimilate IHRC with EHRC. These types of IHRC have no referential head to be lexically singled out.

Of course, it is not possible to make a legitimate EHRC based on (11a-b) with either the implicit target or the NP occurring in the I-clause as the head NP.

- (12) a.*[[Kesa sotta] kao] -ga yuugata -niwa mata nobite-kita
 this morning shaved face nom evening in-top again grow-came
 ‘(Lit.) The face which I shaved this morning came out in the evening.’
- b.*[[Kesa kao -o sotta] hige] -ga yuugata -niwa mata nobite-kita
 this morning face acc shaved face nom evening in-top again grow-came
 ‘(Lit.) The beard which I shaved (off) my face this morning came out in the evening.’

The contrast between EHRC and IHRC seems to suggest, among other things, that I-clause does not provide the direct domain to find the target, and that I-clause and the target are more independent of each other.

2.4 IHRC and Adverbial Clause

By definition, it is natural that IHRC is compared with clausal complement and EHRC in any language with IHRC. Japanese IHRC, in addition, has been associated with a type of adverbial clause, involving a nominalizer [no] and a conjunctive particle homonymous with case markers as in (13)-(14) (Mihara 1994, Murasugi 1994, Shimoyama 1999).

- (13) [[Kaimono ni iku-tumoridatta] no-o] kekkyoku itiniti-zyuu ie ni ita.
 shopping to go-intended conj? after-all all-day house in stayed.
 ‘Though I had wanted to go shopping, I stayed home all day long after all.’
- (14) [[Asobi ni iku-tumoridatta] no-ga] ame -ga hutte-simatta.
 play to go-intended conj? rain nom fall-aspect.
 ‘Though I had intended to go out for fun, it rained after all.’

The adverbial clause ending in [no-o] and [no-ga] are not fully recognized in the prescriptive grammar of Japanese, but they are in use in both written and spoken Japanese today.³ They are

³The combination of [no]+apparent case marker (or post position) is more grammaticalized in conjunctive particles in the case of [noni] (concession) and [node] (reason), where [ni] is a dative/locative maker, and [de] is an instrumental/locative, in the sense that the combinations are independently listed as such in dictionaries and grammar books of Japanese (cf. also Horie (1993)).

at least reported in the book of reference grammar of Japanese by Martin (1975), and discussed in Le (1983) Horie (1998). They have also been discussed extensively in relation with IHRC in the literature (Mihara 1994, Murasugi 1994, Shimoyama 1999). The problem is that the adverbial clause is very similar to IHRC on the surface. The difference between IHRC and adverbial clauses is that the matrix clause of the latter is completely independent, and does not depend on the I-clause for the referent of one of its argument, and that the adverbial clause often carries concessive meaning.

Of course, however, it is possible for the matrix clause and the I-clause to have the same noun occurring in both as in (15).

- (15) [[Ringo -o kau-tumoridatta] no] -o un-yoku tomodati ni ie no ringo o
 apple acc buy-intended nmlzr acc luck-good friend by house gen apple acc
 wakete-moratta.
 share-received.
 ‘Though I had intended to buy apples, luckily, my friend gave me some apples which she had at home.’

Now, since Japanese allows ellipsis of an understood argument, the NP (*ringo*) in the matrix clause could be omitted, with a result that the adverbial clause is indistinguishable from IHRC as in (16) with the target *ringo* ‘apple’:

- (16) [[Ringo -o kau-tumoridatta] no] -o un-yoku tomodati ni ϕ wakete-moratta.
 apple acc buy-intended nmlzr acc luck-good friend by *pro* share-received.
 ‘Though I had intended to buy apples, luckily, my friend gave me some.’

In such cases the I-clause is really ambiguous between the adverbial clause or IHRC (cf. Kondo 2000).

Summarizing the survey of IHRC and its treatments in modern Japanese, the following points suggest themselves: (1) IHRC is not a usual (restrictive) modification structure, (2) the target and the I-clause are more referentially independent from each other than has generally been understood, and (3) IHRC is structurally and semantically close to adverbial clause as well.

In addition to these traits, IHRC in Japanese is ontologically curious as a grammatical construction. Kuroda’s (1975-77) seminal work on IHRC in both modern and classical Japanese has called attention to the Japanese IHRC, and it has been a topic of research since then. Among linguists, IHRC is a fairly established grammatical construction, whatever its syntactic definition may be. Nevertheless, IHRC is not treated as an independent grammatical construction to be taught to the language learners.

An informal survey I conducted with 81 college students of Japanese native speakers showed that IHRC is regarded as far less than authoritative expressions of Japanese. The mean rating (from 0 to 5) of the grammaticality of EHRC was 4.7, while that of IHRC was as low as 1.7. In view of the near “ungrammatical” judgment of IHRC by the informants, is IHRC a “fiction” of Japanese grammar created by linguists, then? However, that does not seem to be the case. Odani (1998), for instance, takes a large part of its data from actual literary works. The novels are the major source of data. Journalism, particularly the auditory media such as news broadcast on TV or on radio, is also a good source of data of IHRC. It is evident that IHRC is actually used by Japanese speakers both in written and spoken forms of the language, more than simply performance errors.

The low rating by the informants suggests that IHRC does not quite fit the category of “proper” Japanese which informants construct upon reflection. There is something very odd about the structure, which native speakers of Japanese cannot overlook. IHRC requires (as often observed) certain contextual support for the interpretation to go through. Because of this, when the sentence is taken out and listed on a questionnaire out of context, it sounds very odd.

With these properties in perspective, let us briefly and critically survey, in the next section, what kind of analysis has been proposed in the literature .

3 Two Types of Previous Approaches

The IHRC has been treated mainly in two ways: i.e., the complement analysis and the adverb analysis.⁴

The complement analysis takes the IHRC as a complement of the matrix verb. Among various versions of complement analysis, Kim & Lim (2001) is the most worthy of examination here, since it is done in HPSG framework.⁵ Their complement-coindexing analysis claims that the IHRC is structurally identical with a clausal complement NP.

The following feature structure represents the lexical representation of “nominalizer” [kes], which corresponds to the Japanese [NO].

$$(17) \left[\begin{array}{l} \text{PHON} \langle \text{kes} \rangle \\ \text{HEAD} \text{ noun} \\ \text{ARG-ST} \langle \text{S} \left[\begin{array}{l} \text{VFORM} \text{ nun} \\ \text{RESTR} \langle \dots, \boxed{1}, \dots \rangle \end{array} \right] \rangle \\ \text{CONTENT} \mid \text{RESTR} \langle \boxed{1} \rangle \end{array} \right]$$

They claim that the [kes] is not a mere nominalizer but a “semantically transparent” nominal head which is subcategorized for a clause. The meaning of the nominal head, or the semantic content’s RESTRiction value, is identical with one of this sentential complement’s RESTR value, as indicated by the tag $\boxed{1}$. When the matrix predicate requires a referential complement, the RESTR value for a referential argument is selected as the RESTR of the nominal head. When the verb requires a situational complement, the RESRICTION value for the event (relation) is selected and matched up. Suppose that [kes] takes as its argument the S with the structure given in (18).

$$(18) \text{S:} \left[\begin{array}{l} \text{RESTR} \langle \boxed{1} \left[\begin{array}{l} \text{RELN} \text{ naming} \\ \text{NAME} \text{ John} \\ \text{NAMED} j \end{array} \right] \rangle, \boxed{2} \left[\begin{array}{l} \text{RELN} \text{ run} \\ \text{RUNNER} j \end{array} \right] \rangle \end{array} \right]$$

⁴In fact, there is another type of analysis, the EHRC analysis, which assimilates the structures of IHRC and EHRC. Given the evidence showing the difference between the two structures, however, the EHRC analysis is no longer widely advocated, and is not included in the survey.

⁵The complement analysis is also implicitly assumed in various versions of Cognitive Grammar analysis of IHRC (Nomura 1996, 2000; Odani 1998). They typically takes IHRC and clausal complement as syntactically identical, relying on some interpretational (or cognitive) mechanism to come into play to make the difference.

If the nominal phrase headed by [kes] is subcategorized for by the main predicate *to grab*, which selects an referential entity as its object, the RESTR value [1], or *John*, is selected, and is passed up as the RESTR value of the whole nominal clause. This corresponds to the case of IHRC. If, on the other hand, the nominal phrase is subcategorized for by the main predicate *to remember*, which is compatible with an event relation as its object, the RESTR value [2] is selected instead, and is passed up as the RESTR value of the whole nominal clause. This corresponds to the case of clausal complement.

This is a very clever type of analysis which can clearly account for the near complementary distribution of the clausal complement NP and the IHRC, as well as for their structural identity. However, as shown above, they are, in fact, not complementary, but the clausal complement reading takes precedence. Moreover, the data of implicit and multiple target pose a serious challenge to this analysis, unless the semantic restriction is elaborated further. Besides, this analysis gives no implication to the association between IHRC and adverbial clauses, suggesting that it is purely accidental. However, as far as Japanese is concerned, the relation between IHRC and adverbial clause is observed not only synchronically but diachronically as well, as will be demonstrated in the next section.⁶ So the clean analysis of Kim & Lim (2001) does not give an adequate picture of IHRC in Japanese.

The adverb-analysis by Mihara (1994), Murasugi (1994), and Shimoyama (1999), among others, claims that the IHRC is an adverbial phrase. The main verb is subcategorized for a *pro*, which is usually, but not necessarily, associated with an argument of the adverbial IHRC through some pragmatic mechanisms. Adverb-analysis is motivated by the apparent overlap between IHRC and adverbial clauses as discussed in the previous section. It is also supported by the semantic and pragmatic observation that the IHRC-clause provides a background situation for event of the matrix clause to take place. Adverb-analysis with *pro*, in addition, has an advantage of accommodating the cases of implicit and multiple target without any special device.

However, the adverb-analysis fails to explain why the IHRC does not require the concessive meaning, which other clearly adverbial [no-ga] and [no-o] clauses convey. Besides, in the case of the adverbial clause, the conjunctive particles [no-ga] [no-o] have nothing to do with case marking particles [ga] and [o]. In the case of IHRC, on the other hand, the particles [ga] and [o] are apparently real case markers, which correspond to the case requirement of the matrix predicate, if the real complement is *pro*. To accommodate the case covariance between the particle ending the adverbial clause and the *pro*, a special mechanism needed to be proposed, for instance, to “share” the case feature, which is obviously stipulative. So it does not seem to be the optimal solution to completely identify Japanese IHRC with adverbial clauses.

Although it is not adequate to identify IHRC with adverbial clauses, IHRC is indeed closely related to the adverbial clause. This fact becomes clearer when the more complete picture of the historical development of IHRC is taken into view. The next section surveys the development of IHRC and suggest that the connection between IHRC and adverbial clause is motivated, if not mandatory.

⁶Korean IHRC does not show the analogous connection between IHRC and adverbial clause (cf. Horie 1998).

4 Diachronic Change Underwent by IHRC

Those who regard IHRC as a kind of sloppy wording may imagine that IHRC is a modern invention typical of the speech of the youth; however, IHRC is never a modern invention. IHRC followed by the nominative case [ga] was first observed in the literature in the 10th century. Moreover, interestingly, the diachronic development of clausal complement, IHRC, and adverbial clause is synchronically reflected by the overlap in distribution of the three constructions of today.

After Ishigaki's (1955) thorough examination, it is generally believed among Japanese philologists that IHRC treaded the following developmental path (Ishigaki 1955, Kondo 2000, Konoshima 1983, Kyogoku 1987). The particle [ga], which was attached only to a noun to case-mark it, gradually acquired the function of marking a clausal complement, being attached to a clause-ending predicate (SOV), since around 900 A.D. (found in *Taketori Monogatari* (*A Tale of Taketori*), written around 900).

After a while, there gradually appeared cases where the matrix subject did not have to be the clausal complement as a whole, but rather some argument within the I-clause, i.e, the emergence of IHRC. (*Ise Monogatari* (*A Tale of Ise*) (905-950), *Yamato Monogatari* (*A Tale of Yamato*) (951-953)). Such instances increased in *Genji Monogatari* (*A Tale of Genji*) written in 1002.

Then occurred a new type of sentences, where the preceding I-clause was more separate from the matrix clause, which independently has its subject, often outside the I-clause. The earliest such data is found in *Konjaku Monogatari* (1077). It is also said that conjunctive particle was not fully established in Heian period (794-1192). There are many cases of ambiguity. Many putative cases of conjunctive [ga] in the earliest days could be interpreted as case marker (IHRC). The use of conjunctive particle was in its infancy in late Heian period. The diffusion of [ga] as conjunctive particle is accelerated in Muromachi (1338-1603) period, and the number of cases attested increased.

What is interesting is that the IHRC apparently developed out of the clausal complement, and that a type of it developed into the adverbial clause. The one with accusative case supposedly predated the nominative ones by a few centuries, but its detailed developmental process was apparently more rapid and less clear. Kondo (2000), argues, though, that the same process as the nominative ones can be traced.⁷

The following data of Classical Japanese illustrate the three stages of development; (19) is an instance of clausal complement, (20) IHRC, and (21) adverbial clause.⁸

⁷Kondo (2000) suspects that the conjunctive [o] also developed out of the accusative [o]. He hypothesizes that the development of the conjunctive [o] and that of the conjunctive [ga] are basically parallel, and that they both follow Ishigaki's (1955) line of development.

According to Kondo (2000), however, the development of [ga] was slow, and it was possible to trace minutely the diachronic change. The particle [o], on the other hand, happened much earlier and more rapidly. The conjunctive use of [o] appeared is found immediately after (if not simultaneous with) the [o] started to be attached to a clausal complement.

Kondo (2000) does not specifically mention that the development of conjunctive [o] was mediated by the IHRC [o], presumably due to the scarcity of the clear data. However, it is significant that he finds that the few cases of clausal complement marked with [o] predating the start of conjunctive [o] mostly have as the main predicate verbs of perception, including "to see," and "to know." Note that the main predicate "to see" is virtually ambiguous between the clausal complement reading and the IHRC reading, since seeing a certain scene almost necessarily entails seeing the salient participant of the scene. ("to see Tom crossing the street") (and also frequent was *yomu* "to write a poem of." Writing a poem of a scene where a nightingale was singing is virtually identical with writing a poem of the nightingale.) I believe that it is highly probably, therefore, if Kondo's hypothesis (accusative [o] giving rise to conjunctive [o]), is correct, that the clausal complement [o] are immediately reanalyzed as cases of IHRC, which derived conjunctive [o], as in the case of [ga].

⁸The Modern IHRC is not a direct descendant of the Classical IHRC listed here in that they at least involve regional

Stage I: Clausal Complement (c900-)

- (19) a. [Hodonaku makarinu-beki-nameri to omou] -ga kanasiku haberu-nari
soon die-MODAL COMP think nom sad be
‘(Lit.) [That I have to go soon] is so sad for me.’ (*Taketori Monogatari*: c901))
- b. Taketori-no-okina [sika-bakarikatarahituru] -ga sasugani oboete nemuri-ori
Old man Taketori thus spoke nom so (embarrassing) feel sleep-be
‘(Lit.) T thought [the fact [that he spoke that way] was very embarrassing], and he pretended to sleep’ (*Taketori Monogatari*)

Stage II: IHRC (c950-; increased c1000-)

- (20) a. [Sukosi tooku-ni tateri-keru sakura -o tikaku hori-ue-keru] -ga, karezama mie-kereba...
a little distant stand-ASP cherry acc near dig-plant-ASP nom withering appear-ASP
‘He re-planted the cherry tree nearer, which used to be farther away, and since the cherry tree looked withering...’ (*Yamato Monogatari*)
- b. [Onna no mada yo he-zu to oboetaru] -ga hito -no onmoto -ni
woman gen yet worldexperience-NEG COMP seem nom man) gen place loc
sinobi-te...
steal-into
‘The girl appeared not to have experienced anything yet, who (but she) silently started seeing a man...’ (*Ise Monogatari*)

Stage III: Adverbial Phrase (c1077-?; increased c1300-)

- (21) a. [Otiiri-keru toki mi-no-toki -bakari nari-keru] ga hi -mo youyaku kurenu
fell-ASP time snake-time about be-ASP nom?? sun top finally set-in
‘It was around ten a.m., when he went into water, but now the sun finally sets in.’ (*Konjaku Monogatari*: 1077)
- b. ... Tuzikaze hukitari-keri. [Kuzyou -no kata -yoriokori-keru] -ga
storm blow-ASP gen direction fromoccur-ASP nom??
Kyou-zyuu -no ie, aruiwa marobi aruiwa hasira-bakari nokoreri
Kyoto-entire gen house either torn-down either pillar-only remain
‘A storm blew. It started in the direction of Kuzyoo, and the houses in the entire city were either torn down or completely wiped away, with only pillars remaining.’ (*Gukanshou*: 1220)

Notice that the clause in question does not involve a nominalizing particle [no] in Classical Japanese. The nominalizer [no] was introduced between 15th and 17th centuries, compensating for

differences, but they share essentially the same syntactic structure, except the nominalizer [no] in Modern IHRC, and I assume basically the same structures for both (cf. Kondo 2000).

the loss of verb inflection indicating nominalization. (The verbs at the end of the square-bracketed I-clause (*omou, tamaheru, narikeru*) are all in the nominalizing form, called *zyuntai* (=semi-nominal), in Japanese grammar.)

The development of the adverbial clause had presumably been completed before this, and was immune to the introduction of [no]; that is why we have the conjunctive [ga] (i.e., without preceding [no]), meaning concession, contradiction, or presentation, which are in frequent use in written forms of Modern Japanese. Observe (22), where the conjunctive [ga] replace [no-ga] in (14) given above. The conjunctive [ga] and [no-ga] are nearly interchangeable. The difference is mostly stylistic. (14) and (22), for instance, are different in that (22) with [ga] sounds more formal and less colloquial, while (14) is more informal and may be rejected by the speakers with a conservative variety.

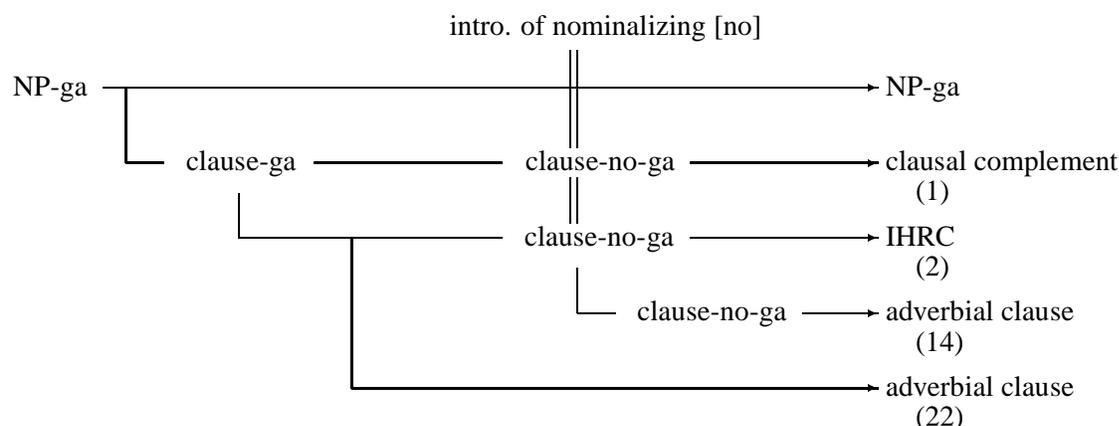
- (22) [Asobi ni iku-tumoridatta] -ga ame -ga hutte-simatta.
play to go-intended conj rain nom fall-aspect.
'Though I had intended to go out for fun, it rained after all.'

From a general perspective, the diachronic change from a complement into an adjunct (=adverbial clause) (or vice versa) is not necessarily uncommon. Bender and Flickinger (1999), for instance, give an HPSG analysis of the diachronic change of an if-clause acquiring the status of complement. Even more generally, the alternation of argument and adjunct is a very common grammatical phenomenon characterizing, for instance, the agent phrase in passivization. What is unusual in this case is that IHRC mediated the change from clausal complement into adverbial clause. It is, therefore, not simply the case of putting a clause in the argument structure and taking it out.

In view of the development of adverbial clause, one thing I already mentioned above has a significant implication. Recall that IHRC is often confused with adverbial clauses even today, as the sentence (16) shows. Note that this phenomenon is separate from the development into adverbial clauses which took place 1000 years ago.

Therefore, what we have today is a rather novel phenomenon, which happened after the introduction of the nominalizer [no]. After all, we have two sets of concessive adverbial clauses involving [ga], i.e., those ending in [ga] and in [no-ga], the former of which is by far the more firmly established in Modern Japanese. The complex conjunctive particles [no-ga] and [no-o], on the other hand, have not been listed in Japanese grammar books yet, but they are well-documented in various linguistic analyses of IHRC, so much as to motivate the adverbial clause analysis of IHRC. What this means is that the development from IHRC into adverbial clause is a recurring process; the IHRC is recurrently feeding motivation for the development, producing two separate sets of adverbial clauses, with and without [no] so far. This eternal instability suggests that the structure of IHRC is literally a form of transition.

- (23) Summary of the diachronic change: (introduction of nominalizer [no])



In view of the defining characteristics of IHRC in the world, it is not surprising that IHRC and clausal complement have existed hand in hand. (Of course the existence of the latter does not implicate the existence of the former, though.) It is, however, rather striking that IHRC and adverbial clause correlate the way examined above. For one thing, it necessarily incurs the functional change of case marker into conjunctive particle. Previous syntactic approaches have paid attention either to the connection between the clausal complement and IHRC or to the one between the adverbial clause and IHRC, and have failed to bring the three structures together into perspective. The examination of the diachronic change clearly indicates that the Japanese IHRC must be understood within the complete picture comprising all the three structures.

As a working hypothesis, then, I assume that the structure of IHRC reflects the series of diachronic change, and that the structure of IHRC is a form of transition that motivated the development of adverbial clause.

5 Proposal

5.1 Clausal complement and adverbial clause

From the observation that the IHRC mediated the development from the clausal complement to the adverbial clause, it follows that IHRC should not be defined independent of the main predicate. The diachronic change from argument to adjunct concerns the argument structure or the subcategorization information of the main verb. If it is correct to assume that the structure of IHRC reflects the transition, IHRC must rather be defined in relation to the main verb.

First of all, the following are rough representations of the feature structure of predicates of (19) and (21) above, which take a clausal complement and an adverbial clause, respectively.

(24) Clausal Complement

$$\left[\begin{array}{l} \text{SYN | VAL | SUBJ} \langle S_i \rangle \\ \text{DEPS} \langle S_i \rangle \\ \text{ARG-ST} \langle []_i \rangle \\ \text{SEM | RESTR} \left\langle \left[\begin{array}{ll} \text{RELN} & be\ sad \\ \text{SIT} & s \\ \text{THEME} & i \end{array} \right] \right\rangle \end{array} \right]$$

(25) Adverbial Clause

$$\left[\begin{array}{l} \text{SYN | VAL} \left[\begin{array}{l} \text{SUBJ} \langle NP_i \rangle \\ \text{COMPS} \langle S_j \rangle \end{array} \right] \\ \text{DEPS} \langle NP_i, S_j \rangle \\ \text{ARG-ST} \langle []_i \rangle \\ \text{SEM | RESTR} \left\langle \left[\begin{array}{ll} \text{RELN} & turn\ dark \\ \text{SIT} & s \\ \text{THEME} & i \end{array} \right] \right\rangle \end{array} \right]$$

The present analysis crucially builds upon the Argument Realization (26) and Argument Structure Extension (27) proposed in Bouma et al. (2001). The structures above are not the lexemes in lexical entries but already incorporate information for syntactic mapping. In their system, VALence feature (SUBJ/COMPS) is mapped from ARGument-Structure through DEPendantS feature. DEPS feature, according to Bouma et al. (2001), is an intermediate level between the ARG-ST and the VAL. ARG-ST includes arguments which play a part in the semantic restriction set, whereas Argument Structure Extension in (27) below adds adjuncts in DEPS. VAL (or SUBJ and COMPS) is mapped from DEPS. So simply put, syntactic argument is present both in DEPS and VAL as well as in ARG-ST, while adjunct is present in DEPS and VAL alone:

(26) Argument Realization (Bouma et al. 2001)

$$word \implies \left[\begin{array}{l} \text{SUBJ} \quad \boxed{1} \\ \text{COMPS} \quad \boxed{2} \ominus list(gap-ss) \\ \text{DEPS} \quad \boxed{1} \oplus \boxed{2} \end{array} \right]$$

(27) Argument Structure Extension (Bouma et al. 2001)⁹

⁹The postulation of the intermediate level DEPS and Argument Structure Extension was motivated by the overlap in syntactic behaviors between arguments and adjuncts. Bouma et al. (2001) carefully avoid including all adverbials and adjuncts in DEPS list, without specifying the membership of the DEPS. I argue that the adverbial clause in question is to be included in the DEPS. Case marking particles provide the motivation. Both case markers for arguments (i.e.,

$$verb \implies \left[\begin{array}{l} \text{ARG-ST} \quad \boxed{\text{I}} \\ \text{DEPS} \quad \boxed{\text{I}} \oplus \text{list('adverbials')} \end{array} \right]$$

Given these mechanisms, (24) is intuitively an ordinary structure with a clausal complement. The clause bears an index shared by the theme argument of the predicate to be sad (saddening) in its restriction set, as well as by an argument in its argument structure. The adverbial clause in (25), which is mapped through Argument Structure Extension in (27), is also an ordinary structure, in the sense that the adjunct is included only in VAL and DEPS.

5.2 IHRC

On the other hand, I propose that a predicate taking IHRC roughly has the following structure, which is for (20):

$$(28) \text{ IHRC} \left[\begin{array}{l} \text{SYN} \mid \text{VAL} \mid \text{SUBJ} \quad \langle \text{S}_j \rangle \\ \text{DEPS} \quad \langle \text{NP}_i, \text{S}_j \rangle \\ \text{ARG-ST} \quad \langle [\quad]_i \rangle \\ \text{SEM} \mid \text{RESTR} \quad \left\langle \left[\begin{array}{ll} \text{RELN} & \text{withering} \\ \text{SIT} & s \\ \text{THEME} & i \end{array} \right], \left[\begin{array}{ll} \text{RELN} & R\text{-reln} \\ \text{INSTANCE} & i \\ \text{CIRCUMSTANCE} & j \end{array} \right] \right\rangle \end{array} \right]$$

This is again not the feature structure of the lexeme to *redde*n. The proposed structure indicates that the predicate syntactically takes a clausal (S) argument, which, however, does not play a role in the *withering* relation (or the relation designated by the main predicate). This is introduced by the Argument Structure Extension in (27), and hence is present in DEPS as well. On the other hand, the theme argument of the *withering* relation is coindexed with an argument in the ARG-ST, and consequently with an NP argument in DEPS, but it is not syntactically realized as an argument (hence, absent from VAL (SUBJ) list.) Intuitively, then, this structure tries to capture the obvious syntax-semantics discrepancy of IHRC; IHRC is syntactically a clausal complement, but the main predicate requires as its argument an NP denoting an entity, which, however, is not its syntactic argument.

Notice that in the structure (28), the required entity (theme argument indexed as *i*) is not directly linked to an argument of the clausal complement. Instead, I assume that they are linked by a special kind of pragmatic relation termed R-relation here, following Yoon's (1993) practice and spirit in his comprehensive approach to the relative clause (noun modification) structures in Korean (and presumably applicable to Japanese as well). The R-relation takes two arguments: one that is coindexed with a semantic argument that the main predicate requires, and the other circumstantial argument (proposition) which is coindexed with the clausal complement. So, in the present case, what this

nominative [ga], accusative [o], dative [ni]) and postpositions for nominal adjuncts (i.e., locative [ni/de], instrumental [de], allative [kara], among others) have developed into homonymous conjunctive particles, which appear at the end of the clause. This shows that syntactic arguments and adjuncts do not necessarily form disjoint sets of categories.

means is that there was an event in which the agent moved a cherry tree, and something salient in the event seemed withering. What seemed withering is most likely to be interpreted as the cherry tree after all.

Though the linkage is considerably indirect for a relative clause, this kind of indirectness of reference is not a drawback of the analysis but is supported by the data. In contrast with EHRC, the I-clause and the target NP are more or less referentially independent. The actual target and the apparently corresponding argument in the I-clause are not exactly the same, and the argument can carry modifiers that are semantically incompatible with the actual target as in (7) and (8). The cases of multiple and implicit target show that the target is not necessarily explicitly included in the I-clause. The indirect linkage via R-relation, thus, offers a more comprehensive and adequate account of IHRC.¹⁰

Furthermore, (28) also explains why the I-clause in isolation fails to designate an NP, as noted in relation to the example (6b). The I-clause is consistently S (though nominalized S), in all three versions (24)-(25) and (28), and it never refers to an entity, which captures the observed fact.

Now the biggest remaining issue with the proposed structure is evidently its licensing mechanism. The proposed structure of the main verb is obviously anomalous, in that its syntactic subcategorization and argument structure involve a marked discrepancy. I propose that the anomalous structure is licensed by the following lexical rule, which overrides the regular syntactic mapping following and Argument Realization in Bouma, et al. (2001) (cf. also Argument Realization Principle (ARP) in Sag and Wasow (1999)):

(29) IHRC Lexical Rule

$$\left\langle \boxed{1}, \left[\begin{array}{l} \textit{lexeme} \\ \text{ARG-ST} \quad \langle [\]_i \rangle \\ \text{SEM} \mid \text{RESTR} \quad \boxed{2} \end{array} \right] \right\rangle \mapsto \left\langle \boxed{1}, \left[\begin{array}{l} \textit{derived lexeme} \\ \text{SUBJ} \quad \langle S_j \rangle \\ \text{DEPS} \quad \langle NP_i, S_j \rangle \\ \text{ARG-ST} \quad \langle [\]_j \rangle \\ \text{SEM} \mid \text{RESTR} \quad \boxed{2} \oplus \left\langle \left[\begin{array}{l} \text{RELN} \quad R\text{-reln} \\ \text{INSTANCE} \quad i \\ \text{CIRCUMSTANCE} \quad j \end{array} \right] \right\rangle \end{array} \right] \right\rangle$$

In other words, it is proposed that the licensing of IHRC is endorsed by the defeasibility of ARP. The following represents the defeasible version of Argument Realization Principle for Japanese:

(30) Japanese Argument Realization Principle

word \implies

¹⁰Importantly, I do not mean that the R-relation for noun modifications discussed in Yoon (1993) and the R-relation for IHRC are identical. They share certain properties, but they are distinct relations. I use the term R-relation as a general concept, from which different types of relations are instantiated.

$$\left[\begin{array}{l} \text{SUBJ} \quad / \quad \boxed{1} \\ \text{COMPS} \quad / \quad \boxed{2} \quad \ominus \quad \text{list}(\text{gap-ss}) \\ \text{DEPS} \quad \boxed{1} \quad \oplus \quad \boxed{2} \end{array} \right]$$

Sag and Wasow (1999) suggest that ARP could be default in a language like Japanese which allows argument ellipsis quite freely. In their formulation, phonologically null arguments are present only in ARG-ST and absent from VAL. The adequacy of their treatment of phonologically null argument is still a matter of controversy. Yet, the present analysis provides a different reason to suppose that ARP is default in Japanese.

Since I have examined only Japanese data, I do not commit myself to the crosslinguistic claim that some (if not all) IHRCs in the world take the similar structure as the Japanese ones proposed here. However, at least in view of the generalization by Cole (1987) and Culy (1991) that the languages with IHRC are limited to *pro*-drop languages, and both the *pro* and IHRC point to the defeasibility ARP, the defeasibility of APR may well be taken as the primary condition of the availability of IHRC in the language.

However, unlike usual cases of ellipsis, the lexical rule in (29) manipulates the correspondence between ARG-ST and VAL in such a way as to radically rearrange argument synsems, almost disrupting the mapping function of ARP altogether. It is clearly a very marked structure. Neither clausal complement nor adverbial clause is anomalous in this sense, since both of them abide by ARP. If structural markedness implies psycholinguistic effect, development from clausal complement through IHRC to adverbial clause may well be interpreted as the loss and regain of stability. In particular, the recurring development from IHRC into the adverbial clause is motivated by the strong quest for stability.

6 Conclusion

In this paper I have proposed to define IHRC in terms of the lexical specification of the main predicate, denying that IHRC in isolation designates a certain entity or a target. The predicate is subcategorized for a clause, while it calls for an entity-like argument. The multi-level architecture of HPSG is exploited to accommodate the apparent syntax-semantic mismatch. The IHRC is syntactically a clausal complement, while it is not semantically selected by the main predicate. The main predicate, on the other hand, selects an entity as its argument, but the entity is not syntactically given. I claim that the syntax of IHRC specifies this much. The rest, or the actual linkage between the predicate and the semantically required target entity, is semantically or pragmatically achieved. Drawing on the ideas of Default Argument Realization and Argument Extension with the postulation of the interface level DEPENDENTS proposed in Bouma et al. (2001), I have demonstrated how the present proposal can connect the clausal complement, IHRC, and adverbial clauses, thus providing the structural aspect of the motivation for the diachronic change.

It has been widely recognized that the central character of IHRC is the syntax-semantics mismatch. A major route to solve the mismatch has been to dissolve it by saying that the mismatch is only apparent; deep down, the I-clause in fact has a structure which legitimately refers to a noun. The approach proposed in this paper, instead, solves the syntax-semantics mismatch by accepting the mismatch as it is. By elaborating the way to accept the mismatch, the analysis extends its scope to cover the diachronic change of the IHRC in Japanese.

There have been cognitive and functional explanations proposed to give motivations for the diachronic change giving rise to IHRC (Ishigaki 1955, Horie 1998, Kondo 2000, among others). One of the implications of this study is that the cognitive and functional aspects alone will not motivate a drastic syntactic change. So long as syntactic structures change, and if the change is gradual, it is not very likely that a structure A should suddenly shift into a structure B, which is totally different from A; there ought to be something in the grammatical structure that allows the room for change. In this sense, the present analysis has demonstrated the syntactic motivation for the diachronic association among clausal complement, IHRC, and adverbial clauses, as well as for the synchronic relatedness among them.

References

- Bender, Emily and Dan Flickinger 1999. "Diachronic Evidence for Extended Argument Structure." In Gosse Bouma, Erhard Hinrichs, Geert-Jan M. Kruijff, and Richard Oehrle. Eds. *Constraints and Resources in Natural Language Syntax and Semantics*. Stanford, CA: CSLI.
- Bouma, Gosse, Robert Malouf, and Ivan A. Sag. 2001. "Satisfying Constraints on Extraction and Adjunction." *Natural Language and Linguistic Theory* vol. 19, 1-65.
- Cole, Peter. 1987. "The Structure of Internally Headed Relative Clauses." *Natural Language and Linguistic Theory* vol. 5, 277-302.
- Culy, Christopher. 1990. *The Syntax and Semantics of IHRCs*. Ph.D. dissertation. Stanford University.
- Copestake, Ann, Dan Flickinger, Ivan A. Sag. 1997. "Minimal Recursion Semantics: An Introduction." Unpublished manuscript.
- Horie, Kaoru. 1993. "From Zero to Overt Nominalizer *No*: A Syntactic Change in Japanese." In S. Choi. (Ed.) *Japanese/Korean Linguistics* vol. 3, 305-321.
- Horie, Kaoru. 1998. "On the Polyfunctionality of the Japanese Particle *No*." In T. Otori. (Ed.) *Studies in Japanese Grammaticalization*. Tokyo: Kuroshio, pp. 169-192.
- Hoshi, Koji 1996. "The Head-Internal Relative Clause in Japanese: An Empty Head Noun Approach," *Japanese/Korean Linguistics* vol. 5, 253-268.
- Ishigaki, Kenji. 1955. *Zyosi no Rekisi-teki Kenkyuu*. (A Historical Study of Grammatical Particles.) Tokyo: Iwanami.
- Kikuta, Chiharu Uda. 2000. "Qualia Structure and the Accessibility of Arguments: Japanese Internally-Headed Relative Clauses with Implicit Target." *Language, Information and Computation: Proceedings of the 14th Pacific Asia Conference on Language, Information and Computation*, eds. Akira Ikeya and Masahito Kawamori, 153-164.
- Kim, Jong-Bok and Kyung-Sup Lim. 2001. "Internally Headed Relative Clause Constructions: Revisited." Paper presented at the 9th Harvard Biennial International Symposium of Korean, Harvard University.

- Kondo, Yasuhiro. 2000. *Nihongo Kizyutu Bunpoo no Riron* (A Theory of Japanese Descriptive Grammar). Tokyo: Hitsuji Shobo.
- Kuroda, Sige-Yuki. 1975-77. "Pivot Independent Relativization in Japanese." Reprinted in Kuroda, S-Y. 1992. *Japanese Syntax and Semantics: Collected Papers*. Dordrecht: Kluwer
- Konoshima, Masatoshi. 1983. *Zyodoosi Zyosi Gaisetu* (A General Introduction to Auxiliaries and Particles.)
- Kyogoku, Koichi. 1987. "Setsuzokusi 'ni' 'o' 'ga' no Seiritu to Tenkai (Emergence and Development of Conjunctive Particles 'ni', 'o', and 'ga')." *Kokubunpoo Kouza 3: Koten Kaisyaku to Bunpoo: Zyosi no Kinou* (A Course in Japanese Grammar 3: Interpretation of Literature and Grammar: Function of Particles). Tokyo: Meiji Shoin, pp. 190-358.
- Lascarides, Alex, and Ann Copestake. 1998. "Default Representation in Constraint-Based Frameworks." unpublished manuscript.
- Le, Van Cu. 1988. *'No' ni yoru Bun Umekomi no Koozoo to Hyoogen no Kinoo* (The Structure and Function of Sentence Embedding with [no]). New Haven: Yale University Press.
- Martin, Samuel E. 1975. *A Reference Grammar of Japanese* New Haven: Yale University Press.
- Mihara, Ken'ichi 1994. "Iwayuru Syuyooibu Naizai-gata Kankeisetu ni tuite (On the So-Called Internally Headed Relative Clauses.)" *Nihogo-gaku* vol. 13.7, 80-92.
- Murasugi, Keiko. 1994. "Head-Internal Relative Clauses as Adjunct Pure Complex NPs." In S. Chiba et al. (Eds.) *Synchronic and Diachronic Approaches to Language: A Festschrift for Toshio Nakao on the Occasion of His Sixtieth Birthday*. Tokyo: Liber Press, pp. 425-437.
- Nomura, Masuhiro. 1996. "The Internally-Headed Relative Clause Construction: From the Viewpoint of Cognitive Grammar." Paper presented at a workshop of the English Linguistic Society of Japan, Tokyo University.
- Nomura, Masuhiro. 2000. *The Internally-Headed Relative Clause Construction in Japanese: A Cognitive Grammar Approach*, Ph.D dissertation, University of California, San Diego.
- Odani, Masanori. 1998. *Koubun no Kakutyō to Sono Doukiduke ni Kansuru Nintiteki Kenkyū: Nihongo no Syuyoubu Naizaigata Kankeisetu nituite* (A Cognitive Linguistic Approach to Constructional Extension and Its Motivation: A Case of Japanese Internally-Headed Relative Clauses)." Unpublished MA Thesis, University of Toyama, Japan.
- Ohara, Kyoko Hirose. 1996. *A Constructional Approach to Japanese Internally Headed Relativization*, Ph.D dissertation, University of California, Berkeley.
- Sag, Ivan A. and Tom Wasow. 1999. *Syntactic Theory: A Formal Introduction*. Stanford, CA: CSLI.
- Shimoyama, Junko. 1999 "Internally Headed Relative Clauses in Japanese and E-Type Anaphora" *Journal of East Asian Linguistics*, vol. 8, 147-182.
- Yoon, Jae-Hak. 1993. "Different Semantics for Different Syntax: Relative Clauses in Korean" *Ohio State University Working Papers in Linguistics* 42, 199-226.