Clefts, Freezing Effects, and *Wh*-movement in Japanese*

YUYA NOGUCHI
University of Connecticut

1 Introduction

The main concern of this paper is clefts in Japanese (see, e.g., Hoji 1987; Matsuda 1998; Hiraiwa and Ishihara 2002, 2012; Kizu 2005 for previous

*My special gratitude goes to Željko Bošković, Guglielmo Cinque and Toru Ishii for their insightful comments on the contents of this paper. I also thank the audiences at Comparative Syntax at UConn, at 2nd Encouraging Conference of Formal Linguistics, at ECO-5, and at Japanese/Korean Linguistics 28. All remaining errors are, of course, my own.

works on clefts in Japanese), as in (1b).[1] Its normal counterpart is shown in (1a).[2]

(1) a. Mai-ga hondana-ni kabin-o oita.
Mai- NOM bookshelf-on vase-ACC put
'Mai put a vase on the bookshelf.'
b. [Mai-ga e_i kabin-o oita no]-wa hondana-ni$_i$ da.
Mai-NOM vase-ACC put C-TOP bookshelf-on COP
'It was on the bookshelf that Mai put a vase.'

As (1b) shows, in Japanese clefts, the focalized phrase is followed by the copula *da*, and the presupposition clause is headed by the complementizer *no* and is realized as a topic phrase, as confirmed by the fact that it is followed by the topic particle *wa*.

Note that in matrix clauses it is possible to make a cleft *wh*-question, where a *wh*-phrase appears in the focus position. Replacement of the focalized phrase in (1b) with the *wh*-phrase *doko-ni* 'on where', for example, results in the well-formed cleft *wh*-question in (2).

(2) [Mai-ga e_i kabin-o oita no]-wa doko-ni$_i$ desu ka?
Mai-NOM vase-ACC put C-TOP where-on COP.POL Q
'Where was it that Mai put a vase?'

However, embedding a cleft *wh*-question degrades the whole sentence, as exemplified in (3), where the question from (2) is embedded (cf. Noguchi 2020).

(3) ?*Ken-wa [[Mai-ga e_i kabin-o oita no]-wa doko-ni$_i$ (da) ka]
Ken-TOP Mai-NOM vase-ACC put C-TOP where-on COP Q
siranai.
know.not
'Ken does not know where it was that Mai put a vase.'

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[1] Japanese has two types of cleft-like sentences, which are called *clefts* and *pseudo-clefts* in Hiraiwa and Ishihara's works (see also Hoji 1987; Kuroda 1999); in the former, a Case particle or a postposition is appended to the element in the focus position (see (1b)), which is not the case in the latter, as in (i).

(i) [Mai-ga e_i kabin-o oita no(/basyo)]-wa hondana$_i$ da.
Mai-NOM vase-ACC put NMLZ/place-TOP bookshelf COP
'The place on which Mai put a vase is the bookshelf.'

Hiraiwa and Ishihara present several diagnostics to distinguish the two constructions. For example, in pseudo-clefts the particle heading the presupposition clause, namely *no*, can be replaced with a relevant noun, such as *basyo* 'place', as shown in (i). Such replacement is not possible in clefts, on the other hand. This paper deals exclusively with clefts.

[2] The following abbreviations are used: ACC = accusative, C = Complementizer, COP = Copula, NMLZ = nominalizer, NOM = nominative, POL = politeness maker, Q = question complementizer, TOP = topic particle.

Taking these data into consideration, this paper addresses the following two questions:

(4) a. Why does an embedded cleft *wh*-question degrade the sentence in (3)?
b. What makes the grammaticality of matrix and embedded cleft *wh*-questions different (cf. (2) vs. (3))?

In this paper, I first give an account of (4a) in terms of freezing effects (see, e.g., Rizzi 2006; Bošković 2008), with the assumption that *wh*-phrases undergo covert *wh*-movement in Japanese (see, e.g., Lasnik and Saito 1984; Nishigauchi 1990). This proposal thus gives support to the existence of *wh*-movement in Japanese, which has been a longstanding issue. Regarding (4b), I claim that in Japanese, *wh*-movement targets different landing sites depending on whether it takes place in matrix or embedded questions, as has in fact been argued for other languages such as English (see, e.g., Rizzi 1997; Haegeman 2000; Maeda 2010, 2014) and that this is responsible for the grammaticality difference between (2) and (3).

This paper is organized as follows: Section 2 provides a brief overview of Hiraiwa and Ishihara's (2002, 2012) analysis of clefts in Japanese, which this paper adopts. Based on their analysis, Section 3 tackles the question in (4a) and gives an account of it based on freezing effects. Section 4 provides an answer to the question in (4b) by claiming that the landing site of *wh*-movement differs depending on whether it applies in matrix or embedded *wh*-questions. Section 5 concludes the paper.

2 Previous analysis: Hiraiwa and Ishihara (2002, 2012)

This section gives an overview of the analysis of clefts in Japanese proposed by Hiraiwa and Ishihara (2002, 2012) (H&I, henceforth), which I adopt in this paper.[3] They argue that the cleft sentence in (1b), for example, is derived from (5), which they refer to as an *in-situ focus construction*.

(5) [Mai-ga HONDANA-ni kabin-o oita no] da.
Mai-NOM bookshelf-on vase-ACC put C COP
'It was on the bookshelf that Mai put a vase.'

In this construction, a phonologically prominent item within a proposition is interpreted as a focus item. In (5), for example, emphatic stress, which is represented by CAPITALS, is placed on *HONDANA-ni* 'on bookshelf', which has a focus interpretation.

[3] Their analysis is adopted by some previous studies, such as Nishigauchi and Fujii (2006), Takahashi (2006) and Hasegawa (2011).

Assuming Rizzi's (1997) cartographic CP structure in (6), H&I claim that the complementizer *no* and the copula *da* in in-situ focus constructions are the head of Fin(ite)P and Foc(us)P, respectively. The sentence in (5) is claimed to have the structure in (7).

(6) [$_{\text{ForceP}}$ Force [$_{\text{Top(ic)P}}$ Top [$_{\text{Foc(us)P}}$ Foc [$_{\text{(TopP)}}$ (Top) [$_{\text{Fin(ite)P}}$ Fin [$_{\text{TP}}$ …]]]]]]

(7) [$_{\text{FocP}}$ [$_{\text{FinP}}$ [$_{\text{TP}}$ Mai-ga HONDANA-ni kabin-o oita] no] da]
Mai-NOM bookshelf-on vase-ACC put C COP

H&I argue that the cleft sentence in (1b) is derived by applying two movement operations to (7), as shown in (8). First, the focus phrase *HONDANA-ni* 'on bookshelf' in (7) moves to Spec,FocP, as shown in (8a). After this focus movement, as (8b) shows, the remnant FinP moves to Top(ic)P, which is located above FocP, resulting in the cleft in (1b).[4,5]

(8) a. focus movement of *Hondana-ni*
[$_{\text{FocP}}$ Hondana-ni$_{\text{i}}$ [$_{\text{FinP}}$ [$_{\text{TP}}$ Mai-ga t_{i} kabin-o oita] no] da]
bookshelf-on Mai-NOM vase-ACC put C COP

b. remnant movement of FinP
[$_{\text{TopP}}$ [$_{\text{FinP}}$ Mai-ga t_{i} kabin-o oita no]$_{\text{j}}$-wa [$_{\text{FocP}}$ Hondana-ni$_{\text{i}}$
Mai-NOM vase-ACC put C-TOP bookshelf-on
t_{j} da]]
COP

Of importance in the derivation of clefts is that focus movement is involved (see (8a)). This point is confirmed by the fact that the focus phrase in clefts is sensitive to islands, such as complex NP islands, as shown in (9b), even though it can cross a clause boundary, as displayed in (9a).

(9) a. ?[Mai-ga [Ken-ga e_{i} kabin-o oita to] itta no]-wa
Mai-NOM Ken-NOM vase-ACC put C said C-TOP
hondana-ni$_{\text{i}}$ da.
bookshelf-on COP
'It was on the bookshelf that Mai said that Ken put a vase.'

b. *[Mai-ga [[e_{i} e_{j} kabin-o oita] hito$_{\text{i}}$]-o sitteiru no]-wa
Mai-NOM vase-ACC put person-ACC know C-TOP
hondana-ni$_{\text{j}}$ da.
bookshelf-on COP

[4] Watanabe (2003) also suggests a similar analysis for clefts.

[5] Hiraiwa (2006) notes that a nominative Case cannot follow the presuppositional clause in clefts, as shown in (i), supporting H&I's claim that the remnant FinP moves to Spec,TopP.

(i) [Mai-ga e_{i} kabin-o oita no]{-wa/*-ga} doko-ni$_{\text{i}}$ desu ka?
Mai-NOM vase-ACC put C- TOP/-NOM where-on COP.POL Q
'Where was it that Mai put a vase?'

'Lit. It was [on the bookshelf]$_j$ that Mai knows the person who put a vase e_j'

The data in (9b), however, can also count as an argument for another often accepted analysis of clefts, according to which it is a null operator, rather than the focus element itself, that moves (e.g. Kuwabara 1996; Matsuda 1998; Koizumi 2000; Kizu 2005). This analysis can be roughly represented as in (10).

(10) [[$_{CP}$ Op$_i$ [$_{TP}$ … t_i …] *no*]-*wa* XP-Case/Postposition$_i$ *da*]

H&I point out that under such an operator-movement analysis, it is unclear how the Case particle/postposition on the base-generated focused element (i.e. XP in (10)) is licensed. They argue that their proposal should be preferred to the operator-movement analysis because it gives a straightforward account of that question: the Case particle or the postposition on the focus element is licensed in its original position before movement to Spec,FocP.

3 Embedded cleft *wh*-questions

This section aims to provide an account of the question in (4a), namely why an embedded cleft *wh*-question yields degradedness as in (3), repeated below:[6]

(3) ?*Ken-wa [[Mai-ga e_i kabin-o oita no]-wa doko-ni$_i$ (da) ka] siranai.
Ken-TOP Mai-NOM vase-ACC put C-TOP where-on COP Q know.not
'Ken does not know where it was that Mai put a vase.'

[6] H&I argue that a sluicing construction such as in (i) is derived from a cleft *wh*-question: a sluicing sentence obtains by deleting the presupposition clause (i.e. FinP; see (8b)) of a corresponding cleft *wh*-question (see also, e.g., Nishiyama et al. 1995; Fukaya and Hoji 1999).

(i) Ken-wa Mai-ni nanika-o ageta rasii ga, boku-wa [nani-o (da) ka] siranai.
Ken-TOP Mai-to something-ACC gave I.hear but I-TOP what-ACC COP Q know.not
'I heard that Ken gave Mai something, but I don't know what.'

The current observation that embedding a cleft *wh*-question degrades a sentence, however, makes their analysis of Japanese sluicing dubious. I will not delve further into sluicing in Japanese here, since this issue is beyond the topic of this paper. See, however, Takahashi (1994) and Kimura and Takahashi (2011) for an analysis of sluicing in Japanese which does not rely on clefts. I thank Shuki Otani for pointing out this issue.

3.1 Excluding potential accounts

Before explicating the approach of this paper, I here present two facts to exclude potential accounts of the marginality in (3). Notice first that it is possible to use an in-situ focus construction, which H&I argue underlies the structure of clefts, as an embedded *wh*-question, as shown in (11).

(11) Ken-wa [Mai-ga(/-wa) doko-ni kabin-o oita no (da) ka]
Ken-TOP Mai-NOM/-TOP where-on vase-ACC put C COP Q
{siranai / tazuneta}.
know.not/asked
'Ken {doesn't know / asked} where it was that Mai put the vase.'

This fact indicates that the degradedness of (3) cannot be ascribed to embedding the in-situ focus construction that would be transformed into the cleft. Second, as pointed out by Saito (2010), a topic phrase can appear within an embedded question, as exhibited in (12).

(12) Ken-wa [Mai-wa nani-o tabeta ka] {siranai / tazuenta}.
Ken-TOP Mai-TOP what-ACC ate Q know.not/asked
'Ken {doesn't know / asked} what Mai ate.'

Having a topic phrase in the embedded question in (3), therefore, cannot be responsible for its marginality.

3.2 A freezing effect account

I will now present an account of why (3) is degraded. The account will crucially draw on freezing effects, which are observed with elements that have undergone A'-movement; they are "frozen" at the position to which they have moved and thus further movement operations cannot be applied to them. Witness (13) and (14), for example.

(13) a. Someone thinks that Mary solved every problem.
(∃>∀ / (?)∀>∃)
b. Someone thinks that every problem, Mary solved.
(∃>∀ / *∀>∃) (Bošković 2008: 251)

(14) *What$_i$ do you wonder [$_{CP}$ t_i C [$_{IP}$ John bought t_i (when)]] (ibid: 256)

Regarding (13), at least some native speakers of English accept the inverse scope reading in (13a), where the universal quantifier in the embedded clause takes scope over the existential quantifier in the matrix clause. If we assume quantifier raising, this fact indicates that a quantifier can raise across the embedded clause to take scope over a quantifier in the matrix clause, at least for some English speakers. In contrast, however, even such native speakers do

not accept the inverse scope reading in (13b), where the universal quantifier in (13a) is topicalized within the embedded clause. Concerning (14), on the other hand, it indicates that a *wh*-phrase of an embedded *wh*-question cannot move further to the matrix clause to form a direct *wh*-question. Notice that freezing effects capture these data; quantifier raising cannot be applied to the universal quantifier in (13b) because it has already undergone topic movement, while *wh*-movement cannot be applied to the *wh*-phrase in (14) because it has already undergone the same sort of movement in the embedded clause.

With this illustration in mind, let us now consider the data in (3) in terms of freezing effects. If we follow H&I's analysis of clefts, the structure of the embedded question can be represented as in (15).

(15) (Ken-wa) [[$_{\text{TopP}}$ [$_{\text{FinP}}$ Mai-ga t_i kabin-o oita no]$_j$-wa
Ken-TOP Mai-NOM vase-ACC put C-TOP
[$_{\text{FocP}}$ doko-ni$_i$ t_j da]] ka] (siranai)
where-on COP Q know.not

Note particularly that the *wh*-phrase in the focus position has moved to Spec,FocP, as seen in (15). Here I crucially assume that *wh*-movement takes place in a covert manner in Japanese, as argued in some previous works (e.g. Lasnik and Saito 1984; Nishigauchi 1990). Under this assumption, the *wh*-phrase in (3) must undergo *wh*-movement, presumably to the specifier of the projection headed by the question particle *ka* (see the relevant discussion in Section 4). Notice, however, that the *wh*-phrase has already undergone focus movement, an instance of A'-movement, and thus it should be "frozen" in Spec,FocP. *Wh*-movement then cannot be applied to the *wh*-phrase in (3), yielding the degradedness.

3.3 D-linking effects

One argument for this account is obtained when we observe embedded cleft *wh*-questions with a D(iscourse)-linked *wh*-phrase (cf. Pesetsky 1987); a sentence with an embedded cleft *wh*-question, such as (3), is ameliorated if the *wh*-phrase is forced to be interpreted as D-linked. Observe the contrast between (16a) (= (3)) and (16b), for example.

(16) a. ?*Ken-wa [[Mai-ga e_i kabin-o oita no]-wa <u>doko-ni$_i$</u>
Ken-TOP Mai-NOM vase-ACC put C-TOP where-on
(da) ka] siranai.
COP Q know.not
'Ken does not know where it was that Mai put a vase.' (= (3))

b. ?Ken-wa [[Mai-ga e_i kabin-o oita no]-wa <u>dono</u>
Ken-TOP Mai-NOM vase-ACC put C-TOP which

tukue-ni$_i$ (da) ka] siranai.
table-on COP Q know.not
'Ken does not know on which desk it was that Mai put a vase.'

The only difference between the two sentences in (16) is that the *wh*-phrase of the embedded question in (16b) includes an inherently D-linked *wh*-item *dono* 'which' (cf. Hirose 2003) while that in (16a) does not. Given that, the grammaticality difference between (16a) and (16b) should be ascribed to whether the *wh*-phrase is D-linked or not. Note further that this amelioration can be observed even when an embedded cleft *wh*-question has a *wh*-item which is not inherently D-linked (e.g. *doko* 'where' in (16a) and *dare* 'who' in (17)), as long as it is contextually forced to be construed as D-linked; compare (17a) and (17b).

(17) a. [Context: Ken hears that Mai lent someone her money. But he has no idea who Mai lent her money.]
?*Ken-wa [[Mai-ga e_i okane-o kasita no]-wa dare-ni$_i$
Ken-TOP Mai-NOM money-ACC lent C-TOP who-to
ka] siranai.
Q know.not
'Ken does not know to whom it was that Mai lent her money.'

b. [Context: The students, including Ken and Mai, voted to decide a student leader of the school. Ken knows who the candidates are, but he has no idea for whom (or for which candidate) Mai voted.]
?Ken-wa [[Mai-ga e_i toohyoosita no]-wa dare-ni$_i$ ka]
Ken-TOP Mai-NOM voted C-TOP who-to Q
siranai.
know.not
'Ken does not know for whom it was that Mai voted.'

It has been argued in the literature that an in-situ D-linked *wh*-item can be licensed without *wh*-movement (e.g. via unselective binding by the Q-morpheme in C; Baker 1970); see Pesetsky (1987), Nishigauchi (1990), Bošković and Franks (2000), among others. Bošković and Franks (2000), for example, confirm this point by observing the data concerning the Coordinate Structure Constraint at LF, which are shown below:

(18) a. * Who said [that John bought a house] and [that Peter sold what]?

b. ? Which man said [that John bought a house] and [that Peter sold which house]?

(Bošković and Franks 2000: 110–111)

In the multiple *wh*-question in (18a), the in-situ *wh*-phrase *what* is located within one of the two conjuncts coordinated by *and*. With the standard assumption that an in-situ *wh*-phrase undergoes LF *wh*-movement in English, the ungrammaticality in (18a) indicates that the Coordinate Structure Constraint is effective even at LF, unlike other island constraints (e.g. complex NP islands, adjunct islands). Interestingly, however, the sentence in (18a) is improved if the *wh*-phrase *what* is replaced by a *wh*-phrase including an inherently D-linked *wh*-item, such as *which house*, as shown in (18b). This improvement can be captured if it is assumed that an in-situ D-linked *wh*-phrase does not undergo covert *wh*-movement, avoiding a violation of the Coordinate Structure Constraint in LF in (18b).

In light of this, it is reasonable to assume that the grammaticality difference seen in (16) and (17) arises for essentially the same reason as that in (18), given that the sentences in (16), (17) and (18) minimally differ in whether the *wh*-phrase is forced to be understood as D-linked. More specifically, in (16) and (17), the freezing effect with the D-linked *wh*-phrase is not yielded because it does not undergo LF *wh*-movement.

3.4 Theoretical implication

To sum up, this section has proposed an account of the marginality of (3) based on freezing effects. Notice that this account crucially draws on the assumption that *wh*-movement takes place in a covert manner in Japanese, following, e.g., Lasnik and Saito (1984) and Nishigauchi (1990). Hence, to the extent that it is on the right track, the current proposal serves as a new argument for the existence of LF *wh*-movement in Japanese, which has been a longstanding issue.

4 Matrix vs. embedded cleft *wh*-questions

Let us now move on to the second question that (4b) asks: what is responsible for the grammaticality difference between a matrix cleft *wh*-question such as in (2) and an embedded cleft *wh*-question such as in (3)? The relevant examples are repeated below:

(2) [Mai-ga e_i kabin-o oita no]-wa doko-ni$_i$ desu ka?
Mai-NOM vase-ACC put C-TOP where-on COP.POL Q
'Where was it that Mai put a vase?'

(3) ?*Ken-wa [[Mai-ga e_i kabin-o oita no]-wa doko-ni$_i$ (da) ka] siranai.
Ken-TOP Mai-NOM vase-ACC put C-TOP where-on COP Q know.not
'Ken does not know where it was that Mai put a vase.'

Considering that the current approach attributes the degradedness in (3) to the freezing effect, which blocks the *wh*-phrase from undergoing *wh*-movement, the grammaticality in (2) suggests that the *wh*-phrase in (2) does not undergo *wh*-movement, causing no freezing effect, unlike in (3). Given that, the next task is to pin down what makes it possible for the *wh*-phrase in (2) to be exempted from moving further.

To achieve this task, I claim that, in Japanese, *wh*-phrases move to different positions depending on whether *wh*-movement takes place within a matrix question or an embedded question. More specifically, with the standard cartographic CP structure where ForceP is located in a higher position than FocP (see, e.g., Rizzi 1997; see also Endo 2007; Saito 2010; Maeda 2014 for the fine-grained CP field in Japanese), I claim that *wh*-movement targets Spec,FocP in matrix questions, while it targets Spec,ForceP in embedded questions.[7]

In fact, such different landing sites of *wh*-movement have been proposed for other languages in the literature. Thus, a number of previous works have argued that, in English, *wh*-movement targets Spec,FocP in matrix questions but Spec,ForceP in embedded questions (see, e.g., Rizzi 1997; Haegeman 2000; Maeda 2010, 2014), just as I claimed above for Japanese. This point can be confirmed by the distribution of *wh*-phrases with respect to a topicalized element, for example. The relevant data are shown below:[8]

(19) a. ??To John$_i$, which book$_j$ should Peter give t_j e_i?
b. *To whom$_i$, this book$_j$, should Peter give e_j t_i?
c. *To whom$_i$ should, this book$_j$, Peter give e_j t_i?
(cf. Bošković 1997: 31)

(20) a. *I wonder [to John$_i$, which book$_j$ Peter should give t_j e_i].
b. ??I wonder [to whom$_i$, this book$_j$, Peter should give e_j t_i].
(ibid: 31)

The data in (19) indicate that when topicalization takes place in a matrix *wh*-question, the sentence is better when the topic precedes the *wh*-phrase, as in (19a), compared with the reverse order, as in (19b,c). On the other hand, the opposite distribution is observed in (20): when a topic co-occurs with a *wh*-phrase in an embedded question, the former must follow the latter. This distributional difference of *wh*-phrases indicates that *wh*-movement brings a *wh*-phrase to different sites depending on whether it takes place in a matrix question or an embedded one. More specifically, if we take the standard

[7] Maeda (2014) also suggests this possibility.

[8] What is important here is that (19a) and (20b) are better than (19b,c) and (20a), respectively, even though they are marginal themselves. Bošković (1997) suggests that their marginality is caused by a Subjacency violation.

assumption that a topicalized element is located in Spec,TopP and that TopP lies between ForceP and FocP, the *wh*-phrase in (19a) should be in Spec,FocP, while that in (20b) should be in Spec,ForceP.[9] Note that this distribution of *wh*-phrases is exactly what I postulated above for covert *wh*-movement in Japanese.

Let me now spell out in more detail how the current claim accounts for the difference in well-formedness between (2) and (3). Note first that in the matrix cleft *wh*-question (2), the *wh*-phrase has moved to Spec,FocP to form a cleft, if we follow H&I's analysis. This *wh*-phrase does not need to move further because, according to the present claim, *wh*-movement targets Spec,FocP in matrix *wh*-questions. Hence no freezing effect arises in (2), resulting in its grammaticality. In the case of (3), on the other hand, the *wh*-phrase, which is located in Spec,FocP in the embedded question, has to further undergo *wh*-movement because under the current proposal a *wh*-phrase moves to ForceP in embedded questions. This movement operation cannot be applied to the *wh*-phrase, however, due to the freezing effect, thus leading to the degradedness of (3).

5 Conclusion

This paper has focused on the fact that in Japanese, embedding a cleft *wh*-question, which is itself grammatical as a matrix question, makes the sentence marginal (Noguchi 2020). Adopting H&I's analysis of clefts, I have presented an account that captures this fact in terms of freezing effects. This account provides a new argument for the existence of *wh*-movement in Japanese. I have also given an account of the grammaticality difference between matrix cleft *wh*-questions and embedded ones, by claiming that *wh*-movement targets different landing sites (i.e. ForceP vs. FocP) depending on

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[9] Additional support for this distribution is gained by observing the following data, which show the distribution of *wh*-phrases with respect to a fronted negative element inducing Subject–Auxiliary Inversion.

(i) a. *On no account which book should I buy?
b. *Which book on no account should I buy? (Maeda 2014: 18–19)

(ii) a. Lee wonders what (in the world) in no way would Robin eat?
b. *Lee wonders in no way what {(in the world) would / would (in the world)} Robin eat.
(ibid: 19)

Previous studies have assumed that such a negative element is located in Spec,FocP (e.g. Rizzi 1997; Haegeman 2000; Maeda 2010, 2014). Given that, the fact shown in (i) that in matrix questions a *wh*-phrase is incompatible with a fronted negative phrase indicates that *wh*-movement raises a *wh*-phrase to Spec,FocP, for which the *wh*-phrase and the negative phrase compete in (i). (ii) shows, on the other hand, that in embedded questions a *wh*-phrase is compatible with a fronted negative element if the former precedes the latter. This indicates that a *wh*-phrase moves to a position higher than FocP, which is arguably Spec,ForceP, in embedded clauses.

whether it takes place in a matrix or an embedded clause, as independently argued for English in the literature.

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