ABSTRACT

Title of Dissertation / Thesis: AN INVESTIGATION OF EXCLAMATIVES

IN ENGLISH AND JAPANESE: SYNTAX

AND SENTENCE PROCESSING

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This dissertation is a case study of the syntax of the left periphery, using exclamatives

in English and Japanese. In the first part, I discuss exclamatives in Japanese in detail

by focusing on the properties of the exclamative wh-phrases and particles that

function as licensors for wh-phrases in exclamatives. We argue that licensing

exclamatives involves at least three functional heads: Finite, Focus, and Mood.

Especially, the necessity of the Mood head differentiates exclamatives from

interrogatives. On the other hand, we claim that having these three functional

projections does not type the clause as exclamative, and show that the presence of a

wh-phrase of a distinct form is in fact a crucial part of the clause-typing for

exclamation. This conclusion supports the claim that clause type should not be

directly encoded into syntax as an independent functional category. The second part

of dissertation deals with English exclamatives. We show that sluicing is available in

English exclamatives, suggesting that focus is playing a role for the availability of

sluicing, assuming that both interrogatives and exclamatives involve focus. Another conclusion about English exclamatives is that exclamative wh-clauses are licensed, not by selection, but by being c-commanded by a factive operator or a factive predicate. This goes against the traditional observation; our conclusion is empirically justified based on the observation that it is possible to license exclamative wh-clauses by a non-local licensor. We argue that this property is similar to what has been observed for the aggressively non-D-linked wh-phrases, accounting for the distribution and behavior of those non-standard wh-phrases. Finally, we investigate how Japanese exclamatives are processed by native speakers of Japanese with an on-line self-paced reading study and two off-line sentence fragment completion studies on the processing of wh-exclamative sentences in Japanese. These studies investigate the real-time formation of sentential structures with higher functional categories, and show that the parser immediately engages to build syntactic structures with discourse-oriented higher functional projections before coming across the head, favoring the incremental processing model.

AN INVESTIGATION OF EXCLAMATIVES IN ENGLISH AND JAPANESE:
SYNTAX AND SENTENCE PROCESSING

by

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CHAPTER 1: INTRODUCTION

1.   Introduction

This dissertation should be taken as a case study of the 'Fine Structure of the Left Periphery Structure' first extensively discussed by Rizzi (1997) and further elaborated by Cinque (1999). There is little debate over the influence of Rizzi's (1997), especially in research concerned with numerous European languages. Yet, it seems fair to say that few studies have been done on head-final languages such as Japanese (but see a series of studies by Watanabe). One widely shared cross-linguistic observation is that the kind of information that is "visible" in the left periphery in European languages, presumably by the phrases that are in a specifier position of a certain functional category, is "visible" in the right periphery as an overt realization of the head of a functional category in languages such as Japanese (see Fukui & Sakai 2003, for instance). The current work investigates to what extent we can capture the empirical observations in Japanese using Rizzi's (1997) framework. I hope that this dissertation satisfies those who are interested in Rizzi's (1997) framework in general.

As the central theme connecting all of the chapters in this dissertation, we choose exclamative sentences. One virtue of the studying exclamative sentences in Japanese is that the licensing of exclamatives involves various functional projections in the CP domain, the head of which has to be overt. By conducting a detailed investigation of such a construction, we can learn various intriguing properties of those functional projections. One difficulty we encountered in the course of investigation is that there are few studies on exclamatives in the literature, regardless of the language in question. Thus, we are compelled to look at the construction in detail, and we have to be careful to establish generalizations before offering an account. Although we tried as much as we could, it seems that much descriptive work is still necessary. To the extent that we succeed in describing the empirical data on exclamatives, I hope that this dissertation satisfies those who are "exclamative-aficionados".

2.   Things not included

Let me start by listing certain things that are not discussed in this dissertation. At one time I hoped to describe this dissertation as "a thesis that talks about everything that has been said about exclamatives." But, it was an unrealistic goal. The reason why I do not hide the following facts in footnotes is that I hope that a principled explanation will come out in future; they deserve to be the seeds for a squib, at least.

One very interesting topic, that I nonetheless do not have much to say about, is the internal structure of exclamative *wh*-phrases in English. There is some discussion of this in Japanese in chapter 2, on the other hand. The word order within the exclamative wh-phrases exhibits quite peculiar properties. It looks like the fronted phrase consists of two parts as in (1) and (2): a wh-phrase and a "full" DP.

Fronted wh-phrases
(1)   [What a big car] he bought!

(2)   [How big a car] he bought!

I put scare quotes around "full" because the DPs that can appear inside of an exclamative *wh*-phrase seem to be quite limited. For example, the DP has to be either singular with a determiner *a*, or plural. Note that a definite determiner *the*, or a quantifier such as *some* is never allowed to appear in the exclamative wh-phrases.

Quite limited DP

(3)   *[What the big car] he bought!

(4)   *[What some big car] he bought!

One may notice that DPs with *such* or *so* obey a similar restriction, which is discussed in a great detail in a dissertation by Norbert Corver and his subsequent work (Corver 1990, 1997a, 1997b). The previous discussion on Degree Phrases is quite fascinating, but there is nothing substantial that I can add to it (e.g., Bresnan 1973, Jackendoff 1977). A piece of work by Hans Bennis (Bennis 1995) and references cited therein might be a good place to start a nice cross-linguistic (including non-European languages like Japanese) comparison on this issue. See Kennedy & Merchant 2000 also.

The second topic I keep silent about is the compositional semantics of exclamatives. This is certainly related to the first topic above. I have not seen any analysis that works out the semantic contribution of each part of the fronted *wh*-phrase in exclamatives. Where it is necessary, I will talk a little bit about the semantics of exclamatives (see chapter 2), but otherwise, I follow the analysis found in Zanuttini & Portner (2003). As far as I know, there is very little written on the semantics of exclamatives. The work I am familiar with includes Abels (2004), Oda (2003), Gutierrez-Rexach (1996), and d'Avis (2004), etc., in addition to Zanuttini & Portner (2003).

Another topic not discussed in this thesis is the restriction on preposition stranding in exclamatives. Nelson (1997), citing Emonds (1985) for the original observation, has a discussion showing that, compared to *wh*-interrogatives, the fronted exclamative *wh*-phrases do not like to be PPs, as shown below (see also Obenauer 1994). Of course, investigating exactly when preposition pied-piping is allowed in *wh*-interrogatives itself is an interesting topic (see e.g., Hornstein & Weinberg 1981, Baltin & Postal 1996, Abels 2003), and so is investigating what accounts for the contrast between interrogatives and exclamatives. Unfortunately, I do not have anything to add. The basic paradigm is shown here:

No pied-piping

(5)   a.   * To what a crook he lent his house!
        b.   To which crook did he lend his house?

(6)   a.   * With what strange men she danced!
        b.   With which men did she dance?

(7)   a.   * In what a charming house they live!
        b.   In which house do they live?

Another thing I regret I have to leave for the future research is an investigation on the cross-linguistic variations of exclamatives, e.g., between Japanese and Italian. Zanuttini & Portner (2003) extensively used Paduan data, and there are a few studies in

German (e.g., Reis 2002, d'Avis 2004), Spanish and Catalan (e.g., Villalba 2001), and French (e.g., Obenauer 1994, Nelson 1997), but the amount of work in the literature is too little to even be compared with that in interrogatives. See Ono (2003, 2004) for an attempt to derive a parametric variation in exclamatives between English and Japanese.

3.   Organization

Let me briefly summarize each chapter. Chapter 2 investigates the precise licensing mechanism of Japanese exclamatives. As mentioned above, it will be shown that three functional projections in the CP domain play crucial roles. Specifically, we argue that the functional projection Mood is an important ingredient. Materials introduced in that chapter contribute to understanding the approach proposed by Rizzi (1997) and Cinque (1999), illustrating how those "higher functional projections" are realized in Japanese. Such work also contributes to understanding how certain sentence final particles in Japanese play a role in syntax. Note that notions such as mood have been discussed mainly in the semantic and/or pragmatic literature, but the current work strongly argues their syntactic significance (see related discussion in Hara 2006). The main conclusion in Chapter 2 is that the nature of the restrictions of mood particles is in fact syntactic.

Chapter 3 mainly discusses long distance dependencies in Japanese exclamatives. We provide a detailed description of where exclamatives are found when embedded. By considering previous work based on English (Elliott 1974, Grimshaw 1979), we show that the distribution of Japanese exclamatives is different from that of English exclamatives. Some peculiarities are left for the future research, but we hope that the current work contributes to a better understanding of the nature of the embedded clause in Japanese. Another issue discussed in Chapter 3 is the denotation of multiple exclamatives.

In Chapter 4, we discuss sluicing in English exclamatives. This is a case study to examine to what extent there is parallelism between interrogative and exclamative clauses. We offer a detailed description of how sluicing is realized in exclamatives, hoping that it helps to reveal some important issues in sluicing.

Chapter 5 is also about English exclamatives. We point out some similarities between exclamatives and aggressively-non-D-linked wh-interrogatives. Building on the recent analysis on the latter (den Dikken & Giannakidou 2002), we provide an analysis that accounts for the distribution of English exclamatives.

Chapter 6 is a psycholinguistic study on Japanese exclamatives. With three experiments, we investigate how exclamatives are processed. We show that processing of exclamatives are somewhat similar to the processing of interrogatives, providing an insight into how the human sentence parser builds linguistic representations.

CHAPTER 2: LICENSING JAPANESE EXCLAMATIVES

1.   Introduction

The major issue discussed in this section is the required materials in Japanese exclamatives.[1] Small though they are, it will be shown that they play a very crucial role in licensing Japanese exclamatives. The main conclusion that will be reached is that the exclamative *wh*-phrase in Japanese is licensed by three functional heads: *no* (Finite), *da* (Focus), and *roo* (Mood). The mood morpheme *roo* plays an especially important role, for it differentiates exclamatives from interrogatives. In other words, the Finite and Focus heads can also be involved in licensing interrogatives, but the requirement of the Mood head is unique to exclamatives. Also, Finite and Focus particles are optional in interrogatives in many cases, while they must show up overtly in exclamatives. We argue that such a requirement is based on the properties of the *wh*-phrases involved in exclamatives. Differing from other *wh*-phrases found in interrogatives, the exclamative *wh*-phrase *nante* must be licensed by the Mood head *roo*, and it cannot be used as an interrogative *wh*-phrase. Such deterministic properties of the exclamative *wh*-phrase suggest that the "locus of exclamation" in exclamative clauses is the presence of the exclamative *wh*-phrase, not the presence of the three functional heads per se.

The conclusion attained here contributes to the understanding of the fine details of CP structures in Japanese, echoing the view advocated by Rizzi (1997) and Cinque (1999). By using a syntactic projection of Mood, we argue that notions such as 'speaker's point of view' or 'evidentiality' that have been dealt with primarily in semantics or pragmatics have a realization in syntax. Since Japanese has a variety of sentence final particles that are thought to be conditioned in discourse context, it seems quite relevant to use Japanese in order to investigate how the above-mentioned 'semantic/pragmatic' notions interact syntactically. It should be emphasized that the syntactic characterization of mood has not been discussed much in the minimalist framework (Chomsky 1995, 2000, 2001). It is hoped that this work can join with others initiating a fruitful investigation in much more detail.[2]

As a specific implementation of the CP structure of Japanese, we argue that the CP structure contains at least three functional projections that are strictly ordered in the following way (see Ishihara & Hiraiwa 2002 for discussion of FiniteP and FocusP):

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[1] This chapter includes a lot of work done in collaboration with Tomohiro Fujii. I cannot thank him enough for tackling the numerous problems discussed here.

[2] See Hara (2006) and Tenny (to appear) for discussion of evidentiality in Japanese, also Uchibori (2000) and Watanabe (1996) for subjunctive mood in Japanese.

(1)　CP structure for exclamatives

```
                    MoodP
                   /      \
              FocusP       Mood
             /      \       roo
        FiniteP     Focus
        /    \        da
      IP     Finite
     /  \      no
 … nante ...
```
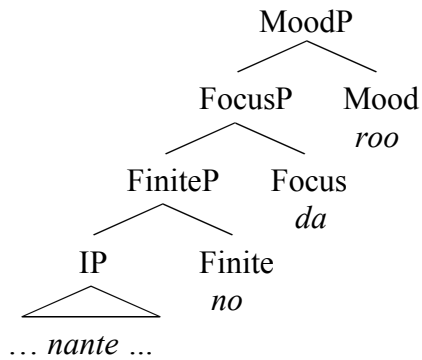
What is significant is that each functional head is realized as an overt particle in Japanese. The strict ordering among those particles is straightforwardly accounted for by identifying each particle as a head of the functional category, the hierarchical configuration of which have been independently justified crosslinguistically (see related work in Rizzi 1997, Cinque 1999, den Dikken 2003, Lipták 2001, among others). A potential alternative analysis against the use of functional projections would be to say that the particle *da* is just a copula that heads an independent clause (and the particle *no* is a nominalizer). Under such an account, the structure of an exclamative sentence like the following is not mono-clausal, but bi-clausal.

(2)　John-wa　nante　ookina　piza-o　　tabeta-no-da-roo
　　　J-TOP　　NANTE　big　　pizza-ACC　ate-NML-COP-MOOD
　　　'What a big pizza John ate!'

One problem of such an analysis is that it predicts that it would be possible to re-iterate those particles. As the following example indicates, it is not possible to repeat those particles.

(3)　* John-wa　nante　ookina　piza-o　　tabeta-no-na-no-da-roo
　　　　J-TOP　　NANTE　big　　pizza-ACC　ate-NML-COP-NML-COP-MOOD

On the other hand, an analysis in which each of those particles heads a functional projection can provide a straightforward account, assuming that each of those functional projections is allowed to project only once in a clause. Hence, at least at this point, the approach that utilizes functional projections seems superior to the one that does not.

　　　　In the next section, we show that each of the functional categories is required in exclamatives, which leads us to a conclusion that the exclamative *wh*-phrase *nante* has to be licensed by those functional projections. Also we conclude that unlike other so-called wh-phrases in Japanese, the wh-phrase *nante* is not an indeterminate pronoun, but it must be used as an exclamative wh-phrase. We further discuss implications for issues of clause type in Japanese exclamatives. In section 3, we investigate the properties of the head of Finite Phrase *no*, following Hiraiwa & Ishihara's work in Japanese. We argue that the particle *no* in exclamatives is the same particle as the particle *no* in cleft sentences. To the extent that the particle *no* plays a role in marking the presupposition in the cleft sentences, it is natural to conclude that the particle *no* in exclamatives has to do with the factivity

observed with exclamatives. In section 4, we look at the focus particles in Japanese. We claim that the particle is not a copula, but it is a functional projection that is responsible for determining the scope of focused element, developing an idea by Sano (2002). Also, we observe that the distribution of the focused particle *da* is constrained to the extent that the adnominal form is restricted. Section 5 is devoted to the discussion of the mood morpheme *roo*. We motivate the claim that it is the head of the Mood Phrase by looking at some co-occurrence restriction with other evidential adverbs. Such an observation leads us to claim that the mood morpheme *roo* indicates the speaker's judgment toward the propositional content of the sentence. We therefore connect properties of exclamatives with the issues on evidentiality. Section 6 also discusses some other evidential morphemes and epistemic morphemes that interact with the mood morpheme *roo*. We claim that the interaction between exclamatives and those lexical modal elements further supports the analysis that the mood morpheme *roo* is the head of a functional projection, based on the idea by Cinque (1999) that those higher functional categories are strictly ordered.

2.   Three Main Parts

This section aims to show that Japanese exclamatives require three functional projections: Finite *no*, Focus *da/desu*, and Mood *roo*. This requirement of exclamatives indicates that Japanese exclamatives are minimally different from interrogatives, since interrogatives in general do not require the finite marker and the mood marker in the structure. This does not mean that those functional heads cannot appear in interrogatives, but the interrogative wh-phrases can be properly licensed even without those.

One complication is that those small markers are sometimes invisible due to some phonological / morphological reduction. Finite, Focus and Mood heads can be present in wh-interrogatives as well, though they can be morphologically reduced in an informal / impolite register. Due to this reason, in the crucial cases, we use examples in more formal or polite speech registers, where morphological reduction (e.g. case marker drop) is generally restricted (cf. Yoshida & Yoshida 1996). For instance, in a formal register, a complex form *no-desu* or *no-de-ar-u* (FIN-P-EXIST-PRESENT) is used, instead of *no-da*. The assumption is that when nothing but a complex form (*no-desu* / *no-dearu*) appears in the structure, it is not a reduced form (since it is in a formal register), and no mood morpheme is present in the structure. The contrast in (4) illustrates that the Mood marker is required in exclamatives. Example (4a) is the case where a complex form is used, and by assumption there is no Mood marker present in the structure, and the example is not acceptable.

Mood morpheme required (*yoo* is an allomorph of *roo*)
(4)   a. * John-wa   nante   kasiko-i   -no-desu
                J-TOP   NANTE   intelligent-PRES   -FIN-FOC.POLITE
         b.   John-wa   nante   kasiko-i   -no-des   -yoo
                J-TOP   NANTE   intelligent-PRES   -FIN-FOC.POLITE -MOOD
                "How very intelligent John is!"

On the other hand, when only *no-da* appears in the structure in an informal register, there is a possibility that there is a Mood morpheme that is invisible due to morphological

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reduction. If so, the acceptability of (5) makes sense since even though there is no visible Mood morpheme present if there is a covert mood morpheme in the structure.

Morphological reduction
(5) John-wa nante kasiko-i -no-da (-roo)
     J-TOP NANTE intelligent-PRES -FIN-FOC -MOOD
     "How very intelligent John is!"

We account for this restriction of obligatory mood marker in exclamatives by arguing that an exclamative *wh*-phrase *nante* in Japanese requires the Mood head as one of its licensers. It suggests that the exclamative wh-phrase bears [mood] feature that must be checked by the particular Mood head *roo*. It is plausible that it also bears a [focus] feature that interrogative wh-phrases do.

Now, consider the contrast in (6). An exclamative *wh*-phrase cannot occur in (6a) since Mood *roo* is not present in the sentence, which is uttered in a register that resists morphological reduction, according to our assumption. The fact that an interrogative *wh*-phrase can appear in the same environment leads us to conclude that no Mood marker is involved in licensing the interrogative *wh*-phrases.

Without the mood marker
(6) a. * John-wa nante kasiko-i-no-desu(-ka)
           J-TOP NANTE intelligent-PRES-FIN-FOC.POLITE(-Q)
           "How very intelligent John is!"
     b. John-wa donokurai kasiko-i-no-desu-ka
         J-TOP how intelligent-PRES-FIN-FOC.POLITE-Q
         "How intelligent is John?"

The above noted conclusion does not say that the presence of Mood marker *roo* determines a wh-clause as exclamative. Thus, this particular head is not something like a head for an "Exclamative Phrase". In fact, the Mood head *roo* can appear in interrogatives quite naturally.

Mood "roo" may occur in interrogatives
(7) a. John-wa dono hito-to kekkonsita -no-da-roo-ka
         J-TOP which person-with got.married -FIN-FOC-MOOD-Q
         "Which person did John marry (, I wonder)?"
     b. John-wa Mary-to kekkonsita -no-da-roo-ka
         J-TOP M-with got.married -FIN-FOC-MOOD-Q
         "Did John marry Mary (, I wonder)?"

Assuming that the morpheme *roo* in (7) is the same element we have seen in exclamatives, we conclude that the presence of this morpheme does not determine the clause type.

One thing that is unclear how to handle at this point is the presence of the Question particle *ka*. Although it is possible that the particle can appear at the end of exclamative clauses, whether or not it is a required element needs further investigation. Suppose tentatively that the particle *ka* is in fact playing a role in order to license exclamatives. Unlike the mood morpheme *roo*, we are led to say that the Question

particle can undergo morphological reduction even in a formal speech. Since the assumption that morphological reduction is extremely limited in a formal speech is important to justify the obligatory presence of the Mood head, it is rather difficult to say the Question particle *ka* is required in exclamatives, unless there is an independent motivation to differentiate the mood head and the question particle with respect to the availability of morphological reduction.

The issue of whether the particle *ka* is one of the licensors for exclamatives might have a link with to what extent the exclamative *wh*-phrase *nante* is an "indeterminate" pronoun. It has been noted since Kuroda's dissertation (Kuroda 1965; also see Hagstrom 1998 and Shimoyama 2001) that *wh*-phrases in Japanese function as a quantifier, the quantificational force of which is determined by the particle attached to it.[3] For instance, the particle *ka*, for which we have been calling the Question marker, can appear next to the *wh*-phrases or the *wh*-phrase plus some noun. NPs with the Question marker *ka* function as an existential quantifier. Take *dare* 'one$_{person}$', *nani* 'one$_{thing}$', and *dono* 'one-N' as representative cases of indeterminate pronouns.

Question marker with the wh-phrase
(8)   Dare-**ka**-ga   ki-masi-ta
        WH-Q-NOM   come-POLITE-PAST
        'Someone came.'

(9)   John-wa   nani-**ka**-o   tabe-masi-ta
        J-TOP   WH-Q-ACC   eat-POLITE-PAST
        'John ate something.'

(10)   John-wa   dono-hon-**ka**-o   yomi-masi-ta
        J-TOP   WH-book-Q-ACC   read-POLITE-PAST
        'John read some book.'

There is another particle in Japanese that encodes quantificational force. The particle *mo*, when attached to an indeterminate pronoun, creates a universal quantifier / a Negative Polarity Item (see some recent discussion in Takahashi 2002, Kishimoto 2001, Yatsushiro 1996, and references cited above).

Particle MO with the wh-phrase
(11)   Dare-**mo**   ki-mas-en-desi-ta
        WH-MO-NOM   come-POLITE-NEG-COP-PAST
        'No one came.'

(12)   John-wa   nani-**mo**   tabe-mas-en-desi-ta
        J-TOP   WH-MO eat-POLITE-NEG-COP-PAST
        'John ate nothing.'

(13)   John-wa   dono-hon-**mo** yomi-mas-en-desi-ta
        J-TOP   WH-book-MO   read-POLITE-NEG-COP-PAST
        'John read no book.'

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[3] We are also indebted to Hiromu Sakai and Masaya Yoshida for their insightful discussion regarding to this point.

Finally, when the Question marker *ka* appears as a verbal suffix, and when an indeterminate pronoun appears in its c-command domain, they function as an interrogative wh-phrase.

Question marker with the wh-phrase

(14)   Dare-ga   ki-masi-ta-**ka**
     WH-NOM   come-POLITE-PAST-Q
     'Who came?'

(15)   John-wa   nani-o   tabe-masi-ta-**ka**
     J-TOP   WH-ACC   eat-POLITE-PAST-Q
     'What did John eat?'

(16)   John-wa   dono-hon-o   yomi-masi-ta-**ka**
     J-TOP   WH-book-ACC   read-POLITE-PAST-Q
     'Which book did John read?'

Now, the wh-phrase *nante* departs from the paradigm illustrated above. As we have seen, the wh-phrase *nante* appears in front of an adjective or an adverb, then it is reasonable to assume that it is a realization of Degree Phrase (Corver 1990). We can imagine that when the particle *mo* is attached to a DP containing the wh-phrase *nante*, the DP would mean what "however *adjective* NP" would mean, functioning as a universal quantifier / negative polarity item. It turns out that the example is not grammatical.

(17)   * John-wa nante   mizikai ronbun-**mo**   yome-nakat-ta
       J-TOP   NANTE   short   paper-MO   read-NEG-PAST
       'John did not read a paper, however short.'

If we want to express the meaning we intended, some other material (somewhat specific to adjectival modification) has to be used.

(18)   John-wa donnani   mizikai ronbun-**mo** yome-nakat-ta
     J-TOP   however   short   paper-MO   read-NEG-PAST
     'John did not read a paper, however short.'

Furthermore, the particle *ka* cannot be used with wh-phrase *nante* to make an existential quantifier. Again, the resulting form is ungrammatical.

(19)   * John-wa nante   mizikai/nagai ronbun-**ka**-o   yomi-masi-ta
       J-TOP   NANTE   short/long   paper-KA-ACC   read-POLITE-PAST
       'John read a somewhat short/long paper.'

As we saw with the case of the particle *mo*, some other material that is explicitly existential has to be used.

(20)   John-wa ikuraka/aru-teedo   mizikai/nagai ronbun-o   yomi-masi-ta
     J-TOP   somewhat/some-extent short/long   paper-ACC   read-POLITE-PAST
     'John read a somewhat short/long paper.'

Finally, as we have seen above, the wh-phrase *nante* cannot be used as an interrogative wh-phrase.

(21) a. * John-wa   nante   nagai ronbun-o   yomi-masi-ta-ka
           J-TOP   NANTE   long   paper-ACC   read-POLITE-PAST-Q
           "How long a paper did John read?"
      b.   John-wa   donokurai   nagai ronbun-o   yomi-masi-ta-ka
            J-TOP   what.extent long   paper-ACC   read-POLITE-PAST-Q

The observations above lead us to conclude that the wh-phrase *nante* is not indeterminate. In fact, the wh-phrase *nante* is specific to exclamatives. We can speculate that the requirement of a specific mood marker *roo* (presumably encoded as a mood feature) is the primary factor for the lack of indeterminate property of the exclamative wh-phrase *nante*. On the other hand, it is reasonable to claim that the focus feature associated with *nante* does not determine this property, since other indeterminate pronouns seem to have the focus feature. A piece of evidence comes from the observation that existential and universal quantifiers cannot be a (genuine) topic (attested in many languages; ref. E.Kiss 1995).[4]

(22)   *As for someone/everyone, John likes him.

(23)   (*) {Dare-ka / dare-mo}-wa   kita
             WH-KA / WH-MO-TOP   came
             'As for someone/everyone, he came.'

The point we are trying to establish is that given the observation of the wh-phrase *nante* being "determinate", there is no strong expectation that the particle *ka* is one of its licensors. Of course, it is logically possible that the particle *ka* is playing a role for licensing elements other than indeterminate pronoun, but other data suggest that the presence of the particle *ka* is optional at best.

Below, we provide description of Finite particle *no*, Focus particle *da* and a few mood markers including *roo* in some detail. What should be achieved there is to make sure that the assumption that those items are in fact part of the functional projections in the CP structure.

3.   Finite: *no*

The particle *no* has a close connection with the focus particle *da*, which is discussed in section 4. When the focus particle appears as a verbal suffix, the particle *no* has to occur as well. Examples are quite unacceptable without the particle *no*.

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[4] Japanese examples below are acceptable if the quantifiers are interpreted as a so-called "contrastive" topic, which exhibits different properties from a genuine / information topic.

"No" required

(24) a. John-ga kaetta-no-da
          J-NOM   left-FIN-FOC
      b. * John-ga kaetta-da
          J-NOM   left-FOC
          'JOHN left.'

We argue that the particle *no* is the head of the functional projection Finite Phrase, following Hiraiwa & Ishihara (2002). They first observe that the presuppositional clause in the cleft construction is always marked with the particle *no*.

Cleft

(25) [[John-ga katta]-no]-wa   [hon-o   san-satu]-da
        J-NOM   bought-FIN-TOP book-ACC three-CLASSIFIER-FOC
      'It is three books that John bought.'

Traditionally, this morpheme *no* has been called a nominalizer, and the idea comes from the observation that the sentential subject is also marked with *no* or *koto* (Tokieda 1950).

Nominalizers

(26) [[John-ga sono hon-o   katta]-no/koto]-wa   igai-da
        J-NOM   that book-ACC bought-NOMINALIZER-TOP unexpected-COP(FOC)
      'It is unexpected that John bought that book.'

On the other hand, the particle *no* in the cleft construction does not allow an alternation between *no* and *koto*. Furthermore, the particle *no* cannot be replaced with some other nominal expression. This suggests that the particle *no* in cleft constructions is a highly grammaticalized form.

No other options

(27) *[[John-ga katta]-koto]-wa   [hon-o   san-satu]-da
        J-NOM   bought-fact-TOC   book-ACC three-CLASSIFIER-FOC
      'It is three books that John bought.'

(28) *[[John-ga katta]-mono]-wa [hon-o   san-satu]-da
        J-NOM   bought-thing-TOP book-ACC three-CLASSIFIER-FOC

One of Hiraiwa & Ishihara's (2002) main claims is that the *no-da* construction in (29) is the underlying structure for the cleft construction.

(29)   Hiraiwa & Ishihara

```
                TopP
               /    \
      (Topic)-wa     \
                   FocP    Top
                  /    \
              FinP      Foc  da
             /    \
           TP      Fin  no
          /__\
```
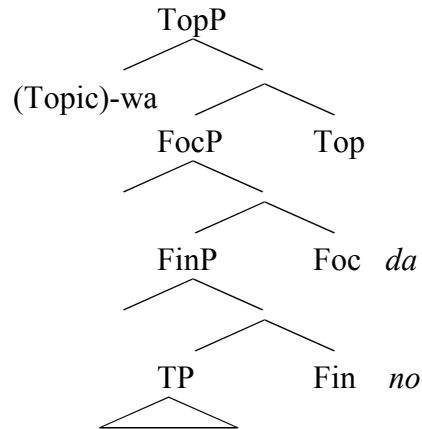
According to them, the cleft structure is derived by the following two steps of movement. First, a focused constituent (XP in the tree below) within a TP moves to [Spec,FocP]. Then, the whole FiniteP undergoes remnant movement to [Spec,TopP].

(30)   Hiraiwa & Ishihara

```
            TopP                              TopP
           /    \                            /    \
   (Topic)-wa    \                   FinP - wa     \
              FocP    Top            /    \      FocP    Top
             /    \                TP    Fin    /    \
           XP      \              /__\   no   XP      \
              FinP    Foc  da           no        t    Foc da
             /    \
           TP      Fin  no
          /__\
         tXP
```
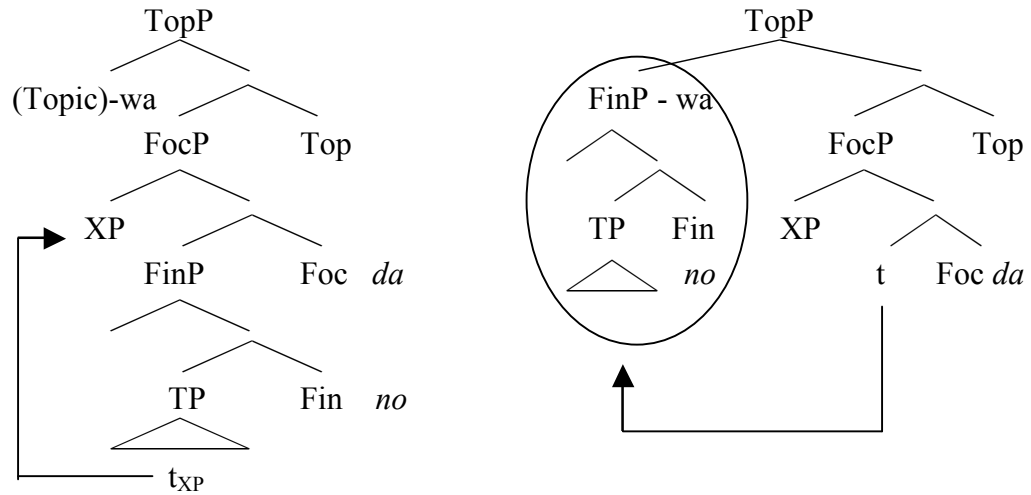
To the extent that the link between the cleft construction and the *no-da* construction is strong, it is plausible that the function of the particle *no* in the cleft construction is the same as the particle *no* in exclamatives. Specifically, the particle *no* marks a part of the structure as a "presuppositional clause" in the cleft sentences. It is not inconceivable to make a connection with this and the factivity of exclamatives, which has been widely known since Grimshaw (1979).

4.   Focus: *noda*

The so-called *noda* construction, where the particles *no-da* appears at the end of the sentence, has been discussed by various linguists, aiming to figure out the properties of this construction from at least three viewpoints, each of which suggests that the usage of *no-da* takes up different functions. We do not mean to suggest that each one of them is unrelated or a different lexical item, but providing a uniform analysis for all of them is not the purpose of this section. It also indicates that the exact characterization seems to be extremely difficult. In this section, we concentrate on the properties of *no-da* that are related to focus. In section 4.1, we introduce an analysis by Hiraiwa & Ishihara (2002) in which they argue that *noda* construction is the base for cleft and sluicing constructions in Japanese using the Focus projection. We also discuss an analysis of the *dake* 'only' focus construction by Sano (2002), where he hints at some kind of dependency between focus and the presence of the particles *no-da*. To the extent that they are successful, it seems plausible to argue that *noda* constitutes the Focus head in CP structure. In section 4.2, we observe that a clause marked with *no-da* cannot appear with the complementizer *koto* or *no*. Furthermore, such a clause cannot be used to modify a nominal head. We introduce two possible accounts for the restriction on the distribution of a clause with *no-da*. One account is based on the claim by Murasugi (1990) that the size of relative clauses in Japanese is smaller than CP. The other account is based on the licensing of adnominal forms. Following Hiraiwa (2002), this account claims that the clauses with *no-da* cannot appear as a relative clause since the verbal complex created with *no-da* cannot license the adnominal form. We see that the approach based on the licensing of the adnominal form is superior to the one based on the size of a relative clause, but the crucial data is provided in section 5.

4.1   Focus particle

One major observation, which we will follow, is that the construction involves focus. For instance, it has been claimed that in example (31), either the whole sentence or a part of it is "emphasized". When a part of the structure is the locus of focalization, it carries some pitch-accent (see Hiraiwa & Ishihara 2002, Sano 2002). Related to that point, for example, Hiraiwa & Ishihara (2002) claim that the *noda* construction (or a *noda* form) is a basis for the cleft and sluicing construction in Japanese, as mentioned in the previous section.[5]

(31)   John-ga   hon-o   Mary-ni   ageta-no-da
        J-NOM   book-ACC M-DAT   gave-FIN-FOC
        'It is that John gave a book to Mary.'

Before we start the discussion of *no-da* in the perspective of focus, some discussion of a copula *da* in Japanese seems to be in order, since it appears that the copula-like element is involved in exclamatives. A slight complication is that the form *da* is a reduced form of

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[5] See Watanabe (2003) for a brief discussion of the focus nature of *no-da* particles, where he suggests that the copula *da* is the head of the Focus Phrase. Also Schaffar (2002) suggests a historical link between *noda* constructions and focus construction (Kakari Musubi) in Old Japanese.

a more complex *de-ar-u*.[6] The complex form is the more formal and polite form. As the gloss shows, the *de-ar-u* form consists of a postposition *de*, a verb stem *ar*, followed by a tense inflection (present) *u*.[7]

Japanese copula
(32) a. John-wa   gakusee-da
          J-TOP   student-COP
          'John is a student.'
      b. John-wa   gakusee-de-ar-u
          J-TOP   student-P-exist-PRES
          'John is a student.'

Both forms have the past tense form.

Past tense form
(33) a. John-wa   gakusee-dat-ta
          J-TOP   student-COP-PST
          'John was a student.'
      b. John-wa   gakusee-de-at-ta
          J-TOP   student-P-exist-PST
          'John was a student.'

According to this morphological alternation, the *noda* construction can be analyzed as the reduced form of *no-de-ar-u* 'nominalizer-postposition-exist-pres'. In general, all the instances of a copula *da* can be replaced with the complex form *de-ar-u*. We will come back to this alternation again where it becomes relevant.

Basic example: noda
(34) a. John-ga   hon-o   Mary-ni   ageta
          J-NOM   book-ACC   M-DAT   gave
          'John gave a book to Mary.'
      b. John-ga   hon-o   Mary-ni   ageta-noda
          J-NOM   book-ACC   M-DAT   gave-FOC
      c. John-ga   hon-o   Mary-ni   ageta-no-de-ar-u
          J-NOM   book-ACC   M-DAT   gave-FOC

(35) a. John-wa gakusee-da
          J-TOP   student-COP
          'John is a student.'
      b. John-wa   gakusee-na-noda   ("na" = pre-nominal form of "da")
          J-TOP   student-COP-FOC
      c. John-wa   gakusee-na-no-de-ar-u
          J-TOP   student-COP-FOC

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[6] Obviously, this is not a new observation. Various Japanese philologists knew this for a long time.
[7] See some discussion of *de-ar-u* in Tada (2002).

There is one more observation related to the focus property of *no-da*. Investigating one kind of focus marker *dake* 'only', Sano (2002) made an interesting observation. According to him, when the focus marker *dake* appears in the embedded context (he uses noun complementation), it is rather hard for the constituent with *dake* to take wide scope with respect to the matrix predicate. Consider example (36) and two scenarios in (37) that are potentially available. When the example is read in a neutral intonation, the example is incompatible with the scenario in (37b).

"Dake" in the embedded clause: hard to get the wide scope
(36) Titi-wa   [Aiko-ga   Taroo-dake-ni au]   koto-o   yurusita
      father-TOP   A-NOM   T-only-DAT   meet   FN-ACC   allowed
      'Aiko's father allowed that she will meet only Taro.'

(37) a. "narrow" scenario: Aiko is not willing to meet people in general, except Taro, who she likes a lot. Her father wants her to meet other people, but he finally allowed her to meet only Taro.
      b. "wide" scenario: Aiko's father is very strict. He does not want her to meet men in general, except Taro, who he really likes. The only person who her father allowed her to meet is Taro.

What is relevant to our current concern is the following. Sano (2002) says that a wide scope reading of *dake* becomes possible in example (36) when it carries a pitch accent, and in such a case, it "invites … a modal element that suggests the speakers emphatic assertion, such as *noda*."[8] In fact, he notes that the narrow scope reading disappears in (38).

With pitch-accent
(38) Titi-wa   [Aiko-ga   Taroo-DAKE-ni au]   koto-o   yurusita (-noda)
      father-TOP   A-NOM   T-only-DAT   meet   FN-ACC   allowed   -FIN-FOC
      'Aiko's father allowed that she will meet only Taro.'

One interpretation of Sano's observation is that the particle *da* is an overt realization of the functional head Focus, which has a dependency with a phrase marked with *dake* with a pitch accent. Although there has to be some way to explain why the presence of *no-da* is optional, this optionality seems to be restricted. Sano notes that this optionality is only available at the root clause, and when example (38) without *no-da* is further embedded by another noun complementation, the wide scope interpretation is not available even if *dake* carries a pitch accent. In (39), a verb *yurusita* 'allowed' is embedded under a noun *zizitu* 'fact'. More data will be introduced in later sections showing that the particles *no-da* cannot appear between a predicate and a noun in the noun complement structure. But, we will see a trick to place *no-da* in a noun complement structure soon.

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[8] Sano calls *noda* as a modal element, but he does not define any specific semantic contribution for it.

Wide scope not available
(39) [Titi-ga   [Aiko-ga kongo   Taro-dake-ni au]   koto-o   yurusita]
     father-NOM   A-NOM   from.now T-only-DAT   meet FN-ACC allowed
     zizitu-wa   nai
     fact-TOP   NEG
     'There is not such a thing that her father allowed that Aiko meets only Taro
     from now on.

"No-da" in noun complementation
(40) * [Titi-ga   [Aiko-ga kongo   Taro-dake-ni au]   koto-o
       father-NOM   A-NOM   from.now   T-only-DAT   meet FN-ACC
       yurusita-no-na]   zizitu-wa   nai
       allowed-FIN-FOC   fact-TOP   NEG
       'There is not such a thing that her father allowed that Aiko meets only Taro
       from now on.

As far as I can tell, the judgment is subtle, but when *dake* carries a pitch accent, the constituent with *dake* cannot take wide scope with respect to the predicate *yurusita* 'allowed.' In fact, I think the example is not good, either. Such an observation suggests that when *dake* carries a pitch accent, it cannot take narrow scope, and if an appropriate licensing head (Focus, in our terms) is not found, the example is not acceptable. Assuming that there is no Focus head in a noun complement structure, a constituent with *dake* cannot be licensed in a position that was available in (38), namely in a clause with *yurusita*.

        Sano notes an ingenious way to make a wide scope reading of *dake* available. He introduces (41) and observes that *dake* takes wide scope with respect to the predicate *yurusita* 'allowed.' As a matter of fact, it is quite fascinating to encounter *nante* in this example. However, it seems that this *nante* does not have much to do with the exclamative *wh*-phrase *nante*. The particular *nante* in example (41) can be replaced with *nado-toiu* 'like that,' which shows the proposition is a representative case, hence, *nante* here is also a focus marker of sorts. The exact nature of this phrase is unclear, but the judgment on the scope relation is correct and interesting. Example (41) is another case that demonstrates the same scope interpretation that I came up with.

Wide scope available with a "focus marker"
(41) [Titi-ga   [Aiko-ga kongo   Taro-dake-ni   au]   koto-o
     father-NOM   A-NOM   from.now T-only-DAT   meet FN-ACC
     yurusita-<u>nante</u>]   zizitu-wa   nai
     allowed-NANTE   fact-TOP   NEG
     'There is not such a thing that her father allowed that Aiko meets only Taro
     from now on.

(42) [Titi-ga   [Aiko-ga kongo   Taro-dake-ni   au]   koto-o
     father-NOM   A-NOM   from.now T-only-DAT   meet FN-ACC
     yurusita-<u>no-da-toiu</u>]   zizitu-wa   nai
     allowed-FIN-FOC-C   fact-TOP   NEG

As far as those paradigms are concerned, we can conclude that the optionality we found at the root clause is not available in the embedded context, at least in noun complements.

At the root clause, a covert Focus head, which can be seen as *no-da* if it is overt, can establish a dependency with a constituent containing a pitch accented *dake*; on the other hand, in the noun complement structure, if there is no visible Focus head, then there is no Focus head. That explains the lack of the wide scope interpretation of *dake* in (39).

There is one more thing that needs to be said about (39). One might wonder why the constituent containing the pitch accented *dake* can not take the widest scope at the root clause. Since it is the root clause, the covert Focus head should be available, and there should be an interpretation in which the *dake* phrase takes scope over the negated predicate at the root clause. Consider (43), which should have the interpretation we are interested in, especially with an overt *no-da*. In fact, the example is quite awkward. (44a) spells out the intended interpretation, which implies something like (44b).

(43) ?? [Titi-ga   [Aiko-ga   kongo   Taro-dake-ni   au]   koto-o
          father-NOM   A-NOM   from.now   T-only-DAT   meet   FN-ACC
          yurusita]   zizitu-wa nai-no-da
          allowed   fact-TOP   NEG-FIN-OC

(44) a. It is only Taro such that it is not true that Aiko's father allowed that she
          meets him from now on.
      b. For other men, it is true that Aiko's father allowed that she meets them
          from now on.

It looks like the intended interpretation is pragmatically quite strange. There may be a way to fix this example somehow (maybe change the noun in the noun complementation or change the predicate at the root clause), but it would require more discussion of the *dake*-phrase. I will leave this as an unsolved puzzle.[9]

4.2 *No-da* and Adnominal Form

Now, it was hinted at in the previous paragraphs that there are a few pieces of evidence that the particles *no-da* exhibit some properties that are unexpected if they consist of a genuine noun and copula. The basic observation is that the genuine copula is compatible with complementation with the formal nouns *koto* or *no*, but the particles *no-da* or their complex form *nodearu* cannot. A similar observation is also found with relative clauses: the genuine copula can appear immediately before the head noun of the relative clause, but the particles *no-da* or *no-dearu* cannot. Based on these observations, two possible accounts are introduced. As far as the empirical data discussed here, those two accounts are both successful, granting that the underlying assumptions for these accounts. The decisive empirical data will be discussed when we turn to the discussion of the Mood head.

The first observation is the following: the examples in (45) and (46) show that a sentence with a copula at the end can be embedded under so-called formal nouns as long as the copula is in a pre-nominal form.

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[9] Sano (2002) does not discuss the possibility of the *dake*-phrase taking the widest scope. Maybe he considers some syntactic island effects, but the discussion is beyond the scope of this section.

Copula and its pre-nominal form
(45)　Sono　kooen-wa　　kirei-da
　　　that　park-TOP　　　clean-COP
　　　'That park is clean.'

(46)　a.　[sono　kooen-ga　kirei-na]　koto-wa　yuumee-da
　　　　　　that　park-NOM　clean-COP　FN-TOP　famous-COP
　　　b.　[sono　kooen-ga　kirei-na] no-wa yuumee-da
　　　　　　that　park-NOM　clean-COP　FN-TOP　famous-COP
　　　　　'The fact that the park is clean is famous.'

Whether the copula is realized as a complex form or not does not matter.[10]

(47)　a.　[sono　kooen-ga　kirei-dearu]　koto-wa　yuumee-da
　　　　　　that　park-NOM　clean-COP.CX　FN-TOP　famous-COP
　　　b.　[sono　kooen-ga　kirei-dearu]　no-wa　　yuumee-da
　　　　　　that　park-NOM　clean-COP.CX　FN-TOP　famous-COP
　　　　　'The fact that the park is clean is famous.'

On the other hand, the following examples show that a sentence with the particles *no-da* at the end resists being embedded with a formal noun.

Under "koto" or "no"
(48)　a.　* [Mary-ga　hon-o　　　katta-nona]　koto-wa　akiraka-da
　　　　　　　M-NOM　　book-ACC　bought-FOC　FN-TOP　　obvious-COP
　　　b.　* [Mary-ga　hon-o　　　katta-nona]　no-wa　　akiraka-da
　　　　　　　M-NOM　　book-ACC　bought-FOC　FN-TOP　　obvious-COP
　　　　　'The fact that Mary bought the book is obvious.'

A similar observation is available with the complex form *no-dearu*. This complex form is not distinct between the conclusive and pre-nominal forms.

Under "koto" or "no"
(49)　John-ga　kaetta-no-dearu
　　　J-NOM　　left-FN-COP.CX
　　　'It is that John left.'

(50)　a.　* [John-ga kaetta-no-dearu]-koto-wa　　akiraka-da
　　　　　　　J-NOM　left-FN-COP.CX-FN-TOP　　　　obvious-COP
　　　b.　* [John-ga kaetta-no-dearu]-no-wa　　　akiraka-da
　　　　　　　J-NOM　left-N-COP.CX-FN-TOP obvious-COP

　　　The examples do not improve when the form appears in a relative clause. Regular copulas and their complex form can appear in relative clauses, but the particles *no-da* and their plausible complex form cannot.

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[10] From now on, I am not concerned with the internal structure of the complex form of the copula, and it is simply glossed as "COP.CX".

A genuine copula

(51) a. kono   hana-wa   iro-ga   kirei-da
          this   flower-TOP   color-NOM   beautiful-COP
          'As for this flower, the color is beautiful.'
      b. [iro-ga   kirei-na]   hana
          color-NOM   beautiful-COP   flower
          'a flower the color of which is beautiful'

(52) a. kono   hana-wa   iro-ga   kirei-de-ar-u
          this   flower-TOP   color-NOM   beautiful-COP
          'As for this flower, the color is beautiful.'
      b. [iro-ga   kirei-de-ar-u]   hana
          color-NOM   beautiful-COP   flower
          'a flower the color of which is beautiful'

Relativization unavailable

(53) a. John-ga   hon-o   katta
          J-NOM   book-ACC   bought
          'John bought a book.'
      b. [John-ga   katta]   hon
          J-NOM   bought   book
          'a book that John bought'

(54) * [John-ga   katta-no-na]   hon
          J-NOM   bought-FIN-FOC   book
        'a book that John bought'

(55) * [John-ga   katta-no-de-ar-u]   hon
          J-NOM   bought-FIN-FOC   book
        'a book that John bought'

One possible explanation can be given by calling on the structural size of relative clauses and noun complementation with formal nouns in Japanese. First let us assume the left periphery CP structure by Rizzi (1997), abstracting away from Topic Phrase and Mood and Question heads for a moment.

(56) *CP structure (Rizzi 1997)*
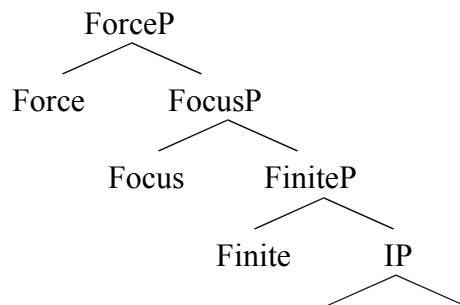
Assuming that FocusP is above FiniteP, we can account for why the particles *no-da* cannot appear in relative clauses or noun complementation if we can independently

establish that those clauses or complementation is at most FiniteP. The idea is that the particles *no-da* cannot appear since the clause with *no-da* is too big to be inside the relative clauses or noun complement structures. With respect to the relative clauses in Japanese, although the "size" of relative clauses is still an issue of debate, Murasugi (1991) argues that the size of the Japanese relative clause is IP.[11] For our current concerns, the size of the relative clauses does not have to be IP, but we can provide a straightforward account if relative clauses and noun complementation structure is at most FiniteP.

One might question this account for the observations noted above, by saying that particles *no-da* or *no-dearu* cannot appear in those environments due to the fact that they lack a proper verb form, namely an adnominal form. According to this account, relative clause formation and noun complementation formation require a verbal element to have a proper adnominal form, but since *no-da* and *no-dearu* are not adnominal forms, they cannot appear in those contexts.

There are difficulties with this counterproposal. First, it is unclear what the proper adnominal form has to be. The advocates of the "size" account agree that they do not have an adnominal form, but that is what they aim to account for. According to the size account, functional heads that are placed higher than FiniteP do not have an adnominal form. Then, as far as they can motivate the size of relative clauses and noun complement formation independently, their account holds. Also, if the "adnominal form" is meant to be literally *no-da* and *no-dearu*, this leads to a strange situation. This "form" account has to say that when the copula *da* is simply realized as *na* as an adnominal form, it can appear in relative clauses and noun complement formation as shown in (51b), but it claims that *na* appearing after *no* is not an adnominal form (and the example (54) is not acceptable). Also, according to this account, *dearu* (the complex form of the copula) is a legitimate adnominal form in (52b), while *dearu* appearing after *no* is not a legitimate adnominal form. Since the endings of those elements are exactly the same, just saying that *no-da* or *no-dearu* do not have an adnominal forms does not get us anywhere.

What we seem to need then is an explicit mechanism of adnominal form licensing. Investigating the so-called nominative / genitive conversion (NGC) in detail, Hiraiwa (2000a, 2002) has just that kind of mechanism we need for licensing adnominal forms. We introduce some basic facts about NGC, and discuss what we can learn about the Focus head from his analysis.

Descriptively, NGC is a phenomenon in which a genitive case-maker can sometimes be used where a nominative case-maker is expected. For instance, a nominative marked DP can show up with a genitive case marker inside relative clauses and noun complement structures.

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[11] There are some other work that argues for a similar point; see Fukui & Takano 1998, Takeda 1999, for instance. See Kaplan & Whitman (1995), Ishii (1991) for arguments that relative clauses in Japanese are in fact CPs. Also I should note that Rizzi (1997) shows that the size of relative clauses in Italian is in fact ForceP, based on the observations that Topics and left dislocated phrases can appear inside the relative clauses.

Available in relative clauses and nominal complement
(see Inoue 1976, Ura 1993, Watanabe 1996, Hiraiwa 2000a, 2002)
(57) a. [John-{ga/no}   yakusita]   hon
          J-NOM/GEN   translated   book
          'a book that John translated'
      b. John-wa [kinoo   Mary-{ga/no} kita]-koto/no-o sir-anakat-ta
          J-TOP   yesterday M-NOM/GEN   came-FN-ACC   know-NEG-PST
          'John did not know that Mary came yesterday.'
      c. [syoorai daizisin-{ga/no}   okiru]   kanoosei
           future   big.earthquake-NOM/GEN   happen   possibility
          'the possibility that there is a big earthquake'

On the other hand, such an alternation is not available in some other embedding structures. For example, it is not available in complementation that involves *to*-subordination.

Unavailable in "to"-complement and "toiu"-nominal complementation
(58) a. John-wa   [Mary-{ga/*no}   hasitta]-to   itta
          J-TOP   M-NOM/GEN   ran-C   said
          'John said that Mary ran.'
      b. [[syoorai   daizisin-{ga/*no}   okiru]-to iu] zyoohoo
            future   big.earthquake-NOM/GEN   happen-C   information
          'the information that there is a big earthquake'
      c. [[syoorai   daizisin-{ga/*no}   okiru]-to no] zyoohoo
            future   big.earthquake-NOM/GEN   happen-C   information
          'the information that there is a big earthquake'

The availability of NGC in relative clauses and noun complement structures was the long-standing generalization in the literature, but by providing the following additional data (taken from Hiraiwa 2002), Hiraiwa (2000a, 2002) shows that the true generalization is that in (59) ("ADN" = adnominal form).

(59)   NGC in Japanese is only licensed by the predicate adnominal form.

Examples in (60) and (61) show that NGC is available in environments other than relative clauses or noun complement structures. The clauses in the examples are something like an adverbial clause. When verbs are used, it is hard to see exactly what the verb form is, since the adnominal form of those verbs is the same as the conclusive form.

NGC possible
(60) John-wa [ame-{ga/no}   yamu   made] office-ni   ita
      J-TOP   rain-NOM/GEN   stop.PRS.ADN   until   office-at   be-PST
      'John was at his office until the rain stopped.'

(61) John-wa [Mary-{ga/no} yonda   yori] takusan-no
      J-TOP   M-NOM/GEN   read.PST.ADN   than   many-GEN
      hon-o   yon-da
      books-ACC   read-PST
      'John read more books than Mary did.' (Watanabe 1996:396)

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However, the distinction between the adnominal form and the conclusive form is clear when the copula is used. Hiraiwa (2000a, 2002) shows that in the same environment, the adnominal form of the copula *na* shows up rather than the conclusive form *da*.

Adnominal form of copula
(62) John-wa   izyoo-na   made-ni   sinkeisitu-da
      J-TOP   extraordinary-COP.ADN   extent-to   nervous-COP.PRS
      'John was extraordinarily nervous.'   cf. (60)

(63) John-no   koto-ga   simpai-na   yorimo
      J-GEN   thing-NOM   worried-COP.ADN   than
      Mary-ga   simpai-da
      M-NOM   worried-COP.PRS
      'I am worried about Mary rather than about John.'   cf. (61)

Based on the generalization in (59), he proposes the following:

(64) A syntactic C-T-v-V head amalgamate, which is formed via AGREE, corresponds to the predicate adnominal form. This head amalgamate has a φ-feature that can check genitive Case as well as nominative Case.

According to his analysis, what is important for creating the head amalgam noted above is for the complementizer to be affixal. Being affixal, it requires a verb to raise to (with functional projections on its way as well) to form a morphological unit, which is illustrated in the following diagram.

(65) *Amalgamate formation*
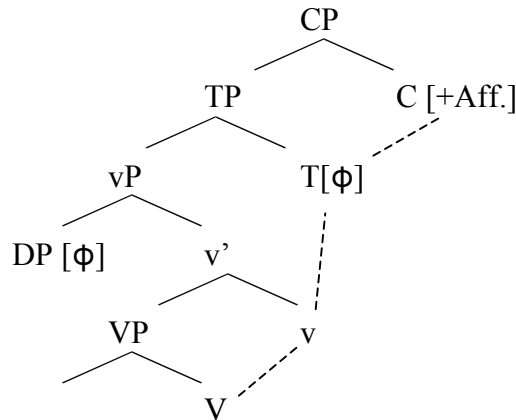
    One prediction of his analysis is that when the head amalgama is not available NGC is not available. One such case is found when the complementizer is not affixal. We have already seen one case where the complementizer is overtly realized as *to*. The examples are repeated here, to illustrate that although some of those cases are noun complement formation, the complementizer is overt. Then, according to his analysis, the head amalgamation is not possible, the adnominal form is not licensed, and NGC is hence not available.

(66) a. John-wa   [Mary-{ga/*no}   hasitta]-to   itta
        J-TOP   M-NOM/GEN   ran-C   said
        'John said that Mary ran.'
    b. [[syoorai   daizisin-{ga/*no}   okiru]-to iu]   zyoohoo
          future   big.earthquake-NOM/GEN   happen-C   information
        'the information that there is a big earthquake'
    c. [[syoorai   daizisin-{ga/*no}   okiru]-to no]   zyoohoo
          future   big.earthquake-NOM/GEN   happen-C   information
        'the information that there is a big earthquake'

Now, let us discuss what we can learn about the *no-da* particle from his analysis of the adnominal licensing mechanism. Recall that our basic observation is that the adnominal form of the copula *na* and its complex form *dearu* can appear in relative clauses and noun complement structures, while the alleged adnominal form *no-na* (from *no-da*) and its complex form *no-dearu* cannot appear in these environments. We can interpret the observation about *no-da* to mean that the adnominal forms of those particles are not licensed. If we adopt Hiraiwa's analysis of adnominal formation, the facts indicate that the head amalgam cannot be formed. Furthermore, one case in which the head amalgamation fails is one where the complementizer is overtly realized and is not affixal. What this tells us is that the particles *no-da* / *no-dearu* are quite different from the copula, and are in fact a realization of the complementizer. It does not say exactly what the functional category is, but that is one conclusion we can draw.

In this section, we introduced two possible accounts for the observations concerning the particles *no-da*. One account calls for the specific CP structure proposed by Rizzi (1997) and argues that the particles *no-da* cannot occur in relative clauses and noun complement structures because the size of those clauses is too small for *no-da*, a functional projection of Focus head, to appear. To the extent that the assumption that the size of the relative clauses and noun complement structure is at most holds, this account can successfully account for the facts observed in this section. We have seen that there is an alternative account, which pays special attention to the adnominal form that seems to be required in relative clauses and noun complement structures. Initially, the lack of adnominal form itself seems to be what needs to be explained, and given the specific licensing mechanism for the adnominal form proposed by Hiraiwa (2000a, 2002), this analysis has an interesting implication for the characterization of the particles *no-da*. Given that one important ingredient for the licensing of adnominal forms is for the complementizer to be affixal, this approach can account for the fact that *no-da* cannot occur in relative clauses and noun complement structures by the failure of the head amalgamation. This in turn indicates that the particles *no-da* are not a kind of special copula, but an overt realization of a kind of complementizer. It does not determine which functional category in CP structure the particles *no-da* correspond to in a system such as Rizzi (1997). Certainly it is compatible with the analysis that the particles *no-da* is a Focus head, combined with the discussion from the previous section. As far as the empirical data discussed so far is concerned, both analyses seem to be able to provide a straightforward answer to the paradigm. However, in section 5, we will see that adnominal licensing account is superior to the "size" account. Before we proceed, we will take a small digression that introduces some observations concerning *no-da*. We are not trying to provide an account for these cases now, but certainly it would be great if future

research makes available a way to unify all the properties of *no-da* discussed in this chapter.

4.3   Some other observation with *noda*

Kuno (1973), later followed up by McGloin & Terakura (1978), shows that the particle appears in a discourse when the speaker tries to provide a reason for his previous utterance. So, in those cases, the utterance can be paraphrased by using *-kara-desu* '-because-copula'. One complication noted by those authors is that the particles *no-da* also shows up at the end of the sentence that the speaker indicates is a consequence of the state of affair represented by the previous statement. Obviously, the paraphrase by 'because' does not work in these cases.

Second, Kuroda (1973) claims that the particles *no-da* have something to do with the distinction between the reportive and non-reportive style. For instance, certain adjectives of sensation are sensitive to the presence of the first person subject (see Kuno 1973 McCawley 1978, 1979 and Tenny to appear as well). On the other hand, this restriction goes away if the sentence is followed by the particles *no-da*.

Person selection
(67)   a.   Watasi-wa   kanasii/sabisii
               I-TOP   sad/lonely
               'I am sad/lonely.'
         b. * Tanaka-san-wa kanasii/sabisii
               T-Mr.-TOP   sad/lonely
               'Mr. Tanaka is sad/lonely.'

(68)   a.   Watasi-wa   kanasii-noda
               I-top   sad/lonely-NODA
               'I am sad/lonely.'
         b.   Tanaka-san-wa kanasii-noda
               T-Mr.-top   sad/lonely-NODA
               'Mr. Tanaka is sad/lonely.'

5.   Mood: (da)roo

This section reviews properties of a morpheme *(da)-roo* that is called a presumptive mood marker (Johnson 2003). Other authors use a slightly different term, such as an evidential marker (Hara 2006), but that does not concern us here. The morpheme indicates the judgment of the speaker toward the proposition to which the morpheme attaches. Various observations are introduced, and we argue that those are accounted for by taking the mood morpheme as a head of the functional projection Mood Phrase (or Evidential Phrase) in the CP structure. Following the conclusion that Focus Phrase is above Finite Phrase (Rizzi 1997), we show that Mood Phrase is above Focus Phrase.

In section 5.1, we investigate morphological properties of the mood particle *roo*. It will be shown that there is a specific ordering restriction with respect to the particle, and when it is used in exclamatives, it has some effect on the distribution of the

preceding morpheme *no*. In section 5.2, we observe that the mood morpheme *roo* cannot appear in relative clauses. Looking at the two alternative accounts introduced in section 4, we conclude that the analysis that is based on the licensing mechanism of the adnominal form of the verb is superior to the analysis that relies on the size of the relative clause. Section 5.3 introduces an observation that the mood morpheme cannot co-occur with another verbal suffix *rasii* 'seem'. We argue that the co-occurrence restriction is accounted for by assuming that the mood morpheme *roo* contains a pronominal element that refers to the speaker of the utterance. Finally in section 5.4, we discuss the notion "point of view". Building on the previous work such as Tenny (to appear), we propose a mechanism that captures the observation with respect to the mood morpheme *roo*.

5.1   Ordering and Morphology

There is an ordering restriction between the mood morpheme and the focus particle. The mood morpheme has to occur after the focus particle *noda* when they occur in the same clause.

Ordering restriction

(69)   a.   John-ga   Mary-o   tataita   no-da   roo
              J-NOM   M-ACC   hit   FIN-FOC MOOD
        b. * John-wa   Mary-o   tataita   roo   no-da
              J-NOM   M-ACC   hit   MOOD   FIN-FOC
              'It seems that it is John who hit Mary.'

The existence of this morpheme *roo* is most clearly seen in a sentence ending with a copula as shown below. The morpheme *roo* appears immediately after the copula. The sentence with *roo* indicates that the speaker has some judgment about the propositional content. For instance, an adverb such as *osoraku* 'probably' can also appear optionally.

Mood "roo": presumptive mood

(70)   a.   John-wa   gakusee-da
              J-TOP   student-COP
              'Probably, John is a student.'
        b.   John-wa   (osoraku)   gakusee-da-roo
              J-TOP   probably   student-COP-MOOD
              'Probably, John might be a student.'

The judgment by the speaker of the utterance with the morpheme *roo* does not have to be limited to something like 'uncertainty'. The morpheme can co-occur with other adverbs that indicate the speaker's confidence.

(71)   John-wa   kitto   kuru-da-roo
        J-TOP   certainly   come-COP-MOOD
        '(I am certain) John will come.'

In terms of morphology, the distribution becomes a little complicated when the morpheme appears immediately after a verb or an adjective. In the cases shown below, the morpheme has to be *daroo*.

After a verb or an adjective

(72)　John-wa　　osoraku　　hon-o　　　　kau-*(da)roo
　　　　J-TOP　　　probably　book-ACC　　buy-MOOD
　　　　'Probably, John would buy a book.'

(73)　John-wa　　osoraku　　kasiko-i-*(da)roo
　　　　J-TOP　　　probably　smart-PRS-MOOD
　　　　'Probably, John would be smart.'

If *da* is a realization of the copula in (72) and (73), this is a little mysterious, since in general a copula shows up after a nominal expression, and obviously verbs and adjectives are not nominal expressions. To reconcile this situation, we suggest that the form *daroo* is in fact a reduced form of *no-da-roo*. Assuming that *no* is some kind of nominal expression (presumably a Finite head), the obligatory presence of *da* in *daroo* can be explained. Also, when *no* is added in the above examples, we do not detect any semantic difference, and the vowel *o* may be dropped as well. This indicates that it is easy for the sequence of particles to undergo some morphological / phonological reduction.

After a verb or an adjective

(74)　John-wa　　osoraku　　hon-o　　　　kau-n(o)da-roo
　　　　J-TOP　　　probably　book-ACC　　buy-NODA-MOOD
　　　　'Probably, John would buy a book.'

(75)　John-wa　　osoraku　　kasiko-i-n(o)da-roo
　　　　J-TOP　　　probably　smart-PRS-NODA-MOOD
　　　　'Probably, John would be smart.'

Regarding the link between this reduction phenomena and exclamatives, the absence of *no* from *no-da-roo* in exclamatives is never allowed, as shown in (76). We took this observation to mean that the particles *no-da* participate in a checking relation with the exclamative wh-phrase. Therefore, morphological reduction is not available.[12]

Required "no" in exclamatives

(76)　John-wa　　nante　　atui　　hon-o　　　　yomu-*(no)-da-roo
　　　　J-TOP　　　NANTE　　thick　book-ACC　　read-FIN-FOC-MOOD
　　　　'What a thick book John reads!'

---

[12] It might be too simplistic to say that the morpheme does not participate in "any" checking relation when morphological reduction is possible. The exact condition when morphological reduction is possible needs further investigation. This raises a question, of course, what is the difference between the reduction of *noda* and that of *roo*. At the matrix clause, even in exclamatives, the mood marker *roo* can be invisible, yet is able to participate in licensing exclamatives.

5.2 Complementation

One observation that is common with the finite and focus particle *no-da* is that sentences with *roo* cannot be embedded under *koto* or *no*.

Unable to be embedded under "koto" or "no"
(77) a. * [John-ga gakusee-da-roo]-koto-wa   yuumee-da
         J-NOM   student-COP-MOOD-NML-TOP   famous-COP
     b. * [John-ga gakusee-da-roo]-no-wa   yuumee-da
         J-NOM   student-COP-MOOD-NML-TOP   famous-COP
         'It is famous that John would be a student.'

(78) a. [John-ga gakusee-na]-koto-wa   yuumee-da
         J-NOM   student-COP-NML-TOP   famous-COP
     b. [John-ga gakusee-na]-no-wa   yuumee-da
         J-NOM   student-COP-NML-TOP   famous-COP
         'It is famous that John is a student.'

The parallelism goes further. Sentences with *roo* cannot be embedded within a relative clause.

Unable to appear in relative clauses
(79) a. * [John-ga   osoraku   katta-daroo]   hon
         J-NOM   probably   bought-MOOD   book
         'the book that John probably bought'
     b. [John-ga   osoraku   katta]   hon
         J-NOM   probably   bought   book
         'the book that John probably would have bought'

(80) a. * [osoraku   sono   hon-o   katta-daroo]   hito
          probably   that   book-ACC   bought-MOOD   man
         'the man who probably bought that book'
     b. [osoraku   sono   hon-o   katta   hito
          probably   that   book-ACC   bought   man
         'the man who probably would have bought that book'

(81) a. * John-wa   [Mary-ga   ringo-o   kitta-daroo]-no-o   tabeta
         J-TOP   M-NOM   apple-ACC   cut-MOOD-NML-ACC   ate
         'John ate the apple which Mary would have cut.'
     b. John-wa   [Mary-ga   ringo-o   kitta]-no-o   tabeta
         J-TOP   M-NOM   apple-ACC   cut-NML-ACC   ate
         'John ate the apple which Mary cut.'

Recall the discussion in 4.2, where we introduced two possible accounts for the observation that the particles *no-da* cannot occur in noun complement structures and relative clauses. Under one account that we called the "size account", it is assumed that noun complement structures and relative clauses are at most Finite Phrases in the sense of Rizzi (1997). The hypothesis makes a prediction that any functional projections (realized as a morpheme) that are located higher than FiniteP cannot occur in noun complement structures and relative clauses. Since there is independent evidence that the particles *no-*

da are the head of FiniteP and FocusP, the size account can successfully explain the unavailability of the particles *no-da* in noun complement structures and relative clauses. On the other hand, we introduced an alternative account that we call the "adnominal form" account. This account claims that the particles *no-da* cannot appear in those structures since the adnominal form cannot be licensed in the particles *no-da*. One requirement for licensing the adnominal form is that the complementizer has to be null and affixal. Since the particles *no-da* contain the overt complementizer *no*, the adnominal form cannot be licensed with the particles *no-da*. Crucially, under this account, the size of the clause is irrelevant for determining whether an element can appear inside the relative clauses or noun complement structure. As far as the adnominal form is licensed, the particular item can appear in those environments.

There is one piece of data about the distribution of *da-roo* that leads us to accept the adnominal form account, rather than the size account. Recall in the previous section that we showed that the copula *da* has a complex form *de-ar-u*. The same alternation is in fact available for *no-da*, and the complex form would be *no-de-ar-u*. The only difference between the forms of the alternation is purely stylistic, as far as we can tell. In other words, the complex form is a formal form. Now, the natural extension of the paradigm seems to be that there is a complex form of *da-roo* (or in fact *no-da-roo* under our morphological reduction analysis), which is *no-de-ar-oo*. As we might have guessed, the complex form exhibits (almost) all the property we found with *no-da-roo*. For instance, the complex form *no-de-ar-oo* cannot be embedded under the formal nouns or relative clauses. This is what we expect to observe.

Complex form
(82)   * [John-ga   kaetta-no-de-ar-oo]-koto-wa   yooini   soozoo-dekiru
         J-NOM   left-N-P-EXIST-MOOD-FN-TOP   easily   imagine-can
         'It is very easy to imagine that John left.'

(83)   * [John-ga   katta-no-de-ar-oo]   hon
         J-NOM   bought-N-P-EXIST-MOOD   book
         'the book that John bought'

However, when *no* is dropped, examples are acceptable.

Complex form without "no"
(84)   [John-ga   kaetta-de-ar-oo]-koto-wa   yooini   soozoo-dekiru
         J-NOM   left-P-EXIST-MOOD-FN-TOP   easily   imagine-can
         'It is very easy to imagine that John left.'

(85)   [John-ga   katta-de-ar-oo]   hon
         J-NOM   bought-P-EXIST-MOOD   book
         'the book that John probably bought'

There is one more important point in this paradigm. When *no-de-ar-oo* is attached to a sentence ending with the copula (unlike the examples above where verbs are used), we got the expected result. The structure that involves the sequence of those particles is not allowed to appear in noun complementation with a formal noun. Now, we can make the example better, by deleting *no*, but at the same time, the copula *na* (a pronominal form of the copula) must disappear as well, in order for an example to be acceptable.

Copula plus "no"

(86) * [John-ga gakusee-na-no-de-ar-oo]-koto-wa yooini soozoo-dekiru
    J-NOM student-COP-N-P-EXIST-MOOD easily imagine-can
    'It is very easy to imagine that John would be a student.'

(87) [John-ga gakusee-de-ar-oo]-koto-wa yooini soozoo-dekiru
    J-NOM student-COP-N-P-EXIST-MOOD easily imagine-can
    'It is very easy to imagine that John would be a student.'

This is a quite unexpected contrast according to the size account. Based on the ordering restriction between the finite and focus particles *no-da*, and mood particle *roo*, we reached an independent conclusion that the Mood head is placed higher than the Focus head. The size account argues that the reason why the finite / focus particles *no-da* cannot appear in relative clauses and noun complement structures is that those structures cannot accommodate a structure larger than FiniteP. Assuming Rizzi's (1997) hierarchy of CP structure where FocusP is higher than FiniteP, and employing the conclusion that the Mood head is higher than FocusP, the mood particle *roo* should never be able to appear in relative clauses or noun complement structures, assuming that the complex form *de-ar* and the focus particle *no-da* are the same in relevant respects.

(88) *CP structure*

```
              MoodP
             /     \
        FocusP      Mood
        /    \      roo
     FinP    Focus
     / \     de-ar
    ...
```
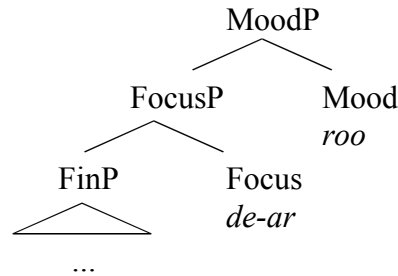
On the other hand, the adnominal account has a straightforward explanation for why the presence or the absence of the particle *no* matters, and why examples are acceptable when there is no particle *no*. Recall that according to the adnominal account, the finite / focus particles *no-da* cannot appear in relative clauses or noun complement structures since there is an overt complementizer *no* that intervenes in the verbal amalgamation that licenses the adnominal form. According to this account, the form *de-ar-roo* is an adnominal form, and the form is licensed since there is no overt *no*, which blocks the amalgamation. Since the adnominal form is licensed, the form can appear in relative clauses and noun complement structures.

5.3   Restriction with other Modals

The next observation with the morpheme *roo* is a co-occurrence restriction with another evidential modal-like element *rasii* or *yoo* 'seem, likely.' Examples are unacceptable when they occur in the same clause.

Co-occurrence restriction

(89)   a.   John-wa   sono   hon-o   katta   rasii   no-desu
            J-TOP   that   book-ACC   bought   seem   FIN-FOC
            'John seemed to have bought that book.'
       b. * John-wa   sono   hon-o   katta   rasii   no-des-yoo
            J-TOP   that   book-ACC   bought   seem   FIN-FOC-MOOD
            'John seemed to have bought that book.'

On the other hand, if *rasii* 'seem' is replaced with an epistemic modal element, examples are acceptable.

Epistemic modals

(90)   a.   John-wa   sono   hon-o   kau   beki-na   no-desu
            J-TOP   that   book-ACC   buy   should-COP   FIN-FOC
            'John should buy that book.'
       b.   John-wa   sono   hon-o   kau   beki-na   no-des-yoo
            J-TOP   that   book-ACC   buy   should-COP   FIN-FOC-MOOD
            'John should buy that book.'

First, the fact that there is a contrast in (89), but not in (90) suggests that the distribution of *roo* has something to do with evidential modals; this supports our claim that *roo* is a presumptive mood marker, which is an indicator of speaker's judgment. Discussing some similar materials, Tenny (to appear) offers an insight that evidential materials are "anchored" to notions such as the speaker or the hearer. Without going into her exact analysis, we can make use of her insight and say that evidential materials contain a pronoun-like element. Since the evidential morphemes in the above examples are at the matrix clause, and they represent the speaker's judgment, let us assume that both *rasii* and *roo* carry a pronoun "I-speaker". Under the assumption that those pronouns obey Principle B, we can explain why *rasii* and *roo* cannot occur in the same clause, that is, *rasii* is locally c-commanded by *roo*, both of which carry the same index.[13]

One piece of support comes from the observation that *rasii* and *roo* can co-occur in interrogatives as shown below.

Interrogatives

(91)   a.   John-wa   itu   sono   hon-o   katta   rasii   no-desu-ka
            J-TOP   when   that   book-ACC   bought   seem   FIN-FOC-Q
            'When does he seem to have bought that book?'
       b.   John-wa   itu   sono   hon-o   katta   rasii   no-des-yoo-ka
            J-TOP   when   that   book-ACC   bought   seem   FIN-FOC-MOOD-Q
            'When does he seem to have bought that book?'

Our analysis can accommodate this fact since it has been known that the "anchor" of evidential element is shifted in interrogatives.

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[13] Tenny's (to appear) implementation is slightly different, but she attempts to explain the same observation.

The Interrogative Flip

(92) a. The bicyclist evidently has escaped injury in the crash.

   b. Has the bicyclist evidently escaped injury in the crash? (Tenny to appear (43))

The adverb "evidently" represents a judgment of the speaker in the declaratives, while the one in interrogatives represents a judgment of the hearer. We can interpret this contrast to suggest that the mood morpheme *roo* in (91b) carries a pronoun "you-hearer" in interrogatives. Since this eliminates the Principle B violation, the example is grammatical.[14] There is one more piece of evidence for the binding-theoretic approach. The morphemes *rasii* and *roo* can carry the same pronoun, as far as they are not in the same clause. In the following example, the clause that contains *rasii* is embedded under an attitude predicate *omou* 'think.' Also, the morpheme *roo* appears in the matrix clause. According to our analysis, the matrix *roo* carries a pronoun "you-hearer" since it is an interrogative clause, and the embedded *rasii* also carries the same pronoun since the matrix subject is "you-hearer".

Different Clause

(93) Anata-wa [John-ga sono hon-o katta rasii-to] omotteiru

   you-TOP J-NOM that book-ACC bought seem-C think

   nodes-yoo-ka

   FOC-MOOD-Q

   'Do you think that John seems to have bought that book?'

Although the matrix evidential morpheme *yoo* (a phonological variant of *roo*) c-commands the embedded evidential morpheme *rasii*, the example is grammatical, since they are not in the same clause, avoiding the Principle B violation.[15]

   One consequence of this analysis is that there are in fact two Mood heads that interact each other. According to Cinque-style cartography of CP structure, it suggests that there is one Mood head that can occur lower than Focus head, and the other one that can occur higher than Focus head. We say that they interact, since Principle B of the Binding Theory regulates a certain combination of them, due to the pronouns they contain. Nonetheless, they function differently at the same time. According to our claim, the Mood *roo* is playing an important role in licensing the exclamative wh-phrase. On the other hand, the lower Mood head does not participate in this licensing relation. In other words, exclamatives are not compatible with evidential modals other than *roo*. Examples (94) and (95) show that evidential modals *rasii* or *yooda* cannot license the exclamative wh-phrases.

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[14] Whether the other modal element *rasii* ever allows this kind of alternation between the speaker and the hearer in interrogatives should be worked out more in detail. It is quite relevant to ask why *rasii* does not alter its pronoun in the way *roo* does, if in fact it does not.

[15] It is not clear if the proposed analysis can say something about the interaction between the "pronoun" in the mood morpheme and the ordinary pronouns. This should be investigated in the future research.

Evidential modals: "rasii" and "yooda"

(94) * John-wa   nante   ookina   kuruma-o   katta-rasii-no-desu
      J-TOP   NANTE   big   car-ACC   bought-seem-FIN-FOC
      'What a big car John seems to have bought!'

(95) * Mary-wa   nante   hayaku   hasitta-yoona-no-desu
      M-TOP   NANTE   fast   ran-likely-FIN-FOC
      'How fast Mary is likely to have run!'

In fact, given that the higher Mood head is required in exclamatives, the lower one cannot even show up in exclamatives.[16] Although the exact semantic contribution of those two separate Mood heads must be investigated further, we have to leave that for the future research.

One related observation with respect to the incompatibility of *rasii* and *roo* is that epistemic modals such as *beki* 'should' and *hazu* 'must' do not interact with *roo*, at least in the sense noted above. These two morphemes can co-occur in the same clause, and in fact these epistemic modals are acceptable in exclamatives.

Epistemic modals: "beki" and "hazu"

(96) John-wa   takusan-no   hon-o   yomu-beki-datta-no-da-roo
      J-TOP   many-GEN   book-ACC   read-must-COP-FIN-FOC-MOOD
      'John must have read many books.'

(97) Mary-wa   takusan-no   sinnyuusyain-o   yatou-hazu-datta-no-da-roo
      M-TOP   many-GEN   employee-ACC   hire-should-COP-FIN-FOC-MOOD
      'Mary should have hired many new employees.'

Epistemic modals: "beki" and "hazu"

(98) John-wa   nante   takusan-no   hon-o   yomu-beki-datta-no-da-roo
      J-TOP   NANTE   many-GEN   book-ACC   read-must-COP-FIN-FOC-MOOD
      'How very many books John must have read!'

(99) Mary-wa   nante   takusan-no sinnyuusyain-o   yatou-hazu-datta-no-da-roo
      M-TOP   NANTE   many-GEN employee-ACC   hire-should-COP-FIN-FOC-MOOD
      'How very many new employees Mary should have hired!'

A possible account for this is to claim that epistemic modals do not have a pronoun that is present in evidential morphemes. In that way, Principle B effects are not applicable in the structure, and the examples are acceptable. Another way to explain the contrast between the evidential and epistemic morphemes is to say that those two have the same kind of pronoun, but to stipulate that the pronoun associated with evidential morphemes and the one with epistemic morphemes do not interact. It could be that the interaction of the

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[16] Alternatively, the incompatibility between exclamatives and evidential morphemes *rasii* or *yooda* might be accounted for by assuming that there is one slot in Mood Phrase (or Evidential Phrase), which needs to be occupied by *roo* in exclamatives. Then, in exclamatives, it is impossible for other evidential modal to occur in the same CP structure. Unfortunately, this account has to stipulate that something special is going on in interrogatives. Recall that in interrogatives, both *rasii* and *roo* can co-occur, and it is unlikely that they are represented by the same Mood head.

pronouns is observed only when the pronouns discussed here are in similar functional heads, such as the higher Mood and the lower Mood.

5.4   Point of View

This section investigates the distribution and properties of *no-da-roo*. The general conclusion is that the distribution of *no-da-roo* is regulated by a rule that employs notions such as 'Point of View' or 'perspective' (Sells 1987, Nishigauchi 1999, Kuno 1972, Uriagereka 1995, Speas 1999, among others). Building on observations in the literature and other new observations, we propose that the clause with *no-da-roo* has to be accessed by the speaker of the whole utterance through some other person. Specifically, we argue that there is an operator in the clause with *no-da-roo* that has to be licensed at the matrix clause (see also Hara 2006 for relevant discussion). It is argued that such movement is responsible for linking the speaker and the clause with *no-da-roo*.

Let us introduce some basic observations. There seem to be at least two types of interrogative predicates in Japanese. When those predicates take an embedded clause, one type can optionally put an additional complementizer *to*, while the other type cannot. For example, *kiku* 'ask' and *tazuneru* 'ask' allow the particle *to* to appear, but *siritagaru* 'wonder' and *siraberu* 'investigate' do not.

(100) a.   John-wa [Mary-ga   dare-ni   atta]-ka(-to)   kiita/tazuneta
             J-TOP   M-NOM   who-DAT   met-Q-C   asked/inquired
             'John asked who Mary met.'
       b.   John-wa [Mary-ga   dare-ni   atta]-ka(-*to) siritagatta/sirabeta
             J-TOP   M-NOM   who-DAT   met-Q-C   wondered/investigated
             'John wondered/investigated who Mary met.'

The division between those two types of predicates correlates with whether or not *no-da-roo* can appear in the embedded interrogative clause.

(101) a.   John-wa [Mary-ga dare-ni   atta-no-da-roo]-ka-to   kiita/tazuneta
             J-TOP   M-NOM   who-DAT met-FIN-FOC-MOOD-Q-C asked/inquired
             'John asked who Mary met.'
       b. * John-wa [Mary-ga dare-ni   atta-no-da-roo]-ka
             J-TOP   M-NOM   who-DAT met-FIN-FOC-MOOD-Q-C
             siritagatta/sirabeta
             wondered/investigated
             'John wondered/investigated who Mary met.'

For those that allow *no-da-roo* in the embedded interrogative clause, when those particles appear, the complementizer *to* is now obligatory.

(102) * John-wa [Mary-ga dare-ni   atta-no-da-roo]-ka   kiita/tazuneta
           J-TOP   M-NOM   who-DAT met-FIN-FOC-MOOD-Q asked/inquired
           'John asked who Mary met.'

The generalization is that the presence of the particles *no-da-roo* requires the presence of the complementizer *to* if the complementizer *to* is optionally available for a predicate.[17]

Another peculiar paradigm involving the presence of *no-da-roo* is the following: usually, verbs such as *omou* 'think' cannot embed an interrogative clause. *Omou* 'think' selects the complementizer *to*, and the example below is unacceptable.[18] With this verb, the complentizer *to* is not optional.

(103) a.   John-wa [Mary-ga sensee-ni   atta]-to   omotteiru
          J-TOP   M-NOM   teacher-DAT met-C   think
          'John thinks that Mary met the teacher.'
     b. * John-wa [Mary-ga dare-ni   atta]-ka-to omotteiru
          J-TOP   M-NOM   who-DAT   met-Q-C   think
          'John thinks who Mary met.'

However, an interrogative clause can appear when *no-da-roo* is in the interrogative clause.

(104) John-wa [Mary-ga   dare-ni   atta-no-da-roo]-ka-to   omotteiru
      J-TOP   M-NOM   who-DAT met-FIN-FOC-MOOD-Q-C think
      'John think, who Mary met.'

There is one more observation, which is noted in the literature (Kuroda 1973, Kuno 1973, McCawley 1978, Tenny to appear). When a certain class of adjectives that represent 'feeling' appear in the matrix clause, the particles *no-da(-roo)* are required if the subject is not the first person.

(105) a.   Watasi-wa   kanasii
          I-TOP   sad
          'I am sad.'
     b. * Tanaka-san-wa kanasii
          T-Mr.-TOP   sad
          'Mr. Tanaka is sad.'

(106) a. * Watasi-wa   kanasii-no-da(-roo)
          I-TOP   sad-FIN-FOC-MOOD
          'I am sad.'
     b.   Tanaka-san-wa kanasii-no-da(-roo)
          T-Mr.-top   sad-FIN-FOC-MOOD
          'Mr. Tanaka is sad.'

The traditional idea, as in Kuroda (1973), is that the examples in (105) are in the reportive style, where the speaker of the utterance is playing an objective role. He is reporting the state of affairs in an objective viewpoint, and he is not allowed to talk about the 'feeling' of some other person. By using the particles *no-da-roo*, he now has the

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[17] The optionality of the complementizer *to* only arises with the 'interrogative' predicates noted above.

[18] As soon as the nominalizer (or in our analysis, the Finite head) *no* is added to the clause, the example is acceptable. This suggests that it is a reduced form of *no-da-roo*.

viewpoint of somebody else (i.e., *Tanaka-san*). Now, he can talk about the 'feelings' of that person. This intuitive idea is supported by the following contrast. Above, we have seen that the verb *omou* 'think' can embed an interrogative clause if the interrogative clause contains *no-da-roo*. It is not possible to make a matrix yes-no question.

(107) a. John-wa [dare-ga   kita-no-da-roo]-ka-to   omotteiru
      J-TOP   who-NOM   came-FIN-FOC-MOOD-Q-C   think
      'John thinks who came.'
    b. * John-wa [dare-ga   kita-no-da-roo]-ka-to   omotteiru-no-desu-ka
      J-TOP   who-NOM   came-FIN-FOC-MOOD-Q-C   think-FIN-COP-Q
      'Does John think who came?'

The unacceptable example (107b) can be explained in the following way. Given the presence of *no-da-roo*, the speaker of the whole utterance has the perspective of the matrix subject *John*. This means that the speaker has full control of John's mind, and it is quite strange to inquire about the content of John's thought, since the speaker should know everything about what John thinks.

    The notion of perspective has been used to explain the difference between the use of pronoun and reflexive in the embedded clause under the attitude predicate such as *omou* 'think' (see e.g., Sells 1987).

(108) a. John$_2$-wa [kare$_2$-ga   itiban-da]-to omotteiru
      J-TOP   he-NOM   best-COP-C   think
      'John thinks he is the best.'
    b. John$_2$-wa [zibun$_2$-ga   itiban-da]-to omotteiru
      J-TOP   he-NOM   best-COP-C   think
      'John thinks 'self' is the best.'

The difference between those examples has been argued to be who has the perspective in the embedded clause. In the example with the pronoun *kare*, it is the speaker of the whole utterance who has the perspective, and he reports the state of affairs in an objective mode. On the other hand, in the example with the reflexive *zibun*, the content of the embedded clause is described from the perspective of the matrix subject *John*. Of course, even in such a case, it is the speaker who utters the whole sentence, and it means that the speaker has access to the embedded clause through the perspective of the matrix subject, virtually as if the speaker of the whole utterance is the matrix subject. Interestingly, when *no-da-roo* is added to the embedded clause, the example with a pronoun is unacceptable.

(109) a. * John$_2$-wa   [kare$_2$-ga itiban-na-no-da-roo]-to   omotteiru
      J-TOP   he-NOM   best-COP-FIN-FOC-MOOD-C   think
      'John thinks he is the best.'
    b. John$_2$-wa   [zibun$_2$-ga itiban-na-no-da-roo]-to   omotteiru
      J-TOP   he-NOM   best-COP-FIN-FOC-MOOD-C   think
      'John thinks 'self' is the best.'

This data illustrate that *no-da-roo* cannot appear in a domain in which the speaker of the whole utterance has the perspective directly, not through someone else's perspective. The use of the pronoun in the embedded clause indicates that the content of the embedded

clause is described by the objective reporter. Also it shows that *no-da-roo* can appear when the speaker of the whole utterance has access through the perspective of someone else. Here, the speaker indirectly has access to the content of the embedded clause through John's perspective. The intuitive idea seems to be that *no-da-roo* can occur where the speaker of the whole utterance has an indirect access through someone else's perspective.

In order to implement the notion of 'point of view' syntactically, Tenny (to appear), and Speas & Tenny (2003) argue that there is an Evidential Phrase or Speech Act Phrase situated high at the root clause that handles some of the related phenomena discussed here. Although we agree with their essential spirit, we do not follow their technical implementation. First, we argue for the presence of Perspective Phrase (PerP) at the root of the representation. The specifier of PerP must be filled with a null operator that originates from the clause where the speaker of the whole utterance takes an indirect perspective. Second, recall the obligatory presence of the particle *to* with the particles *no-da-roo*. We take this observation to indicate that the particle *to* heads a Subordinator Phrase (SubP), the specifier of which is the base-generated position of the null operator that binds the variable in *no-da-roo*.

(110)
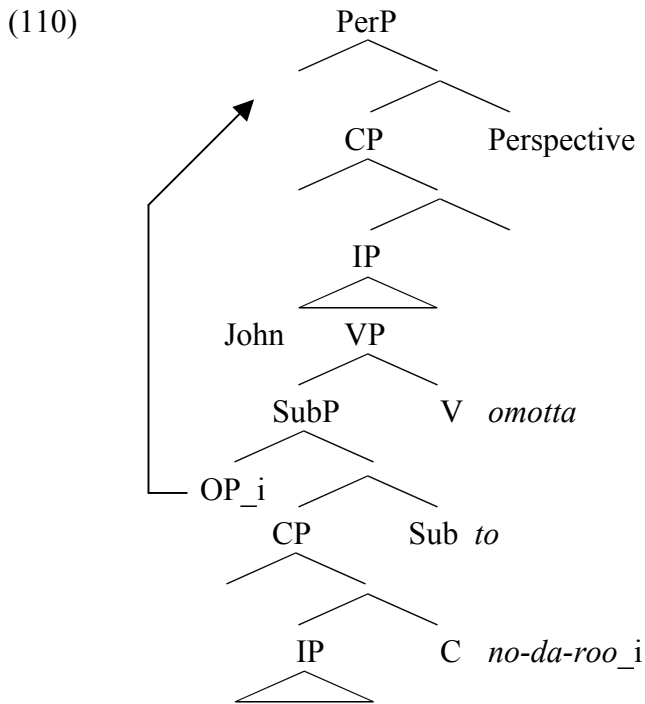
The base-generated position of the null operator indicates that the matrix subject *John* has a perspective toward the embedded clause, which is immediately dominated by the attitude predicate. We argue that the movement of the null operator to the root of the structure allows the speaker of the whole utterance to have the perspective of the matrix subject.

There is evidence that movement of this null operator obeys 'island' constraints. When the clause with *no-da-roo* is further embedded, the speaker has to be able to take

the perspective of each subject in between.[19] Movement of the operator passes through the intermediate Perspective Phrase. First, let us take a look at an acceptable example, with somewhat simplified structure.

(111) John-wa [zibun-no otoosan-ga [Mary-ga dare-ni   atta-no-da-roo]-ka-to
       J-TOP   self-GEN father-NOM   [M-NOM   who-DAT   met-FIN-FOC-MOOD-Q-C
       omotta]-to   sinziteiru
       thought-C   believe
       'John believes that self's father thought who Mary met.'

(112)
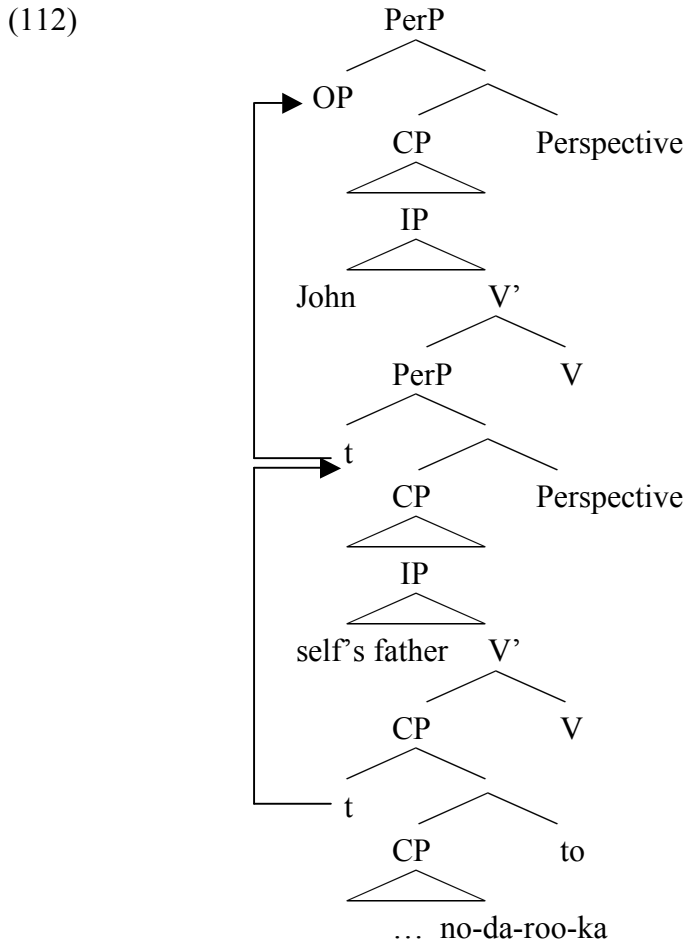
This two-step movement assures that the speaker of the whole utterance is connected to the most deeply embedded clause. The lower part of the movement allows John to take the perspective of John's father, and the higher part of the movement allows the speaker to take the perspective of John. In fact, this indicates that the speaker does not directly take the perspective of John's father; the speaker of the whole utterance takes the perspective of John's father though the perspective of John.

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[19] Obviously, this looks a lot like the blocking effect of long distance reflexives discussed in the literature (e.g., Katada 1993, Huang & Liu 2001).

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There is evidence that it is impossible for the speaker to directly take the perspective of John's father. The following unacceptable example illustrates the point.

(113)* John-wa [kare-no otoosan-ga [Mary-ga dare-ni atta-no-da-roo]-ka-to
　　　 J-TOP　 he-GEN　 father-NOM [M-NOM　who-DAT　met-FIN-FOC-MOOD-Q-C
　　　 omotta]-to　 sinziteiru
　　　 thought-C　 believe
　　　 'John believes that his father thought who Mary met.'

This example is minimally different from (111); the only difference is that in (113) the pronoun *kare* replaces the reflexive *zibun*. The use of the pronoun illustrates that the matrix subject *John* does not take the perspective of *his father*. This unacceptable example can be accounted for by assuming that there is no Perspective Phrase in that clause as illustrated below.

(114)
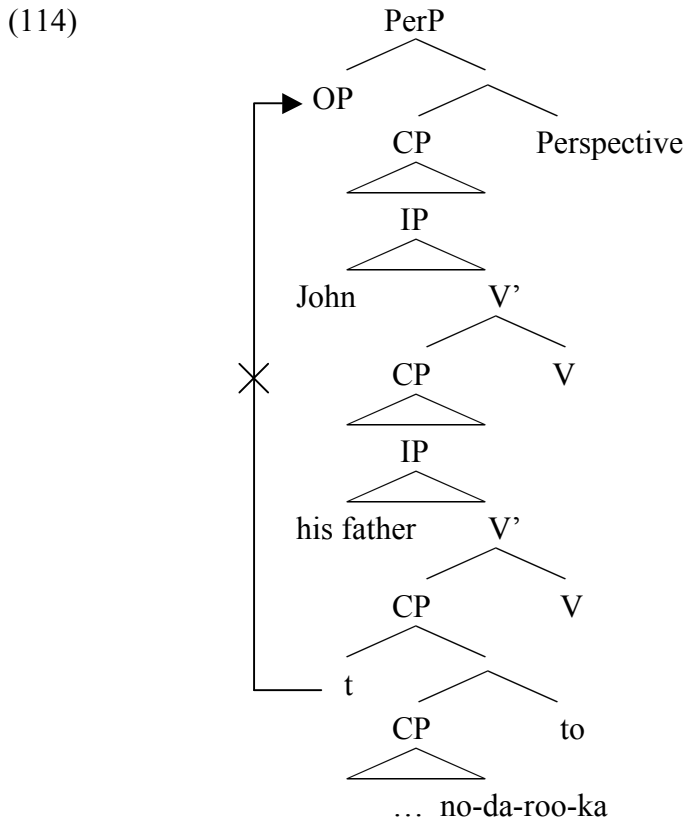
Assuming that movement going from the lowest clause to the root violates a Subjacency-like island constraint (since it skips the intermediate clause), we can account for the unacceptable example.

Our analysis can account for the contrast observed in (105) and (106). Let us assume that the particles *no-da-roo* contain a variable bound by the speaker via a null operator. Assuming that this places a variable / an index "I-speaker" on the particles, the example in (106a) that contains the pronoun *watasi* 'I' is a case of a Principle B violation,

since the predicate *sabisii* 'sad' contains the pronoun "I". This does not arise when the subject is not the first person. The representation is shown below.

(115)   a.   PersP
                /\
           OP_i   /\
                 CP   Pers
                /\
             t_i /\
                 IP   no-da-roo_i
                 /\
            watasi sabisii_i

         b.   PersP
                /\
           OP_i   /\
                 CP   Pers
                /\
             t_i /\
                 IP   no-da-roo_i
                 /\
          Tanaka-san sabisii_k
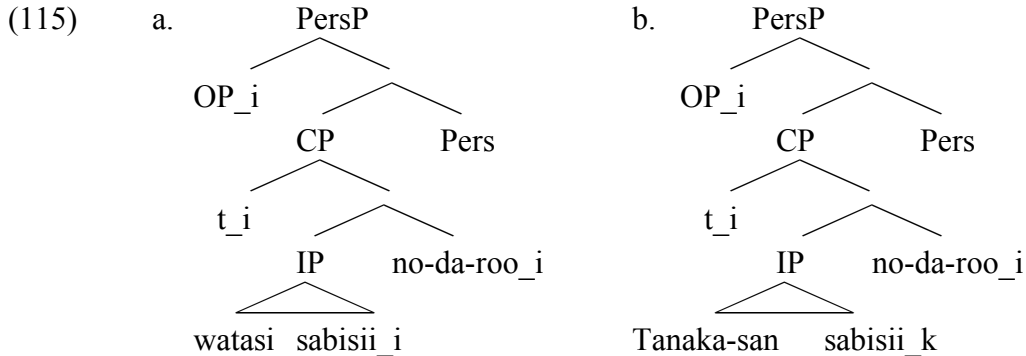
Also, the cases where there are no particles, *no-da-roo* is also accounted for. Recall that Kuroda (1973) calls the form without those particles a "reportive" style. We can take this to mean that the speaker is not involved in evaluating the proposition. Then, let us assume that in those cases, the head C carries an index "non-speaker". We can account for the unacceptable example (105b) by invoking Principle B, since the predicate contains a pronoun "non-speaker".

(116)   a.   CP
                /\
               /\
              IP   non-speaker_k
              /\
         watasi sabisii_i

         b.   CP
                /\
               /\
              IP   non-speaker_k
              /\
       Tanaka-san sabisii_k
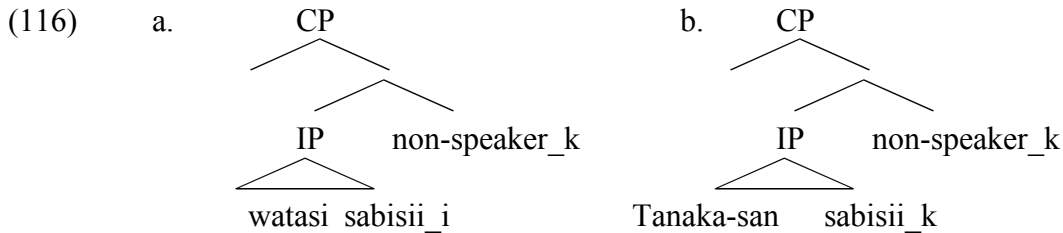
Next, the incompatibility of *siritagaru* 'wonder', *siraberu* 'investigate' and the particles *no-da-roo* can be explained by assuming that there is no place to generate the null operator. Recall that the null operator in the embedded clause is generated at the specifier of SubP, headed by the particle *to*. It is plausible since we independently establish the strong connection between the presence of *no-da-roo* and *to*. Since those interrogative predicates do not allow the particle *to* to be generated (hence there is no SubP), the null operator cannot be generated. Therefore, it is impossible for the speaker of the whole utterance to take the point of view in the embedded clause.

Finally, we have to explain why interrogative clauses can appear under *omou* 'think' only when the interrogative clause contains the particles *no-da-roo*. Recall that when there is *no-da-roo* in the embedded clause, the null operator is generated at [Spec, SubP]. By moving it to matrix [Spec, PersP], it carries an index "I-speaker". This establishes the link between the speaker and the head of SubP *to*. Intuitively this creates a "barrier" for the interrogative clause to be falsely linked to the matrix predicate *omou* 'think'. We can implement this idea by assuming that the interrogative clause (or the interrogative particle *ka*) contains PRO, which will be bound by the closest subject-like element. Since the speaker is the closest potential controlling entity, this obviates the unwanted link between the interrogative clause and the matrix predicate *omou* 'think.' On the other hand, when there is no *no-da-roo* in the interrogative clause, the complementizer / subordinator *to* does not carry the speaker index, and therefore it does

not disrupt the unwanted link between the interrogative clause and the matrix predicate *omou* 'think'. Since a link between them is not a grammatical option due to the semantic selection, the example is ungrammatical. The following diagram illustrates the cases.

(117)   a.   CP   b.   PersP

                IP   C   OP_i
                                                        CP   Pers
            VP   IP
         CP   V omou   VP
      CP   C to   CP   V omou
   IP   C ka   t_i
                                                 CP   C   to_speaker
                                              IP   C   ka
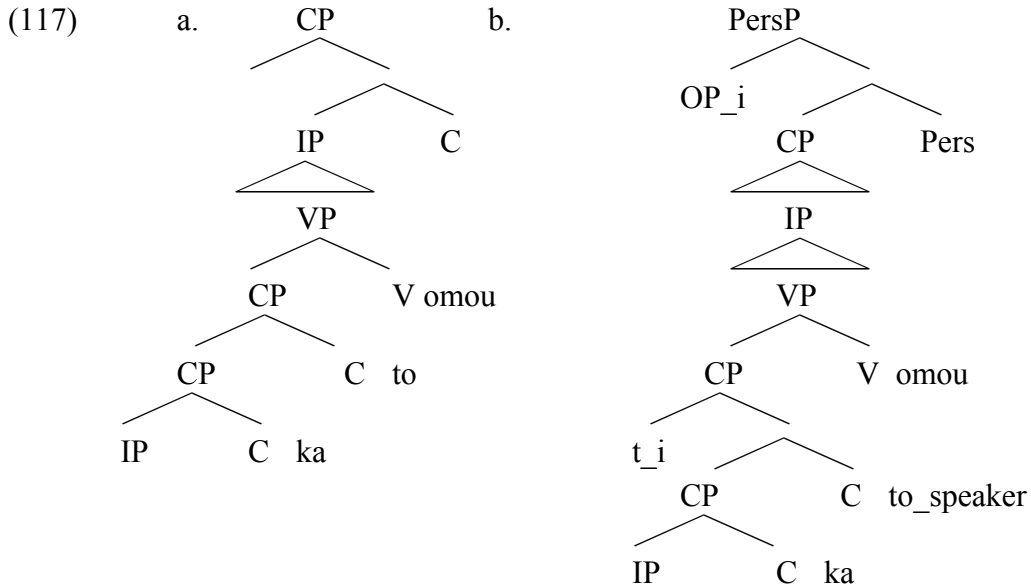
6.   Lower Modal Elements and Negation

Since we have seen that the Mood head is playing a crucial role in licensing exclamative wh-phrases, and since the Mood head *roo* interacts with other modal elements, we provide some more discussion on these here. Although we will label these as "modal," following Johnson (2003), the categorial status of these elements is unlikely to be uniform. We saw two types of modal elements: one kind of modal is compatible with *roo* (which is required in exclamatives), and the other is not. This section discusses these two modals in a little more detail, and we propose a particular left periphery clausal structure for Japanese. Specifically, we argue that there are at least two functional heads that are manifested by overt modal elements. It would be nice if the two types of modal elements noted above belong to different classes of modals, say, in the sense of Cinque (1999).

This section discusses the interaction between exclamatives and the presence of a few kinds of modal elements. The basic observation we saw in sections 2 and 5 is that evidential morphemes in Japanese, such as *rasii* and *yooda* 'likely, seem' are incompatible with exclamatives. On the other hand, epistemic morphemes such as *hazu* 'must' and *beki* 'should' can appear in exclamatives.

Assuming Cinque's (1999) analysis in which different modal elements are represented as different functional projection in the CP domain, we argue that the exclamative particles *no-da-roo*, especially *roo,* also form an evidential morpheme (cf. a mood marker; Bhatt & Yoon 1992), which plays a crucial role in licensing exclamatives in Japanese. The incompatibility between exclamatives and evidential morphemes *rasii* or *yooda* can be accounted for by assuming that there is one slot in the Evidential Phrase (or there is only one Evidential Phrase) in the sense of Cinque (1999) (see Hara 2006,

Tenny to appear, and many references cited therein for some recent discussion of evidentiality in Japanese). One possible implementation of the basic idea is that there is a null operator that is associated with the evidential morphemes *rasii* and *yooda* 'seems' since they are scope-bearing elements. The incompatibility between those morphemes and exclamatives can be accounted for if those null operators and exclamative wh-phrases are competing for the same position. We argue that [Spec,MoodP] is the position where those elements are potentially licensed.

On the other hand, epistemic morphemes are compatible with exclamatives since those morphemes do not compete for the same slot with exclamative licensor in the functional projection. Furthermore, it will be shown that evidential morphemes can appear in wh-interrogatives in Japanese, suggesting that there is no particular evidential morpheme involved in licensing wh-interrogatives. Then, we can tie the difference between exclamatives and interrogatives to the presence - in fact requirement - of a particular evidential morpheme in the structure.

6.1   Evidential: rasii, yooda

Morphologically, *rasii* and *yooda* 'seems/likely' occur after a verb with a tense morpheme, and it seems that they are highly grammaticalized morphemes, for they exhibit some peculiar idiosyncratic properties. For instance, *rasii* 'likely' shows the inflection paradigm of adjectives as shown in (118) and (119), but it is preceded by a verb with a tense morpheme.

Adjective-like inflection
(118)   John-ga   ki-ta   {rasi-i /   rasi-katta}
        John-NOM   come-PST   likely-PRS / likely-PST
        'It is/was likely that John came.'

(119)   Gasorin-ga   {taka-i /   taka-katta}
        gas-NOM   expensive-PRS / expensive-PST
        'Gas is/was expensive.'

The verb occurring immediately before *rasii* in (118) shows a past tense marker; the verb with a non-past tense marker is also acceptable, as shown here.

(120)   John-ga   ku-ru   {rasi-i /   ?rasi-katta}
        John-NOM   come-PRS   likely-PRS / likely-PST
        'It is/was likely that John comes.'

In (118), the modal element is immediately preceded by a verb, and in the translation, we used "It is/was likely that …", but in fact, a complementizer / subordinator *to* cannot appear between them.

No complementizer
(121)   * John-ga   ki-ta   **to** {rasi-i /   rasi-katta}
           John-NOM come-PST C   likely-PRS / likely-PST
           'It is/was likely that John came.'

Another modal *yooda* 'seem' does not have the adjective-like inflectional paradigm. It seems reasonable to assume that *da* at the end of the modal is a copula, which suggests that the rest is a nominal expression, in terms of categorial status. Due to the copula at the end, it takes exactly the same inflectional paradigm as the copula. As we saw with *rasii* 'likely', the tense-marked verb must appear immediately before those modals (either past or non-past), and the complementizer *to* cannot appear between the verb and the modal.

Yoo is followed by a copula

(122) John-ga   ki-ta   {yoo-da /   yoo-dat-ta}
      John-NOM   come-PST   seem-COP.PRS / seem-COP.PST
      'It seems/seemed that John came.'

(123) John-ga   ku-ru   {yoo-da /   ?yoo-dat-ta}
      John-NOM   come-PST   seem-COP.PRS / seem-COP.PST
      'It seems/seemed that John comes.'

Complementizer cannot intervene

(124) * John-ga   ki-ta-**to**   yoo-da
        John-NOM   come-PST-C   seem-COP.PRS

Another methods of complementation we should look at that is usually available for nominal complementation is *to-no* and *toiu*. A clause can be embedded under a noun by using those complementizers as shown in (125). However, *yooda* does not take those methods of complementation, either.

To-no/toiu complementation

(125) a. John-ga   kaetta   to-no   uwasa
         J-NOM   left   C   rumor
      b. John-ga   kaetta   toiu   uwasa
         J-NOM   left   C   rumor
         'a rumor that John left'

(126) a. * John-ga   kaetta   to-no   yoo-da
           J-NOM   left   C   seem-COP
      b. * John-ga   kaetta   toiu   yoo-da
           J-NOM   left   C   seem-COP
           'It seems that John left.'

6.2   Epistemic: bekida, hazuda

Now, we introduce two other modals *beki-da* 'should' and *hazu-da* 'must' that do not raise problems when they occur with the modal *roo*. As is visible from the ending of these modals, they have a copula at the end, as we have seen with *yoo-da*. Then, it could be that *beki* and *hazu* themselves are categorially nominal expressions. Although categorially they are similar, there are at least two differences between the two modals. At this point, I have no account for the difference between the two modals, and we will simply note the facts.

First, when *beki* attaches to a verb, the verb cannot carry a past tense marker. In other words, the verb is in the non-past form. There is no requirement like that for *hazu*.

Verb cannot be in past tense form with beki
(127) John-wa   gakkoo-e   iku-beki-da
       John-TOP   school-to   go-must-COP.PRS
       'John should go to school.'

(128) *John-wa   gakkoo-e   it-ta-beki-da
       John-TOP   school-to   go-PST-must-COP.PST
       'John should have gone to school.'

No requirement of tense marking with hazu
(129) John-wa   gakkoo-e   iku-hazu-da
       John-TOP   school-to   go-must-COP.PRS
       'John must go to school.'

(130) John-wa   gakkoo-e   it-ta-hazu-da
       John-TOP   school-to   go-PST-must-COP.PST
       'John must have gone to school.'

Second, even though both of them can occur in relative clauses, it is possible only when they carry a past tense marker. Their behaviors diverge if we look at cases other then the past tense paradigm. The following pair illustrates that they can occur in relative clauses.

Beki *and* hazu *can appear in relative clauses if in the past tense form*
(131) [John-ga   toku-beki-dat-ta]   mondai
        John-NOM   solve-should-COP-PST problem
       'A problem that John should have solved'

(132) [John-ga   toku-hazu-dat-ta]   mondai
        John-NOM   solve-must-COP-PST   problem
       'A problem that John must have solved'

This observation is crucial since we have asserted a generalization that modals that block the dependency between the exclamative wh-phrase and the licensing particle cannot appear in relative clauses. Later, we show examples in which the exclamative wh-phrase is licensed even though the sentence contains these modals.

Now, when these modal elements do not carry the past tense marker, a mysterious pattern emerges. Note that when *beki* and *hazu* are followed by a non-past pre-nominal form -*na*, examples are not acceptable at all. There is a sharp contrast between the pair in (131) and (132) where the copula is in the past tense form and the pair in (133) and (134) where the copula is in the non-past tense form. It is unclear why this is the case. Second, the example with *hazu* is acceptable if the whole pre-nominal modifier is marked with the genitive case marker *no*. On the other hand, with respect to *beki*, having the genitive case

marker does not help at all. In fact, the example is acceptable when there is no marker attached to *beki*.[20]

Mysterious requirement in relative clauses
(133) [John-ga   toku-beki-∅/-*na/-*no]   mondai
       John-NOM   solve-should-∅/-COP.PRS/-GEN   problem
       'A problem that John should have solved'

(134) [John-ga   toku-hazu-*∅/-*na/-no]   mondai
       John-NOM   solve-must-∅/-COP-PRS/-GEN   problem
       'A problem that John must have solved'

Despite a few differences between these two modal elements, it is important for to note that they do not interfere with the licensing of the exclamative wh-phrase, which is shown in (135) and (136). Also note that the presence of either modal element does not disrupt the wh-dependency in wh-interrogative clauses either.

Hazu *and* beki *do not block wh-exclamatives*
(135) Mary-wa   nante   takusan-no   sinnyuusyain-o   yatou   hazu-dat-ta
       Mary-TOP wh   many-GEN   employee-ACC   hire   must-COP-PST
       no-da-roo
       FIN-FOC-MOOD
       `What a lot of new employees Mary was supposed to hire!'

(136) John-wa   nante   takusan-no   hon-o   kau   beki-dat-ta   no-da-roo
       John-TOP wh   many-GEN   book-ACC   buy   should-COP-PST   FIN-FOC-MOOD
       `What a lot of books John should have bought!'

Hazu *and* beki *do not block wh-interrogatives*
(137) Mary-wa   donokurai   takusan-no   sinnyuusyain-o   yatou   hazu-dat-ta
       Mary-TOP   wh   many-GEN   employee-ACC   hire   must-COP-PST
       no-desu-ka
       FIN-FOC.POLITE-Q-
       `How many new employees was Mary supposed to hire?'

(138) John-wa   donokurai   takusan-no   hon-o   kau   beki-dat-ta
       John-TOP   wh   many-GEN   book-ACC   buy   should-COP-PST
       no-desu-ka
       FIN-FOC.POLITE-Q
       `How many books should John have bought?'

The example of the wh-exclamative with *hazu* is, as far as we can tell, as good as its interrogative counterpart. A slight complication is that (135) is interpreted as a counterfactual, which might contribute to the difficulty of interpreting the sentence. Consider the following context in which (135) can be uttered: Mary is in charge of hiring new employees in a company. The company will open a new division soon, so there is a

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[20] It is unclear why *beki* can appear as a bare form only in relative clauses. In other words, when it appears in the matrix clause, it has to be followed by a copula (presumably then it can carry tense information).

big demand for hiring more workers. She said to a friend of hers, John, "I was asked to hire 50 people in one week, but I could only hire 40 people total." John was surprised at the fact that she was supposed to hire 50 people, since the number is really large. Then he can utter something like (135). Note that this interpretation corresponds to the so-called "amount" reading in the sense of Heycock (1995). Informally, it can be represented as in (139).

The "amount" reading
(139)   There is a number such that Mary must have hired that number of people; the
        number is extremely large.

Another observation to be noted with respect to the interpretation of (135) is that it also has the interpretation Heycock (1995) calls the "referential" reading, which could be, again informally, represented as in (140).

The "referential" reading
(140)   There is a set of people that Mary must have hired; the cardinality of that set is
        extremely large.

The context that would be appropriate for the "referential" reading is the following: She said to a friend of hers, John, "I was asked to hire 50 people in one week, but I could only hire 10 people total." John was surprised at the fact that the gap between the number of people she was supposed to hire and the actual number of people she managed to hire is really large. The "referential" reading is also available with (135), since it is natural to utter (135) in that context. With respect to the example with *beki*, the same observation is observed. Examples like (136) are acceptable either with the "amount" reading or the "referential" reading.

Summarizing the discussion so far: modal elements sometimes block the dependency between the exclamative wh-phrase *nante* and the licensing particles. We have seen that two modal elements, *rasii* and *yooda*, disrupt the dependency in exclamatives, but not the one in interrogatives. Two other modal elements, *bekida* and *hazuda*, on the other hand, do not block either the dependency in exclamatives or the one in interrogatives. Also we noted that exclamatives with *bekida* and *hazuda* demonstrate ambiguity with respect to the scope of degree phrases. Specifically, both the "amount" reading and the "referential" reading seem to be available for the examples.

6.3   Negation

Another element we can discuss in the same vein is negation. Regarding the generalization pointing to the correlation between the lack of blocking effects in exclamatives and the ability to appear within relative clauses, negation conforms to the generalization, though negation is not a modal element. The bottom line is that it can appear in relative clauses, and it does not block the dependency in exclamatives.[21]

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[21] Oda (2004) discusses negation in exclamatives in a variety of languages, and concludes that exclamatives simply do not admit negation. If the analysis illustrated in this section

The following pair of examples shows that the presence of negation does not disrupt the licensing of the exclamative wh-phrase, but it should be noted that the example is not ambiguous, unlike the exclamative sentences with a certain modal element: it only has the "referential" reading.

Negation is OK and the example is unambiguous.
(141) Mary-wa   nante   takusan-no hon-o   yom-anakat-ta   no-da-roo
      Mary-TOP wh   many-GEN   book-ACC   read-NEG-PST   FIN-FOC-MOOD
      'What a lot of books Mary did not read!'

The relevant context is that she was supposed to read, say, 50 books (for her dissertation?). It turns out that she managed to finish only 10 books. The cardinality of the set of books she did not read, which is 40, is extremely large. The point in examples like (141) carry over to their counterpart in interrogatives. We do not know what the "amount" reading is supposed to mean with negation.

There is one modal that does not fit the pattern illustrated above. We do not have an account for it, but give the observation here. A modal *ni-tigai-nai* 'certain' seems to block the licensing of exclamatives, but it does not block the licensing of interrogatives; nonetheless, it can appear inside a relative clause.

It blocks exclamatives, but not interrogatives.
(142) *John-wa   nante   takai   hon-o   katta   ni-tigai-nai no-da-roo
       John-TOP wh   expensive   book-ACC   bought   certain   FIN-FOC-MOOD
       `What an expensive book John is certain to have bought!'

(143) John-wa   donokurai takai   hon-o   katta   ni-tigai-nai
      John-TOP wh   expensive book-ACC bought   certain
      no-desu-ka
      fin-FOC.POLITE-Q
      `How expensive a book is John certain to have bought?'

It can appear in relative clauses.
(144) [John-ga   kat-ta   ni-tigai-nai]   hon
      John-NOM   buy-PST   certain   book
      'the book that John surely bought'

A potentially relevant observation is that the modal *ni-tigai-nai* is a morphologically complex expression: *ni* can be some sort of a preposition, *tigai* 'difference' seems to be a noun, and *nai* is a negative morpheme that takes the inflectional paradigm of an adjective. It is conceivable that they are some sort of frozen expression, since, for example, a case-marker cannot attach to the noun part *tigai*. Example (146) illustrates that the nominative case-maker can attach to the noun, but then the modal meaning seems to be lost.

(145) Sono hon-wa   John-ga   kat-ta   ni-tigai-(*ga)-nai
      thatbook-TOP   John-NOM   buy-PST   MOOD
      'It is certain that, that book, John bought.'

is on the right track, we are led to conclude that exclamatives can admit negation, but the degree restriction cannot be reconstructed across negation.

(146) Sono hutatu-no   hon-wa   nakami-ni   tigai-ga   nai
      thattwo.classifier-GEN   book-TOP content-DAT difference-NOM   NEG
      'With respect to their content, there is no difference in those two books.

Note also that when *ni-tigai-nai* is used as a modal element, it directly follows the tensed verb; on the other hand, in (146), it follows a noun. Then, it seems certain that the case where *ni-tigai-nai* blocks the exclamative sentence shows that it is the modal element that is responsible for the unacceptability of (142).

        Summarizing the section so far, we saw that there are at least two kinds of modal elements pertaining to the licensing of the exclamative wh-phrase *nante*. The first kind of modal elements blocks the dependency, and this observation correlates with the fact that they cannot appear in relative clauses. The other kind of modal elements (including negation), do not block the dependency, and they are allowed to appear in relative clauses. Another observation is that when the second kind of modal elements are used in exclamatives, there are two interpretations available, except for the negation case. The two interpretations correspond to the "amount" interpretation and the "referential" interpretation, discussed, for example, by Heycock (1995).

7.   **Summary**

This chapter discussed three morphemes that are crucial to Japanese exclamatives. It illustrated that each of the morphemes is a required part of Japanese exclamatives and properties of those morphemes are discussed. Especially, we have discussed the properties of the mood morpheme *roo*, which differentiate Japanese exclamatives from interrogatives. It was shown that various properties of the morpheme *roo* can be captured by assuming that it heads a functional projection, which encodes the perspective of the speaker of the utterance or point of view, building upon the insight of Tenny (to appear) and Hara (2006). Using the general framework proposed in Rizzi (1997) and Cinque (1999), we can syntactically implement some of the notions that have been handled mostly in semantics or pragmatics. By using syntactic projections in the CP domain, we successfully captured various observations concerning the mood morpheme *roo*, showing that the phenomena are in fact syntactic.

CHAPTER 3: LONG DISTANCE DEPENDENCIES IN JAPANESE EXCLAMATIVES

1. Introduction

Based on the general properties of a few particles that appear in Japanese exclamatives, we now turn to the discussion of the dependency between the exclamative wh-phrase *nante* and the exclamative particles. We show that the dependency between them can be long-distance, as long as various standard island conditions are avoided. In the next section, we first investigate restrictions of embedded exclamatives, contrasted with the standard embedded interrogatives. Obviously, the syntactic environment where exclamatives are embedded is quite different than that for interrogatives (Grimshaw 1979, for example). After discussing those restrictions, we examine which island constraints exclamatives obey. In section 3, we propose a mechanism intended to capture the island effects observed here and observations with respect to the interaction between interrogatives and exclamatives. We argue that various observations introduced there are intervention effects. Later in the chapter, we discuss the properties of the exclamative wh-phrase *nante* in detail. We introduce some new observations and discuss some semantic issues pertaining to the exclamative wh-phrase *nante*. Section 4 reviews properties of the exclamative wh-phrase *nante*. Some variations of the form are discussed. We show that *nanto-yuu* and *nanto*, both of which are variants of *nante*, illustrate different syntactic behavior. *Nanto-yuu* is the form that modifies a projection of a noun, while *nanto* directly modifies either adverbs or adjectives. Finally in section 5, some semantic issues are discussed. Specifically, we discuss how to obtain the meaning of multiple exclamatives found in Japanese. We argue that the two degree phrases involved in multiple exclamatives must be related in some particular way. Section 6 summarizes the chapter.

2. Licensing Exclamatives: Multi-clause

2.1 Complement Selection

This section discusses the compatibility of exclamative clauses and certain kinds of predicates, as not all predicates can embed exclamatives. Elliott (1971, 1974) and Grimshaw (1979) investigated the distribution of English embedded exclamatives, but as far as Japanese exclamatives are concerned, there seems to be no study that investigates their distribution in detail, at least in the framework we adopt here.[22] A point we have to pay attention to is complementizer selection in Japanese. Predicates in Japanese use either the *koto*/*no*-complementizer or the *to* complementizer, although many predicates use one predominantly (see Kuno 1973, Nakau 1973, Josephs 1976 for relevant discussion).

    One clear observation is that exclamatives cannot be embedded under the *koto*-complementizer. This is expected given the discussion in the previous chapter. Recall the incompatibility between the licensor of exclamatives and the *koto*-complementizer. Then

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[22] We take a look at the English cases in Chapter 4.

complementation with the *to*-complementizer is the relevant environment to investigate which predicates allow embedded exclamatives.

It turns out that the distribution of embedded exclamatives in Japanese is quite limited. Besides the environment of *koto*-complementation, it is not true that exclamatives can be embedded under any *to*-complementation. We find the embedded exclamatives only under two types of predicates. One type of predicate that allows embedded exclamatives is *omou* 'think' and *iu* 'say'.[23] The other is the emotional predicate, such as *odoroku* 'be surprised' and *akireru* 'be amazed.' In this section, we focus on the question of where we observe embedded exclamatives.

First, verbs that require an interrogative clause complement (i.e., *tazuneru* 'ask' and *kiku* 'ask') cannot take an exclamative clause as a complement. They require an interrogative clause with the particle *ka* to appear in the immediate complement position, though the complementizer *to* can optionally appear.

Interrogative predicates
(1) a. * John-wa [Mary-ga nante takusan-no gakusee-ni okotta
        J-TOP M-NOM WH many-GEN student-DAT angry
        noda-roo-ka]-(to) tazuneta
        FOC-MOOD-C asked
        'John asked how very many students Mary got angry at.'
     b. * John-wa [Mary-ga nante takusan-no gakusee-ni okotta
        J-TOP M-NOM WH many-GEN student-DAT angry
        noda-roo-ka]-(to) kiita
        FOC-MOOD-C asked
        'John asked how very many students Mary got angry at.'

Presumably, those examples are unacceptable due to the lack of an interrogative complement in the embedded clause. Other interrogative verbs, such as *siritagaru* 'wonder' and *siraberu* 'investigate,' show the same pattern.[24]

Next, verbs that only take a proposition as their complement are unable to embed exclamatives (*sinziru* 'believe,' *syutyoo-suru* 'claim'). They can use the complementizer *to* to embed a clause.

(2) John-wa [Mary-ga takusan-no hon-o yonda]-to sinzi-teiru
      J-TOP M-NOM many-GEN book-ACC read-C believe-be
      'John believes that Mary read many books.'

Embedded Exclamatives Impossible
(3) a. * John-wa [Mary-ga nante takusan-no hon-o yonda
        J-TOP M-NOM WH many-GEN book-ACC read
        noda-roo]-to sinziteiru
        FOC-MOOD-C believe
        'John believes how very many books Mary read.'

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[23] I admit that it is peculiar to say that those two verbs form a natural class. Whether there are verbs that pattern with those verbs should be investigated further.
[24] Verbs such as *siritagaru* 'wonder' and *siraberu* 'investigate,' on the other hand, do not allow the complementizer *to* to appear.

b. * John-wa [Mary-ga nante takusan-no gakusee-ni okotta
    J-TOP   M-NOM WH   many-GEN student-DAT   got.angry
    nodaroo]-to syutyoo-siteiru
    FOC-MOOD-C claim-be
    'John claims how very many students Mary got angry at.'

Second, a class of factive verbs, *sittieru* 'know' and *oboeteiru* 'remember,' do not allow exclamative complements. This class of verbs uses the formal noun *koto* or *no* when they embed a clause in general, but use of the complementizer *to* seems to be possible in some limited cases.[25] The factivity associated with this class of verbs can be shown by the awkwardness of the following discourse continuation.

Factivity
(4)   a. John-wa [Mary-ga   kita]-koto-o sitteiru
             J-TOP   M-NOM   came-FN-ACC know
             'John knows that Mary came.'

      b. --# demo, Mary-wa   kite-nai-yo
             but   M-TOP came-NEG-AFF
             'But, Mary hasn't come.'

The speaker of the utterance in (4) cannot negate the embedded proposition. This is one of the most widely used tests detecting factivity. The awkwardness in the continuation indicates that the speaker presupposes the truth of the propositional content in the embedded clause, which is 'that Mary came'. Examples with arguably non-factive predicates such as *omou* 'think' do not show the awkwardness, on the other hand.

Non-factive
(5)   a. John-wa [Mary-ga   kita]-to omotta
             J-TOP   M-NOM   came-C thought
             'John thought that Mary came.'
      b. -- demo, Mary-wa   kite-nai-yo
             but   M-TOP   came-NEG-AFF
             'But, Mary hasn't come.'

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[25] See Nakau (1973), Kuno (1973) and Josephs (1976) for discussion of which complementizer to use and its semantic and syntactic properties. One instance of *to*-clause with *sitteiru* 'know' is as follows, which is slightly strange, compared to the example with *koto*:
(i)   ?John-wa [Mary-ga kita]-to sit-tei-masu-ka?
(ii)   John-wa [Mary-ga kita]-koto-o sit-tei-masu-ka?
There is one piece of evidence that the status of the *to*-clause with the verb *sitteiru* 'know' is not quite the same as the *to*-clause with *omou* 'think.' To my ear, the wh-dependency across the clause with *to* and *sitteiru* is not so good.
(ii)   John-wa [dare-ga kita]-to omot-tei-masu-ka
(iii)   ??John-wa [dare-ga kita]-to sit-tei-masu-ka?
It is fairly well-known that adjunct wh-phrases cannot appear in various islands, but the environment where even argument wh-phrases cannot appear is extremely limited.

Coming back to exclamatives, regardless of which complementizer those factive verbs use to embed clauses, exclamatives are not acceptable under those verbs.[26]

Factive Predicates

(6) * John-wa [Mary-ga nante takusan-no gakusee-ni okotta
     J-TOP   M-NOM   WH   many-GEN   student-DAT angry
     noda-roo]-koto-o/to   sitteiru
     FOC-MOOD-FN-ACC/C   know
     'John knows how very many students Mary got angry at.'

(7) * John-wa [Mary-ga nante takusan-no gakusee-ni okotta
     J-TOP   M-NOM   WH   many-GEN   student-DAT angry
     noda-roo]-koto-o/to   oboeteiru
     FOC-MOOD-FN-ACC/C   know
     'John remembers how very many students Mary got angry at.'

   Another class of verbs that we are interested in includes *kitai-suru* 'expect,' and *nozomu* 'hope.' They are similar to factive verbs in the sense that they usually use a complementizer *koto* or *no* to embed a clause, but the complementizer *to* can sometimes appear.[27] Exclamatives are not licensed under these predicates.

Irrealis Predicates

(8) * John-wa [Mary-ga nante takusan-no hon-o   yomu
     J-TOP   M-NOM   WH   many-GEN   book-ACC read
     noda-roo]-koto-o/to   kitai-si-teiru
     FOC-MOOD-FN-ACC/C   expect-do-be
     'John expects how very many books Mary reads.'

(9) * John-wa [Mary-ga nante takusan-no hon-o   yomu
     J-TOP   M-NOM   WH   many-GEN   book-ACC read
     noda-roo]-koto-o/to   nozon-deiru
     FOC-MOOD-FN-ACC/C   hope-be
     'John hopes how very many books Mary reads.'

   The fourth type of verbs includes *omou* 'think' and *iu* 'say,' which can embed exclamatives. Those verbs use the complementizer *to* in order to embed a clause, and in general *koto* or *no* is not used.

Embedded Exclamatives Possible

(10) a. John-wa [Mary-ga nante takusan-no hon-o   yonda
         J-TOP   M-NOM   WH   many-GEN   book-ACC read
         noda-roo-ka]-to   omotteiru
         FOC-MOOD-Q-C   think-be
         'John thinks, how very many books Mary read.'

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[26] Raising the question, What is the parametric difference between English and Japanese?
[27] Similar to what we have seen with factive verbs, the distribution of the *to*-clause is quite limited. The *to*-complementizer seems to block the wh-dependency in general.
(i)   *John-wa [dare-ga kuru]-to kitai-si-tei-masu-ka?

b.　John-wa　[Mary-ga　　　nante　　takusan-no　　gakusee-ni　　okotta
　　J-TOP　　　M-NOM　　　WH　　　many-GEN　　student-DAT　　angry
　　noda-roo-ka]-to　itta
　　FOC-MOOD-Q-C　　said
　　'John said, how very many students Mary got angry at.'

Finally, emotive verbs such as *odoroku* 'be surprised' and *akireru* 'be amazed' can take an exclamative clause with the complementizer *to*. This class of verbs is different from "factive" verbs such as *sitteiru* 'know' in that they allow embedding a clause with the complementizer *to*. Recall that *sitteiru* 'know' does not use the complementizer *to* to embed a clause.

Embedded Exclamatives Possible

(11)　a.　John-wa　[Mary-ga　nante　　takusan-no　　gakusee-ni　　okotta
　　　　　　J-TOP　　　M-NOM　WH　　　many-GEN　　student-DAT　　angry
　　　　　　noda-roo]-to　　odoroiteiru
　　　　　　FOC-MOOD-C　　surprised-be
　　　　　　'John was surprised how very many students Mary got angry at.'
　　　b.　John-wa　[Mary-ga　nante　　takusan-no　　gakusee-ni　　okotta
　　　　　　J-TOP　　　M-NOM　WH　　　many-GEN　　student-DAT　　angry
　　　　　　noda-roo-to　　akireteita
　　　　　　FOC-MOOD-C　　surprised-be
　　　　　　'John was amazed how very many students Mary got angry at.'

The following table summarizes what we have seen so far. Given that the verbal particles in exclamatives are not compatible with *koto*-complementation, the ability for a predicate to use the complementizer *to* is an absolute requirement.

(12)　*Summary*

			Koto-comp	*To*-comp
A.	tazuneru	'ask'	No	Yes
	kiku	'ask'		exc = No
B.	sinziru	'believe'	Yes	Yes
	syutyoosuru	'claim'		exc = No
C.	sitteiru	'know'	Yes	Yes??
	oboeteiru	'remember'		exc = No
D.	kitaisuru	'hope'	Yes	Yes??
	nozomu	'wish'		exc = No
E.	omou	'think'	No	Yes
	iu	'say'		exc = Yes
F.	odoroku	'be surprised'	Yes	Yes
	akireru	'be amazed'		exc = Yes

There are two remarks to make for the distribution of embedded Japanese exclamatives. First, it is unexpected that factive predicates such as *sitteiru* 'know' cannot embed exclamatives, given that it has been observed that exclamatives can be embedded with factive predicates in languages like English. On the other hand, another class of factives

that we call "emotive" predicates, in fact, allow exclamatives to occur in the embedded clause. As we mentioned above, the difference between the two classes of verbs is that the emotive predicates are able to use the complementizer *to* to embed a clause. Assuming that the distribution of embedded exclamatives is regulated at least partially by the semantic selection of the predicate, it is expected that exclamatives in Japanese can be embedded with factive predicates. However, the inability of exclamatives to be embedded under factive predicates in Japanese can be related to an observation that exclamatives resist undergoing nominalization. In other words, due to the property of factive predicates that the nominal complementizer *koto* or *no* has to be used, and since exclamatives are not good at undergoing nominalization, embedding exclamatives with factive predicates is unacceptable in Japanese. The independent generalization that exclamatives resist nominalization arises from the following observation.[28]

Nominalization
(13) a. the proposition / fact that John met a tall guy
      b. the question which guy John met
      c. *the exclamation what a tall guy John met

In English, it is possible for a proposition and a question to be nominalized by adding an appropriate nominal head, but for some unknown reason, such an option is not available with an exclamation. Furthermore, there is a contrast in Japanese between interrogatives and exclamatives with respect to the ability for a case-maker to appear after the clause. The following set of data indicates that an interrogative clause can be marked with a case-maker, suggesting that an interrogative clause can be nominalized. On the other hand, such an option is never available with an exclamative clause.

Interrogatives
(14) a. John-wa [Mary-ga doko-e   itta]-ka(-o)   tazuneta
          J-TOP   M-NOM   where-to   went-Q-ACC   asked
          'John asked where Mary went.'
      b. John-wa [Mary-no ikisaki]-o   tazuneta
          J-TOP   M-GEN   destination-ACC asked
          'John asked Mary's destination.'

Exclamatives
(15) a. * John-wa [Mary-ga nante mazusii]-no-da-roo(-o)   nageita
            J-TOP   M-NOM   WH   poor-FIN-FOC-MOOD-ACC lamented
            'John lamented how very poor Mary is.'
      b.   John-wa [Mary-no mazusisa]-o   nageita
            J-TOP   M-GEN   poverty-ACC lamented
            'John lamented Mary's poverty.'

Another contrast between the two is that an interrogative clause can appear as a topic (marked with a topic marker), while an exclamative clause cannot.

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[28] I would like to thank Juan Uriagereka (p.c.) for insightful discussion on this point.

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Interrogatives

(16)   [Mary-ga doko-e   itta]-ka-wa   wakar-anai
        M-NOM   where-to went-Q-TOP   know-NEG
        'It is not known where Mary went.'

Exclamatives

(17)   * [Mary-ga   nante   mazusii]-no-da-roo-wa   odoroki-da
          M-NOM   WH   poor-FIN-FOC-MOOD-TOP   surprise-COP
        'It is surprising how very poor Mary is.'

If those properties of exclamative clauses indicate the extent to which the exclamative clause can be nominalized, it seems plausible to claim that the fact that they cannot occur with factive predicates does not have so much to do with some semantic restriction. In English, the factive predicates allow embedding without nominalization; hence they can embed an exclamative clause. On the other hand, Japanese factive predicates never allow embedding without nominalization. Therefore, an exclamative clause in Japanese cannot be embedded with factive predicates. This observation leads us to suggest that there is a parameter with respect to the category that the factive predicates select.

Some discussion seems to be in order with respect to the distribution of embedded exclamatives. Apparently, exclamative wh-clauses in Japanese can occur with verbs such as *omou* 'think' and *iu* 'say.' On the other hand, they cannot occur with verbs such as *sinziru* 'believe' and *syutyoosuru* 'claim.' In languages like English, none of these predicates can embed exclamatives. The difference between the two types of predicates can be that the "content" of belief and claim has to be semantically a proposition. On the other hand, the content of thought and saying has more freedom. It is possible to 'say' a question, an order, or an exclamation, but it is unlikely that it is possible to 'believe' a question, an order, or an exclamation. One observation that makes a distinction among those predicates is the following. When the "content" of *think* and *say* is asked, the wh-phrase *doo* 'how' is the most natural wh-phrase to be used, while when the "content" of *believe* and *claim* is asked, the wh-phrase *nani* 'what' sounds better than *doo* 'how.'[29]

With 'how'

(18)   a. Kimi-wa   doo   omotta-no?
            you-TOP   how   thought-Q
            'What do you think?'
        b. Kimi-wa   doo   itta-no?
            you-TOP   how   said-Q
            'What did you say?'

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[29] Juan Uriagereka (p.c.) suggests that one way to handle these facts could be that the *to*-clause with *think* and *say* in Japanese is a parataxis, while the *to*-clause with *believe* and *claim* in Japanese is a complement clause. See Torrego & Uriagereka (2002).

With 'what'
(19) a. ? Kimi-wa   nani-o   omotta-no?
         you-TOP   what-ACC   thought-Q
         'What do you think?'
      b. ? Kimi-wa   nani-o   itta-no?
         you-TOP   what-ACC   said-Q
         'What did you say?'

With 'how'
(20) a. ? Kimi-wa   doo   sinzi-teiru-no?
         you-TOP   how   believe-be-Q
         'What do you believe?'
      b. ? Kimi-wa   doo   syutyoo-suru-no?
         you-TOP   how   claim-be-Q
         'What do you claim?'

With 'what'
(21) a. Kimi-wa   nani-o   sinzi-teiru-no?
         you-TOP   what-ACC   believe-be-Q
         'What do you believe?'
      b. Kimi-wa   nani-o   syutyoo-suru-no?
         you-TOP   what-ACC   claim-be-Q
         'What do you claim?'

There is one more difference between those predicates. Recall that one way to classify predicates in Japanese is complementizer selection. *Sinziru* 'believe' and *syutyoosuru* 'claim' allows *koto*-complementizer, while *omou* 'think' and *iu* 'say' do not.[30]

Koto-clause only
(22)   John-wa [Mary-ga sono ryoori-o   tukutta]-koto-o   sinzi-teiru
       J-TOP   M-NOM   that   dish-ACC   made-FN-ACC   believe-BE
       'John believes that Mary made that dish.'

(23)   * John-wa [Mary-ga sono ryoori-o   tukutta]-koto-o   omot-teiru
       J-TOP   M-NOM   that   dish-ACC   made-FN-ACC   think-BE
       'John thinks that Mary made that dish.'

On the other hand, *omou* 'think' allows the *koto*-clause to appear as long as the *to*-clause also appears. *Sinziru* 'believe' also allows two clauses to appear at the same time.[31]

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[30] The situation is not so simple, since the complementizer selection also depends on the tense of the embedded clause.

[31] Other predicates such as *setumeesuru* 'explain' can take the *koto*-clause and the *to*-clause at the same time. One thing that is a little puzzling is that with *explain*, the order of the two clauses seems not to matter; either clause can come before the other. But, it seems that, with *think*, examples sound much better when the *koto*-clause precedes the *to*-clause.

Koto-clause and to-clause at the same time

(24) John-wa [Mary-ga   sono ryoori-o tukutta]-koto-o   [Susan-ga
     J-TOP   M-NOM   that dish-ACC made-FN-ACC   S-NOM
     tukuru-beki-datta]-to   omot-teiru
     make-should-COP.PAST think-BE

(25) John-wa [Mary-ga   sono ryoori-o tukutta]-koto-o   [Susan-ga
     J-TOP   M-NOM   that dish-ACC made-FN-ACC   S-NOM
     tukuru-beki-datta]-to   sinzi-teiru
     make-should-COP.PAST think-BE

A related observation is available in English, as well. *Believe* allows an NP complement, while *think* does not (unless the NP is a cognate NP, such as *I think a thought…*, which is a little peculiar, too).[32]

NP complement

(26) a. I believe this idea.
      b. ??I think this idea.

Also, a difference emerges when those predicates are nominalized.

Nominalization

(27) a. I have a belief that 2 + 2 = 4.
      b. ??I have a thought that 2 + 2 = 4.

It is quite fascinating that the apparently quite mysterious observation in Japanese has some link to the observation available in English. It is certainly true that, at this point, it is not exactly clear how the distribution of embedded exclamatives in Japanese is eventually explained, but it seems clear that the observed pattern is not something random.

2.2   Long Distance Dependency

This section discusses cases where the exclamative wh-phrase and its licensor are not in the same clause. As usual, the dependency is sensitive to various islands. The general picture is a bit complex. It seems that the class of verbs is not the only factor that is relevant for the long distance dependency, but the type of complementizer is also playing a role in determining whether a long distance dependency is possible. We will start by looking at cases where the long distance dependency is possible, and in the next section, we proceed to cases where the long distance dependency is impossible.

The first environment where the long distance dependency of exclamatives is allowed is bridge-verb context. As shown in the previous section, this class of verb selects for the complementizer *to*, and the exclamative wh-phrase in the embedded clause can be licensed by the licensor at the matrix clause.

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[32] I would like to thank Howard Lasnik (p.c.) for providing this fact.

(28) a. John-wa [Mary-ga nante takusan-no hon-o yonda]-to
        J-TOP M-NOM WH   many-GEN   book-ACC   read-C
        omot-teiru noda-roo
        think-be   FOC-MOOD
        'How very many books John thought that Mary read!'
    b. John-wa [Mary-ga nante takusan-no gakusee-ni okotta]-to
        J-TOP   M-NOM   WH   many-GEN   student-DAT angry-C
        iu   noda-roo
        say   FOC-MOOD
        'How very many students John says that Mary got angry at!'

The second case of a long distance dependency is found when verbs such as *sinziru* 'believe' or *syutyoo-suru* 'claim' use the *to*-complementizer. Recall that exclamative wh-clauses cannot occur as a complement of those predicates, but the following examples indicate that the dependency across those predicates is possible.

(29) a. John-wa [Mary-ga nante takusan-no gakusee-ni okotta]-to
        J-TOP   M-NOM   WH   many-GEN   student-DAT got.angry-C
        syutyoo-siteiru   noda-roo
        claim-be FOC-MOOD
        'How very many students John claims that Mary got angry at!'
    b. John-wa [Mary-ga nante takusan-no hon-o yonda]-to
        J-TOP   M-NOM   WH   many-GEN book-ACC   read-C
        sinzi-teiru   noda-roo
        believe-be   FOC-MOOD
        'How very many papers John believes that Mary read!'

Finally, with verbs like *kitaisuru* 'hope' or *nozomu* 'wish,' the long distance dependency is possible with the *koto*-complementizer, though they do not in general belong to the class of bridge verbs.

(30) a. John-wa [Mary-ga nante takusan-no hon-o yomu]-koto-o
        J-TOP   M-NOM   WH   many-GEN book-ACC   read-FN-ACC
        kitai-si-teiru   noda-roo
        hope-do-be   FOC-MOOD
        'How very many books John hopes that Mary reads!'
    b. John-wa [Mary-ga nante takusan-no hon-o yomu]-koto-o
        J-TOP   M-NOM   WH   many-GEN book-ACC   read-FN-ACC
        nozon-deiru   noda-roo
        wish-do-be   FOC-MOOD
        'How very many books John wishes that Mary reads!'

2.3   Island Effects

2.3.1   Factive Island

One environment where the long distance dependency is blocked can be classified as factive island cases (Ross 1984, Cinque 1990, Hegarty 1992, etc.). It has been shown in the literature that argument wh-phrases can appear inside a *koto*-clause, but adjunct wh-phrases *naze* 'why' cannot (Lasnik & Saito 1984:244, Fukui 1988:509).[33] The basic paradigm using the verb *okoru* 'get angry' is as follows.

Factive island (Lasnik & Saito 1984: 244)

(31)   a.   [Taroo-ga   nani-o   te-ni ireta]-koto-o   sonnani   okot-teiru-no
             T-NOM   what-ACC got-FN-ACC   so   get.angry-be-Q
             'What are you getting angry at that Taro got?'

         b. * [Taroo-ga   naze   sore-o   te-ni ireta]-koto-o   sonnani   okot-teiru-no
             T-NOM   why   it-ACC   got-FN-ACC   so   got.angry-be-Q
             'Why are you getting angry at that Taro got it?'

The following example illustrates that the wh-dependency of exclamatives across the *koto*-clause with factive verbs is not allowed.

Factive island

(32)   ?? John-wa   [Mary-ga   nante   takusan-no   kaisya-o
             J-TOP   M-NOM   WH   many-GEN   company-ACC
             keeee-siteiru]-koto-o   oboe-teiru-noda-roo
             manage-be-FN-ACC   remember-be-FOC-MOOD
             'What a lot of companies John remembers that Mary manages!'

A similar observation is also available with wh-interrogatives with *how many*.

(33)   ?? John-wa   [Mary-ga   ikutu-no   kaisya-o
             J-TOP   M-NOM   how.many-GEN   company-ACC
             keeee-siteiru]-koto-o   oboe-tei-masu-ka?
             manage-be-FN-ACC   remember-be-POLITE-Q
             'How many companies does John remember that Mary manages?'

(34)   ?? John-wa   [Mary-ga   ikutu-no   pasokon-o
             J-TOP   M-NOM   how.many-GEN   computer-ACC
             mot-teiru]-koto-o   sit-teiru-masu-ka?
             own-be-FN-ACC   know-be-POLITE-Q
             'How many computers does John know that Mary owns?'

---

[33] They did not use the term "factive", but the case is classified as a complex NP. I use the term "factive" since there is a case where dependency across the *koto*-clause is possible with verbs such as *kitaisuru* 'hope' and *nozomu* 'wish'. Note further that the adjunct wh-phrase *naze* 'why' can establish a long distance dependency across the *koto*-clause with those verbs. Argument wh-phrases can do the same.
(i)   John-wa [dare-ga yattekuru]-koto-o nozonda-no-desu-ka?
(ii)   John-wa [Mary-ga naze yattekuru]-koto-o nozonda-no-desu-ka?

The *koto*-complementizer is also found with verbs such as *odoroku* 'surprise' or *akireru* 'amazed.' The dependency of the wh-phrase *nante* is blocked across those predicates. This observation is also carried over to comparable interrogative *wh*-clauses, and the wh-phrase *how many* cannot establish a dependency across the same environment.

Exclamatives across koto

(35) ?? John-wa [Mary-ga nante kantan-na mondai-o toita]-koto-ni
     J-TOP   M-NOM   WH   easy-be   problem-ACC solved-FN-DAT
     odoroita-noda-roo
     surprise-FOC-MOOD
     'What an easy problem John got surprised that Mary solved!'

(36) ?? John-wa [Mary-ga nante rippa-na okonai-o sita]-koto-ni
     J-TOP   M-NOM   WH   respectable-be behavior-ACC did-FN-DAT
     akire-teiru-noda-roo
     amaze-be-FOC-MOOD
     'What a respectable behavior John got amazed that Mary did!'

Interrogatives across koto

(37) ?? John-wa [Mary-ga ikutu-no pasokon-o mot-teiru]-koto-ni
     J-TOP   M-NOM   how.many-GEN computer-ACC own-be-FN-DAT
     odoroita-no-desu-ka?
     surprise-FN-POLITE-Q
     'How many computers John got surprised that Mary owns?'

(38) ?? John-wa [Mary-ga keeba-ni ikura tukatta]-koto-ni
     J-TOP   M-NOM   horse.racing-DAT how.much spent-FN-DAT
     akireta-no-desu-ka?
     amazed-FN-POLITE-Q
     'How much money John got amazed that Mary spent for horse racing?'

The following example illustrates that the *koto*-clause with *surprise* is a factive clause.

Factive test

(39) John-wa [Mary-ga sono kuruma-o katta]-koto-ni odoroita
     J-TOP   M-NOM   that car-ACC   bought-FN-DAT surprised
     'John got surprised that Mary bought that car.'
     -- # demo, Mary-wa sono kuruma-o katte-nai-desu
        but M-TOP   that car-ACC   bought-NEG-COP.POLITE
        '… but, Mary did not buy that car.'

The awkwardness of the continuation shown above indicates that the speaker himself cannot negate the propositional content of the embedded *koto*-clause, since it would be a direct contradiction with what he said in the first sentence. Furthermore, in contrast with the *koto*-clause, the *to*-clause with verbs like *surprise* does not have the same factive property. The speaker can negate the propositional content of the embedded clause.

Factive test

(40)   John-wa   [Mary-ga   sono   kuruma-o   katta]-to   odoroita
        J-TOP   M-NOM   that   car-ACC   bought-C   surprised
        'John got surprised that Mary bought that car.'
        --   demo,   Mary-wa   sono   kuruma-o   katte-nai-desu
              but   M-TOP   that   car-ACC   bought-NEG-COP.POLITE
              '… but, Mary did not buy that car.'

2.3.2   Relative Clause Island

Relative clauses do not constitute an island for the dependency of exclamative wh-phrases. The following examples are acceptable.

(41)   John-wa   [Mary-ga   nante   taisetuni   siteita   piano-o   kowasite
        J-TOP   M-NOM   nante   important   did   piano-ACC   broke
        simatta   no-da-roo
        did   FIN-FOC-MOOD
        'John broke the piano [that Mary consider (it) how very precious] !'

(42)   John-wa   [Mary-ga   nante   taisetuna   yubiwa-o   ireteita   hako-o
        J-TOP   M-NOM   nante   important   ring-ACC   contain   box-ACC
        nakusite   simatta   no-da-roo
        lost   did   FIN-FOC-MOOD
        'John lost the box that contains the ring [that Mary consider (it) how very precious] !'

(43)   Sono   sensee-wa   [gakusee-ga   nante   issyookenmee   kaita]
        that   teacher-TOP   student-NOM   nante   hard   wrote
        ronbun-o   nakusite   simatta   no-da-roo
        paper-ACC   lost   did   FIN-FOC-MOOD
        'The teacher had lost the paper [the student wrote how very hard]!'

Those examples are acceptable, discounting the fact that they are rather complex. In other words, they are much better than those containing an adjunct wh-phrase *naze* 'why' inside the relative clause. As has been widely observed, argument wh-phrases inside the relative clause can take a matrix scope in wh-interrogatives in Japanese (see Nishigauchi 1986, Watanabe 1992, among many others).

2.3.3   Wh-Island

Another case in which the dependency between the exclamative wh-phrase and the licensors is blocked is the case of wh-islands (ref. Chomsky 1973). In the literature (e.g., Nishigauchi 1986, 1990, Watanabe 1992a, 1992b, Takahashi 1993), wh-island effects have been reported when the dependency crosses clauses marked with the Q-particle, though judgments vary. For example, Nishigauchi (1999:271-2) reports that (44) and (45)

can only be interpreted as yes-no questions; the wh-phrase *dare* 'who' or *nani* 'what' in the embedded clause cannot take a matrix scope.[34]

Nishigauchi (1999)
(44)   John-wa   [Mary-ga   dare-o   turetekuru]-ka   ii-masi-ta-ka
       J-TOP   M-NOM   who-ACC   bring-Q   say-POLITE-PAST-Q
       'Did John say who Mary will bring?'
       '*Who did John say whether Mary will bring?'

(45)   Bill-wa   [John-ga   dare-ni   nani-o   ageta]-ka   oboete-imasu-ka
       B-TOP   J-NOM   who-DAT   what-ACC   gave-Q   remember-POLITE-Q
       'Does Bill remember what John gave to whom?'
       '*What does Bill remember to whom John gave?'
       '*Whom does Bill remember what John gave to?'

On the other hand, Watanabe (1992a) observed that in example (46), which is almost the same as (45), it is marginally acceptable for the higher wh-phrase to take the matrix scope, while it is impossible for the lower one to do so.

Watanabe (1992a)
(46)   Kimi-wa   [dare-ga   dono   hon-o   tosyokan-kara   karidasita]-ka
       you-TOP   who-NOM   which book-ACC   library-from   checked.out-Q
       siritai-no
       wonder-Q
       '??For which person x, you want to know which book x checked out from the library?'
       '*for which book y, you want to know who checked out y from the library?'

Furthermore, Takahashi (1993) provides the following observation.[35]

Takahashi (1993)
(47)   Taro-wa   [Hanako-ga nani-o   tabeta]-ka   siritagatteiru-no?
       T-TOP   H-NOM   what-ACC   ate-Q   wonder-Q
       'Does Taro wonder what Hanako ate?'
       'What does Taro wonder whether Hanako ate?'

One observation by Takahashi (1993), to which we pay special attention, is that when the wh-phrase in the embedded clause undergoes scrambling, the ambiguity disappears, and the resulting example can only be interpreted as the matrix wh-question.

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[34] Also, it has been observed by various researchers that wh-island effects are considerably weaker if the embedded interrogative complementizer is not *ka*, but *ka-doo-ka*.

[35] Takahashi's (1993) "lack of wh-island effect" has been extensively discussed recently by a series of work by Kitagawa (Deguchi and Kitagawa 2002, Kitagawa 2005), Ishihara (2002?). Those authors claim that prosodic contour determines the ambiguity observed by Takahashi. It is impossible to review the details of their quite innovative approach here, unfortunately.

Long distance scrambling
(48)   Nani-o   Taro-wa [Hanako-ga   t   tabeta]-ka   siritagatteiru-no?
         what-ACC   T-TOP   H-NOM   ate-Q   wonder-Q
         'What does Taro wonder whether Hanako ate?'

With this background, the following examples show that the dependency of wh-exclamatives across a clause with the Q-particle is not good.

Wh-island effects in exclamatives
(49)   ?? John-wa [Mary-ga   nante   takusan-no hito-ni   paatii-de at-ta
             J-TOP   M-NOM   WH   many-GEN   man-DAT party-at meet-PST
             ka]   siritagat-teiru-no-da-roo
             whether wonder-be-FIN-FOC-MOOD
             'What a lot of people John wonders whether Mary met at the party!'

(50)   ?? John-wa [sono sensee-ga   nante takusan-no gakusee-ni   C-o
             J-TOP   that teacher-NOM WH   many-GEN   student-DAT C-ACC
             ageta]-ka   siritagatteiru-no-da-roo
             gave-Q   wonder-be-FOC-MOOD
             'What a lot of students John wonders whether Mary gave a C to!'

On the other hand, when the exclamative wh-phrase undergoes long distance scrambling outside of the embedded clause, examples become acceptable.

Long distance scrambling
(51)   Nante   takusan-no hito-ni₂   John-wa   [Mary-ga   t₂ paatii-de   at-ta
         nante   many-GEN   man-DAT J-TOP   M-NOM   party-at   meet-PST
         ka]   siritagatteiru   no-da-roo
         whether wonder   FIN-FOC-MOOD
         `What a lot of people John wonders whether Mary met at the party!'

(52)   Nante   takusan-no gakusee-ni₂   John-wa [sono sensee-ga   t₂ C-o
         WH   many-GEN   student-DAT J-TOP   that teacher-NOM   C-ACC
         ageta-ka siritagatteiru-no-da-roo
         gave-Q   wonder-be-FOC-MOOD
         'What a lot of students John wonders whether Mary gave a C to!'

3.   Interaction with Interrogatives and Feature Checking

In this section, we propose a licensing mechanism of exclamative wh-phrases, under current minimalist assumptions (Chomsky 1995, 1999, 2000). We have already seen that the Mood head and Focus head are playing a particularly important role in licensing exclamative wh-phrases, and we claim that exclamative wh-phrases bear at least two features: [focus] and [mood]. On the other hand, we claim that interrogative wh-phrases bear a slightly different set of features, as summarized below.
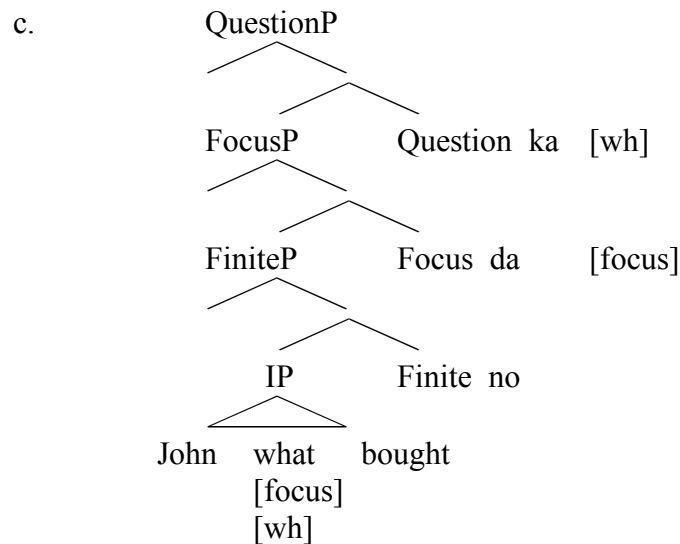
Feature sets

(53)　a.　exclamative wh-phrase:　[focus] [mood]
　　　b.　interrogative wh-phrase:　[focus] [wh]

Following den Dikken (2003), we assume that those wh-phrases bear a [focus] feature, which has to be checked against a focus head. In addition, as we have claimed, exclamative wh-phrases bear a mood feature, while interrogative wh-phrases do not. We do not know any empirical data suggesting that interrogative wh-phrases interact with the mood head as exclamative wh-phrases do. Interrogative wh-phrases, instead, bear a wh-feature, which must be checked against the Question head. In Japanese, it is realized as the particle *ka*.

　　　Furthermore, I argue that FocusP is always involved in licensing interrogative wh-phrases, although the head of FocusP is not always overtly realized in wh-interrogatives. For example, interrogative wh-phrases are licensed in the following way:

Wh-interrogatives

(54)　a.　John-wa　nani-o　kai-masi-ta-ka
　　　　　J-TOP　　　what-ACC　　buy-POLITE-PAST-Q
　　　b.　John-wa　nani-o　kat-ta-no-desu-ka
　　　　　J-TOP　　　what-ACC　　buy-PAST-FIN-FOC-Q
　　　　　'What did John buy?'

　　　c.　　　　　　　QuestionP

　　　　　　　　FocusP　　　Question ka　[wh]

　　　　　　　FiniteP　　　Focus da　　[focus]

　　　　　　IP　　　Finite no

　　　　John　what　　bought
　　　　[focus]
　　　　[wh]

At this point, it suffices to say that the wh-phrase *what* undergoes covert movement (either a phrase or a feature) into [Spec,FocP], where the [focus] feature can be checked, and subsequently, it moves to [Spec,QuestionP] in order to check the [wh] feature.

　　　Licensing wh-exclamatives works in a similar way. The exclamative wh-phrase undergoes covert movement into [Spec,FocP], where the [focus] feature is checked, and further moves to [Spec,MoodP] to check the [mood] feature.

Wh-exclamatives
(55) a. John-wa   nante   ookina   kuruma-o   katta-no-da-roo
         J-TOP   NANTE   big   car-ACC   bought-FIN-FOC-MOOD
      'What a big car John bought!'

   b.   MoodP

         FocusP   Mood roo   [mood]

         FiniteP   Focus da   [focus]

            IP   Finite no

      John   what a big car bought
              [focus]
              [mood]
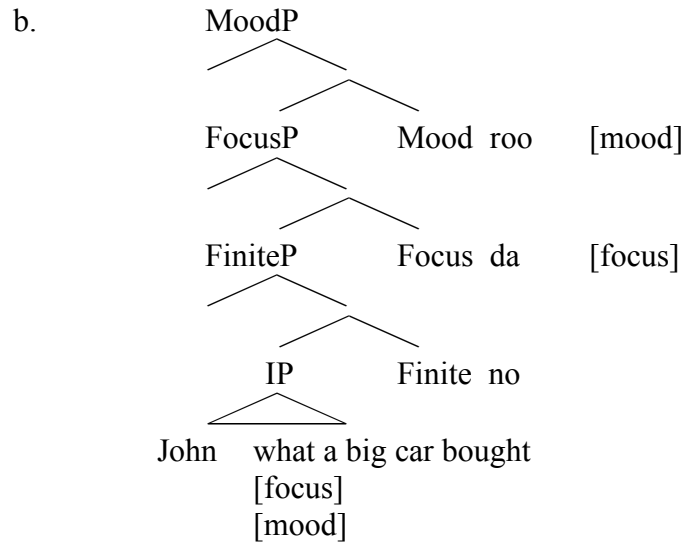
In section 2.3.3, we have seen that the dependency between the exclamative wh-phrase and its licensor is blocked by an intervening wh-clause. Furthermore, when the exclamative wh-phrase undergoes long distance scrambling, the example is much better.

Interrogative wh-clause island
(56) a. ?? John-wa   [Mary-ga   nante   takusan-no   gakusee-ni   dono
            J-TOP   M-NOM   NANTE   many-GEN   student-DAT which
            hon-o   ageta]-ka   siritagatteiru-no-da-roo
            book-ACC   gave-Q   wonder-FIN-FOC-MOOD
   b. Nante   takusan-no gakusee-ni   John-wa   Mary-ga   dono
       NANTE   many-GEN   student-DAT J-TOP   M-NOM   which
       hon-o   ageta]-ka   siritagatteiru-no-da-roo
       book-ACC   gave-Q   wonder-FIN-FOC-MOOD
       'What a lot of students John wonders which book Mary gave!'

A similar contrast is observed when the dependency between the interrogative wh-phrase and its licensor crosses a wh-exclamative clause.

Exclamative wh-clause island
(57) a. ?? John-wa [Mary-ga dono   gakusee-ni   nante   hidoi   seeseki-o
            J-TOP   M-NOM   which   student-DAT   NANTE   bad   grade-ACC
            tuketa-no-da-roo]-to   omotteiru-no
            gave-FIN-FOC-MOOD-C   think-Q
   b. Dono   gakusee-ni   John-wa [Mary-ga nante   hidoi   seeseki-o
       which   student-DAT J-TOP   M-NOM   NANTE   bad   grade-ACC
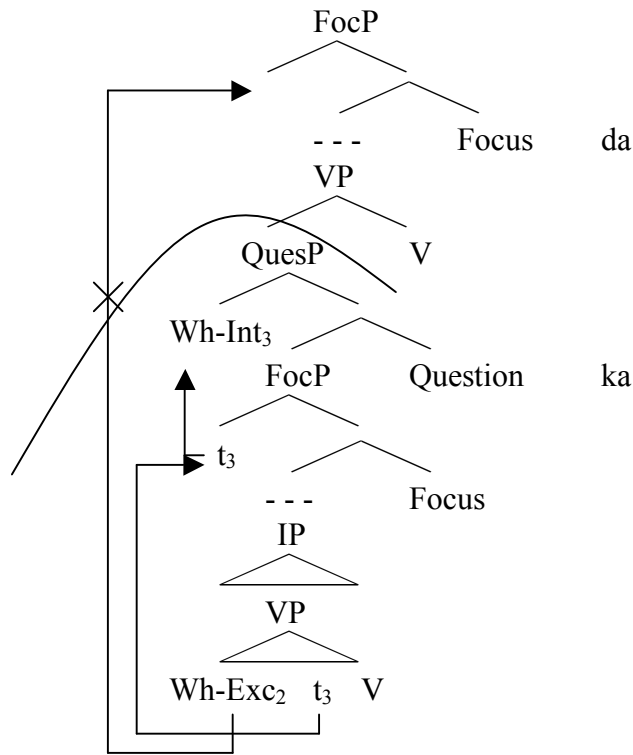   tuketa-no-da-roo]-to omotteiru-no

gave-FIN-FOC-MOOD-C think-Q
'Which student does John think, what a bad grade Mary gave to?'

Finally, it should be noted that the (a) examples in (56) and (57) are quite degraded, but if the order between the two wh-phrases is reversed, the examples are worse.

(58)　a.　* John-wa [Mary-ga dono hon-o　　nante takusan-no gakusee-ni
　　　　　　J-TOP　　M-NOM　which book-ACC　wh　　many-GEN　student-DAT
　　　　ageta]-ka　　siritagatteiru-no-da-roo
　　　　gave-Q　　　wonder-FIN-FOC-MOOD
　　　　'How very many people John wonders which book Mary gave!'
　　　b.　* John-wa [Mary-ga nante hidoi seeseki-o　dono　　gakusee-ni
　　　　　　J-TOP　　M-NOM　NANTE bad　　grade-ACC　which　student-DAT
　　　　tuketa-no-da-roo]-to　　　　omotteiru-no
　　　　gave-FIN-FOC-MOOD-C　　　think-Q
　　　　'Which student did John think what a bad grade Mary gave?'

The parallelism between (56) and (57) calls for a uniform account. What is common between the interrogative wh-clause and exclamative wh-clause is the presence of Focus projection and either the Question Phrase or the Mood Phrase, according to our hypothesized functional structure. In (56), the in-situ interrogative wh-phrase undergoes covert movement to [Spec,QuestionP], and this is the position where the interrogative wh-phrase takes scope. On the other hand, the scope position for the exclamative wh-phrase is situated at the matrix clause. It is conceivable that in (56a), the presence of the interrogative wh-phrase in [Spec,QuestionP] creates a quantifier induced barrier for the exclamative wh-phrase; therefore, the example is not acceptable, as illustrated in (59). On the other hand, when the exclamative wh-phrase undergoes overt movement, via scrambling, to a position high enough to cross the Question Phrase, there is no problem for the exclamative wh-phrase to establish the legitimate dependency with its licensor at the matrix clause. That accounts for the contrast in (56).

(59)   Quantifier induced barrier

```
                              FocP
                            /      \
                         /           \
                      - - -        Focus      da
                      VP
                    /    \
                QuesP      V
              /      \
         Wh-Int₃       \
                     FocP      Question      ka
                    /    \
               t₃         \
                        - - -      Focus
                        IP
                       /  \
                      VP
                    /    \
              Wh-Exc₂  t₃   V
```

It is possible to employ a similar story for the contrast in (57). The position that the in-situ exclamative wh-phrase has to take scope in is the embedded Mood Phrase. Then, it undergoes covert movement to [Spec,MoodP]. Now, the in-situ interrogative wh-phrase has to take a matrix scope, since that is the only available position for it to be licensed. In (57a), the presence of the exclamative wh-phrase in [Spec,MoodP] creates a quantifier induced barrier for the interrogative wh-phrase. Therefore, the interrogative wh-phrase cannot be licensed properly, and the example is not good. When it undergoes scrambling to the position above Mood Phrase, there is no intervening element between the scrambled position and the matrix licensor.

66

(60)   Quantifier induced barrier

```
                        FocP
                       /    \
                      /      /\
                  - - -    Focus      da
                  VP
                 /  \
             MoodP   V
            /    \
       Wh-Exc₃   /\
            FocP    Mood  roo
           /  \
       t₃   /\
          - - -    Focus
          IP
         /__\
          VP
         /__\
     Wh-Int₂  t₃  V
```
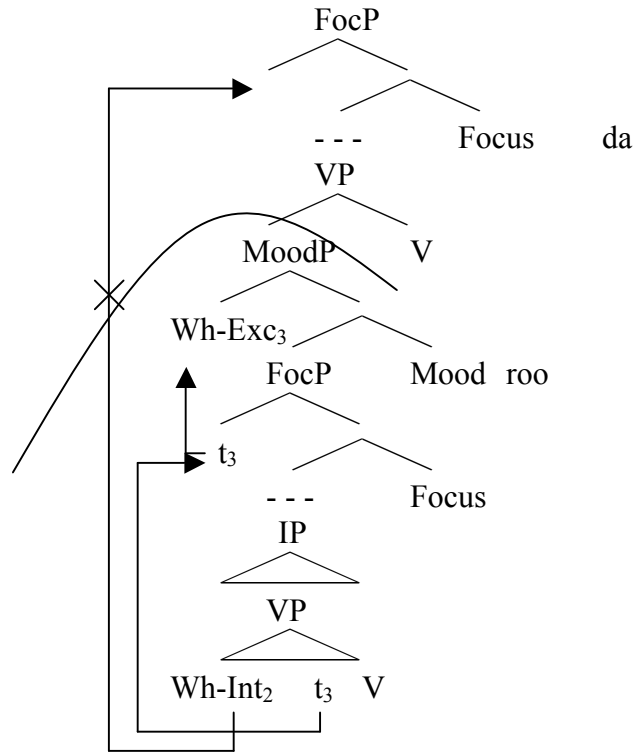
Recall that the distinction between the overt / covert dichotomy is the crucial ingredient for the original observation by Beck (1996). Barriers created by a scope-bearing element are only applicable for covert movement, and the restriction is lifted for overt movement. One could assume that the overt movement (scrambling, in this case) is driven by a different feature than the feature that is relevant for creating a barrier. Once we take the contrast in (56) and (57) seriously, it is quite conceivable that we are dealing with the intervention effect (see Takahashi 1990, Pesetsky 2000, among many others).

There is one paradigm in which the examples are completely unacceptable regardless of the order of the interrogative and exclamative wh-phrases.

(61)   a. * Mary-wa   dono   hito-ni   nante   ookii   keeki-o
            M-TOP   which person-DAT   NANTE big   cake-ACC
            tabe-sase-ta-no-da-roo-ka
            eat-CAUSE-PAST-FIN-FOC-MOOD-Q
            'What a big cake which person Mary make eat!?'
        b. * Mary-wa   nante   ookii   keeki-o   dono   hito-ni
            M-TOP   NANTE big   cake-ACC   which person-DAT
            tabe-sase-ta-no-da-roo-ka
            eat-CAUSE-PAST-FIN-FOC-MOOD-Q

According to our account so far, there seems to be no problem with respect to how features are checked in both wh-phrases. Let us assume that one Focus head can check [focus] feature on both wh-phrases; since we have been assuming covert phrasal

movement, let us say that there is more than one specifier. This is necessary, and it is independent from this particular paradigm since we need to be equipped with a mechanism that allows multiple wh-interrogatives and multiple wh-exclamatives. Now, in (61a), the interrogative wh-phrase undergoes covert movement to [Spec,QuestionP] (through [Spec,FocusP]). This satisfies all the requirements of the interrogative wh-phrase, both [focus] and [wh] features being checked. It is then also possible to raise the exclamative wh-phrase to [Spec,MoodP] (again through [Spec,FocusP]). These steps of movement correctly check all the features ([focus] and [mood] features) on the exclamative wh-phrase. Therefore, the derivation should converge; but the examples are not acceptable.

We argue that the problems with examples in (61) are not so much to do with the feature checking, but the requirement of clause-typing. Let us make the following minimal assumptions about clause-typing:

(62) a. A clause is typed as "interrogative" if an interrogative wh-phrase takes scope in that clause.
      b. A clause is typed as "exclamative" if an exclamative wh-phrase takes scope in that clause.

This gives us a straightforward answer to the unacceptability of examples in (61). In those examples, both interrogative wh-phrases and exclamative wh-phrases take scope in the same clause. Following Chomsky's (1995:293) claim that a clause has to be unambiguously typed, we can account for the examples in (61) by saying that those examples are ambiguous between interrogative and exclamative clauses.

4.   Exclamative wh-phrase: *nante*

Just as English exclamatives come with *how* and *what* forms, examples in (63)-(67) illustrate five sub-types of exclamatory sentences in Japanese. In each sub-type a different kind (structurally or categorically) of phrase is being exclaimed.

Various examples of exclamatives
(63)   Kanozyo-wa [nante   utukusii   zyosei]-na   no da roo
       she-TOP   wh   beautiful   lady-COP   EXC
       'What a beautiful lady she is!'   Adjective within NP

(64)   Konohana-wa   [nante   utukusii]   no da roo
       this flower-TOP   wh   beautiful   EXC
       'How beautiful this flower is!'   Predicate Adjective

(65)   Konohana-wa   [nante   kirei]-na   no da roo
       this flower-TOP   wh   beautiful-COP EXC
       'How beautiful this flower is!'   Predicate Adj. Noun

(66)   Kanozyo-wa [nante   kakkoii   kuruma]-ni notteiru   no da roo
       she-TOP   wh   nice   car-DAT   drives   EXC
       'What a nice car she drives!'   Adjective within NP

(67) Kanozyo-wa [nante hayaku] hasiru no da roo
      she-TOP   wh   fast   runs   EXC
      'How fast she runs!'   Adverb

In this section, differences observed among the five types illustrated in (63)-(67) are mostly set aside; we concentrate on the general licensing conditions of exclamatory sentences in Japanese.

4.1   Variations of the exclamative *wh*-phrase

Exclamatory sentences in Japanese use the *wh*-phrase *nante*. Properties of the exclamative *wh*-phrase are investigated in this section. After illustrating several properties of the exclamative *wh*-phrase in Japanese, we propose an analysis of the structure of DP, which straightforwardly accounts for the mentioned properties of Japanese exclamatory sentences.

Regarding the *wh*-phrase in exclamatives, there is an apparent optionality regarding the choice of *wh*-phrase in exclamatives.

Variation in the exclamative *wh*-phrase
(68) John-wa [**nanto-yuu / nante / nanto** ookina kuruma]-o katta   no da roo
      J-TOP   wh   big   car-ACC   bought   EXC
      'What a big car John bought!'

Here, three different forms of *wh*-phrases in exclamatives are listed. All three of them work properly in exclamatives; however, when examined carefully, certain differences emerge, which lead us to conclude that there is a particular position in which each *wh*-phrase must occur. Consider the following sets of examples:

(69) a.   Kanozyo-wa [DP **nanto-yuu** utukusii zyosei]-na   no da roo
           she-TOP   wh   beautiful lady-COP   EXC
           'What a beautiful lady she is!'
      b. * Kono hana-wa   [AP **nanto-yuu**   utukusii]   no da roo
           this   flower-TOP   wh   beautiful   EXC
           'How beautiful this flower is!'
      c. * Kanozyo-wa [AdvP **nanto-yuu** hayaku]   hasiru no da roo
           she-TOP   wh   fast   runs   EXC
           'How fast she runs!'

(70) John-wa   [DP **nanto-yuu**   otoko]-na no da roo
      J-TOP   wh   man-COP   EXC
      'What a man John is!'

Note that *nante* can occur in all cases as we have seen previously, but the data above illustrate that the distribution of *nanto-yuu* is certainly restricted. While *nanto-yuu* can occur with an adjective within a DP in (69a), *nanto-yuu* cannot occur with a predicative adjective (69b) or an adverb (69c). One obvious characteristic feature in the observed contrast is the existence of a DP. That leads us to suggest that *nanto-yuu* must be attached

to a nominal projection (or an extended projection of NP; see Grimshaw 1997. cf. Abney 1987). In fact, *nanto-yuu* can appear without any adjective within a DP, as shown in (70).

The distribution of *nanto*, on the other hand, is different from the distribution of *nanto-yuu*. First, *nanto* can occur where there is no nominal projection.

(71) a. Kanozyo-wa [**nanto** utukusii zyosei]-na no da roo
        she-TOP   wh   beautiful lady-COP   EXC
        'What a beautiful lady she is!'
   b. Kono hana-wa [**nanto** utukusii] no da roo
        this   flower-TOP   wh   beautiful   EXC
        'How beautiful this flower is!'
   c. Kanozyo-wa [**nanto** hayaku] hasiru no da roo
        she-TOP   wh   fast   runs   EXC
        'How fast she runs!'

(72) * John-wa [**nanto** otoko]-na no da roo
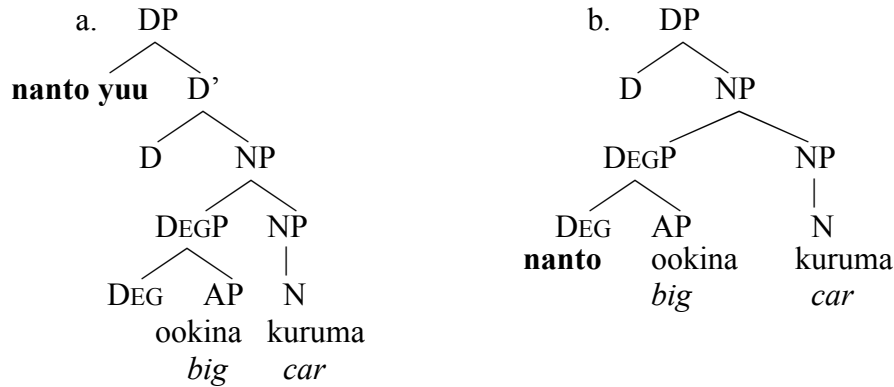   J-TOP   wh   man-COP   EXC
      'What a man John is!'

It seems that the distribution of *nanto* and *nante* partially overlaps. However, the example in (72) shows that *nanto* requires the presence of an adjective or adverb. When there is no adjective or adverb, examples are unacceptable, which suggests that *nanto* must be attached to some non-nominal projection, namely an adjective phrase or an adverb. The example in (72) is unacceptable since there is no projection to which *nanto* can attach. The above data is summarized in the following table, which suggests that the distribution of *nanto-yuu* and *nanto* is different. Furthermore, since *nante* can appear in the widest distribution, it seems to be that *nante* is somewhat ambiguous between the two forms.

(73) Summary

nanto-yuu	nante	nanto
*ADVERB/ADJECTIVE	ADVERB/ADJECTIVE	ADVERB/ADJECTIVE
NOUN	NOUN	*NOUN

Based on the distribution of those *wh*-phrases, we argue that two *wh*-phrases are placed in a different position and that they are different categories. Specifically, we propose the following structure in order to account for the properties (see Abney 1987, Corver 1997a, Svenonius 1994).

(74)   *Two wh-phrases in different positions*

a.
```
        DP
       /  \
  nanto yuu  D'
            /  \
           D    NP
               /  \
            DEGP   NP
            /  \    |
         DEG   AP   N
         ookina  kuruma
          big     car
```

b.
```
        DP
       /  \
      D    NP
          /  \
       DEGP   NP
       /  \    |
     DEG   AP   N
    nanto ookina kuruma
           big    car
```

Given that the presence of *nanto* depends on the presence of an adjective or adverb, a natural characterization is that *nanto* is a head of a degree phrase, as in (74b), that selects an adjective or an adverb (Corver 1997a).

5.   Semantics

5.1   Two degrees must be 'related'

Having reviewed the properties of exclamatives in the previous section, let us return to the contrast observed between English and Japanese, namely, the availability of multiple exclamatives. In the introduction, we saw that Japanese allows multiple exclamatives while English does not. In this section, we discuss properties of multiple exclamatives in Japanese. Examples are repeated from the introduction.

Multiple *wh*-exclamatives in Japanese
(75)   a. [**nante** osanai kodomo]-ga [**nante** muzukasii mondai]-o   toita
              wh   young   child-NOM   wh   difficult   problem-ACC solved
            no da roo
            EXC
            'What a young child solved what a difficult question!'
        b. John-wa [**nante** ookina   hambaagaa]-o [**nante** hayaku] tabeta
            J-TOP   wh   big   hamburger-ACC wh   fast   ate
            no da roo
            EXC
            'How fast John ate what a big hamburger!'

An observation is that the sentence in (75b) seems to obey a certain pragmatic condition. Given the factive nature of exclamatives and general knowledge of the world, in order for (75b) to be felicitous, the speaker must have a belief that it takes time to eat a big hamburger. Furthermore, the informal meaning of (75b) is the following: 'Given the degree to which the hamburger is *d*-big, the degree to which the time John spent eating the hamburger is *d'*-short is extreme, and given the degree to which the time is *d'*-short, the degree to which the hamburger is *d*-big is extreme.' What should be noted here is that in multiple exclamatives, there at least there two degrees exclaimed. The informal

meaning of the multiple exclamative shows that multiple exclamatives satisfy the condition that two degrees must be "related." Specifically, the exclamation of Degree A is relative to Degree B, and the exclamation of Degree B is relative to Degree A. The following example suggests that when such a condition cannot be obtained, multiple exclamatives are unacceptable, even in Japanese.

Degrees are NOT related
(76) * [**nante** kitanai ie]-ga   [**nante** tookuni] mieru   no da roo
          wh   dirty house-NOM   wh   far   can.see EXC
        'What a dirty house can be seen how far!'

Related, but the "direction" is not right
(77) * [**nante** takai biru]-ga   [**nante** tokaini] aru   no da roo
          wh   tall building-NOM wh   urban   exist   EXC
        'What a tall building stands in what an urban area!'

Related
(78) [**nante** takai biru]-ga   [**nante** inakani] aru   no da roo
         wh   tall building-NOM wh   rural   exist   EXC
       'What a tall building stands in what a rural area!'

Example (76) is very awkward. One exclamation is concerned with the "dirty-ness" of the house, and the other is concerned with the distance from which one can see the house. The awkwardness in (76) seems to stem from the fact that it is not easy to make an obvious connection between the "dirty-ness" of the house and the distance from which one can see the house. In other words, it is not the case that the dirty house is easy to see from the distance or hard to see. It is just that the "dirty-ness" of the house has nothing to do with the distance. In such a case, the condition mentioned above can never be satisfied, so the example is quite degraded. The example in (77) is again awkward but is unacceptable for a different reason. It is about exclamation with regard to the height of the building and how urban the town is. Apparently, it is not hard to relate the existence of tall buildings and the kind (urban or rural) of town under consideration. However, what is unnatural here is not what is related to each other, but how they are related to each other. Given (77), it seems that the speaker was quite surprised to see a tall building in an urban area, say New York City. Who would be surprised to see a tall building (or many, as a matter of fact) in Manhattan? In fact, having numerous tall buildings is one of the defining characteristics of an urban area. In general, people expect to see tall buildings in such an area; the example in (78) is good and natural since the speaker is surprised to see a tall building in a rural area. It is reasonable since people do not expect to see tall buildings in a rural area. Thus, the contrast between (77) and (78) suggests that how two degrees are related to each other is another important condition to be met in multiple exclamatives.[36]

Another piece of support for this "relatedness" comes from the following observation. When the example in (78) is uttered, it seems that the height of the building

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[36] I have not yet come up with a formal account for this observation. Chris Potts and Chris Barker suggested to me that Kennedy's (1997) polar opposition analysis might be helpful.

does not have to be an extreme degree. Surely it does not have to be in the top 10 of tall buildings in the world to create a sense of surprise, though it has to be sufficiently high. Consider a seven-story building; no one will be surprised to see such a building in Manhattan, given that there are numerous buildings higher than that building. But, this perspective of "tallness" changes completely in a small town somewhere in the middle of nowhere. In other words, whether or not the height of the building is a worthy cause of surprise is relative to the surrounding environment.

Another interesting case of multiple exclamatives is the following.[37]

Multiple exclamatives with the same adjective
(79) a. **nante** tiisana akatyan-ga **nante** tiisana huku-o kiteiru nodaroo
          wh   tiny   baby-NOM   wh   tiny   cloth-ACC   wear   EXC
          'What a tiny baby is wearing what a tiny cloth!'
      b. **nante** sutekina zyoyuu-ga **nante** sutekinadorama-ni syutuensiteiru
          wh   neat   actress-NOM   wh   neat   drama-DAT   play.a.role
          nodaroo
          EXC
          'What a neat actress is playing a role in what a neat drama!'

In example (79a), the same adjective *tiisana* 'tiny' is used in two different phrases. It seems that, in exclamatives, the speaker is simply surprised twice. Maybe a more appropriate translation of it would be: What a tiny baby is wearing a cloth and how tiny the cloth is! The point is that two occurrences of the same adjective are not "related" in the sense discussed above. In other words, there is no strong connection or anything like the dependency that we have observed in cases where two different adjectives are used in multiple exclamatives. Example (79b) illustrates the same point. One intuition behind the "relatedness" is that the degree to which the speaker is surprised depends on the other degree. It is not difficult to imagine what kind of interpretation we get if two degrees are dependent on each other, as in (79b); suppose there are two actresses, A and B, and actress A is neater than actress B (say, the actress A is more popular than the actress B). Then what we would expect is that when (79b) is uttered, the speaker knows that the degree of neatness of the drama in which the actress A is playing a role is greater than the degree of neatness of the drama in which actress B is playing a role. However, it seems that such an interpretation is not available. Therefore, examples in (79) are another kind of multiple exclamatives, differing from the examples in which two different adjectives are used.

Another set of examples arises from adjectives of quantity, and again the same adjectives are used.

Multiple exclamatives with the same adjective
(80) a. **Nante** takusan-no otokonoko-ga **nante** takusan-no onnanoko-to
          wh   many-GEN   boy-NOM   wh   many-GEN   girl-with
          tukiateiru nodaroo
          date   EXC

‘How many boys date how many girls!’

b. **Nante** ooku-no   hito-ga   **nante** ooku-no   okane-o
   wh   many-GEN   man-NOM   wh   many-GEN   money-ACC
   muda-ni   suru   nodaroo
   waste-DAT do   EXC
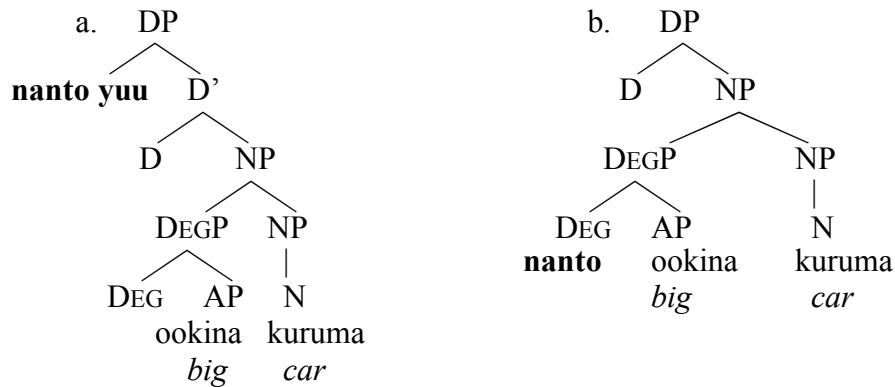   ‘How many people waste how much money!’

The example in (80a) can be uttered in a situation where the speaker finds that there are surprisingly many boys who date surprisingly many girls. The example in (80b) also shows the same point. Again, whether or not the degree of one adjective is surprisingly high is independent of the degree of the other adjective.

5.2   Two wh-phrases in one DP

So far, all multiple exclamatives we have seen include one exclamation in one argument or adjunct position. For instance, a direct object and an indirect object are exclaimed, or a direct object and an adverb are exclaimed. In this section, we will observe another type of multiple exclamative in Japanese. Specifically, we will see an instance of multiple exclamatives in which there is more than one exclamation within one nominal projection.

Recall in the previous sections, we discussed different wh-phrases in Japanese exclamatives. The conclusion was that different exclamative wh-phrases are located in different positions in the structure. What is proposed is represented in the following tree diagram.

(81)   *Two wh-phrases in different positions*

a.
```
        DP
       /  \
  nanto yuu  D'
            /  \
           D    NP
               /  \
            DEGP   NP
            /  \    |
          DEG  AP   N
             ookina kuruma
               big   car
```

b.
```
        DP
       /  \
      D    NP
           /  \
        DEGP   NP
        /  \    |
      DEG  AP   N
     nanto ookina kuruma
            big    car
```

Since, in those structures, wh-phrases are in different positions, it would be interesting to see whether there is any observable semantic effect depending on the elements the wh-phrase is associated with. Here, it seems that when the exclamative wh-phrase is combined with an adjective or adverb (i.e., *nanto*), what is exclaimed is the degree of the property of the adjective. On the other hand, when the exclamative wh-phrase is combined with a nominal projection (i.e., *nanto-yuu*), what is exclaimed is the property of the NP. Thus, the prediction is that the meaning of (81a) is slightly different from that of (81b).

Let us start from (81b). In this example, the exclamative wh-phrase *nanto* is combined with an adjective, and the meaning is that the degree of bigness of the car is

extreme, hence surprising. We can easily think of a certain kind of big car, such as Chevy Suburban or Ford Excursion, a big car we typically see on the street. On the other hand, what (81a) means is that a certain property of the big car is quite unexpected, hence surprising. A plausible situation is as follows. People usually think that big cars are not economical at all. They consume a lot of gas; every time one fills up at a gas station, it costs a lot of money. But imagine that we have a high-tech car, which is big, but surprisingly it does not consume much gasoline. Then, one can use (81a) to show one's surprise at seeing the unexpected property of a big car. The property itself is not specified in the example above, but to utter (81a), there must be at least one unexpected property, given that the car is large.

In addition, the analysis proposed here makes a prediction that we should be able to use non-gradable adjectives with (81)a), but not with (81b). It should be so since in (81b), a wh-phrase is directly attached to an adjective, and the gradable degree of that adjective must be the locus of exclamation. On the other hand, in (81a), the locus of exclamation is some property associated with the NP as a whole. As far as one can think of some unexpected property associated with the NP, it is that property that will be the locus of exclamation. The prediction is borne out; here we used a word *saikitekina* 'recursive' which is a non-gradable adjective.

(82)   Exclamatives with a non-gradable adjective
    a. * Sore-wa   nanto   saikitekina   ruuru-na   no da roo
          it-TOP   WH   recursive   rule-COP   EXC
    b.   Sore-wa   nanto-yuu   saikitekina   ruuru-na   no da roo
          it-TOP   WH   recursive   rule-COP   EXC
          'What a recursive rule it is!'

When a non-gradable adjective is used with *nanto*, the example is not acceptable while nanto yuu has no problem being combined with such an adjective. This supports our analysis that the two wh-phrases are located in different structural positions.

There is another consequence of our analysis. So far, we have looked at multiple exclamatives that involve more than one phrase in the VP. The following example shows that one DP can have more than one exclamative wh-phrase.

(83)   a. John-wa [DP nanto-yuu [DegP nanto tiisana] sensyu]-na no da roo
            J-TOP   WH   WH   small   player-COP   EXC
            'What a how small player John is!'

        b.
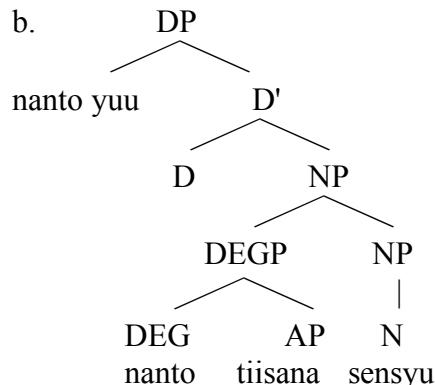
wh small player

It is quite surprising that two exclamative wh-phrases can appear in the same noun phrase. In fact this is another strong argument for the claim that the exclamative wh-phrases *nanto-yuu* and *nanto* are placed in different positions in the structure. The following example also shows that *nanto* is associated with an adjective phrase and *nanto-yuu* is associated with a noun phrase.

(84) * [DP nanto [DegP nanto-yuu tiisana] sensyu]
    WH   WH   small player
   'What a how small player'

When two wh-phrases are used within the same noun phrase, *nanto-yuu* must precede *nanto*. That is another evidence for the proposed structure.

   Now, let us investigate the meaning of (83). First, there is an exclamation regarding the smallness of the player. The speaker is surprised by the player's smallness. Second, the presence of *nanto-yuu* creates an exclamation regarding a property of the small player. Imagine a small basketball player who performs extremely well in games. The speaker is surprised by some fantastic performance of the player despite his smallness as a basketball player. Recall that there is a condition in multiple exclamatives in Japanese that the two degrees in multiple exclamatives must be related in a natural way. Then, in (83), John is surprised by the extreme degree of smallness of the player given his unbelievable performance, and John is also surprised by the extreme degree of the player's unbelievable performance given his extreme smallness.

5.3 The denotation of multiple exclamatives

Having seen some of the properties of Japanese exclamatives, it is unclear how to represent the meaning of multiple exclamatives. Zanuttini & Portner (2003) propose a semantic analysis for exclamatives, and in their analysis, the presence of the *wh*-phrase and the abstract factive morpheme are the crucial ingredients. The presence of the *wh*-phrase is rather obvious, and the existence of the factive morpheme, according to them, is motivated by the fact that exclamatives, if embedded, are incompatible with non-factive predicates.

   Another insight by Zanuttini & Portner is that the presence of a *wh*-phrase in exclamatives makes the semantics of exclamatives somewhat similar to the semantics of *wh*-interrogatives. Let us assume a standard claim that a *wh*-interrogative denotes a set of propositions. [38] For instance, the denotation of a *wh*-interrogatives (85a) can be represented as in (85b).

(85) a. How tall is John?
   b. {…, John is 5'10" tall, John is 5'11" tall }
   c. John is 5'11" tall.

---

[38] Zanuttini & Portner (2003) say that differences between approaches claimed by Hamblin (1973) and Karttunen (1977) do not matter for their analysis. I will remain neutral on this issue.

The pragmatic property of questions seeks an answer from someone who participates in the conversation. In general, a person who is asked a question such as (85a) specifies one proposition from the set presented to him/her. A proposition (85c) is one appropriate answer to the question (85a), since the person correctly points out one member of the given set denoted by the *wh*-interrogatives.

Now, Zanuttini & Portner (2003) claim that the pragmatic property of exclamatives is different from interrogatives; exclamatives can be characterized by "widening" of the set of propositions denoted by the *wh*-phrase that determines the domain of quantification.

(86) a. How tall John is!
      b. {…, John is 5'11" tall, John is 6'0" tall }
      c. {…, John is 5'11" tall, John is 6'0" tall, **John is 6'4" tall**}

As in *wh*-interrogatives, the presence of a *wh*-phrase is a key to generate a set of propositions. By uttering an exclamative (86a), the speaker first presents a set of propositions which is illustrated in (86b). This particular set of propositions represents an expectation in the context however relevant in the particular discourse; it is referred to as "an expected domain". One obvious difference between exclamatives and interrogatives is that exclamatives do not seek any answer. Then, the pragmatic property of exclamatives cannot be the one that someone (usually not the speaker himself) has to point out some proposition from the given set of propositions. The proposal by Zanuttini & Porter (2003) is that the speaker, based on the expected domain, widens the domain of quantification by adding a new proposition that can crucially not be found in the expected domain.[39] In (86c), a new proposition *John is 6'4" tall* is added to the set of propositions. They call this pragmatic property (or "force") of exclamatives "widening".

Returning to multiple exclamatives like (87), suppose a situation where you know that John ate a 2 pound hamburger in 5 minutes, and it is quite fast that John can eat such a big hamburger in such a short period of time in this context, thus it is worth being surprised at.

(87) John-wa [**nante** ookina hambaagaa]-o [**nante** hayaku] tabeta no da roo
      J-TOP   wh   big   hamburger-ACC   wh   fast   ate   EXC
      'How fast John ate what a big hamburger!'

The first thing we do here is to extend Zanuttini & Portner's (2003) semantic/pragmatic analysis slightly. This slight extension is necessary since they do not discuss properties of multiple exclamatives, let alone their meaning. Given the context above, I propose that the expected domain for (87) be something like (88a).

(88) a. Expected domain
          {⟨2 lb, 15 min⟩, ⟨3 lb, 17 min⟩, ⟨1 lb, 7 min⟩, ⟨1/2 lb, 2 min⟩}

---

[39] Also, there seems to be a restriction with respect to the "direction of degree". When the tallness of a person is at issue, the value of what is to be added has to be greater than others. In the above case, the value 6'4" is larger than 6'0", then the widening is appropriate. See Kennedy (2000) for some related issues.

b. Widened domain
{⟨2 lb, 15 min⟩, ⟨3 lb, 17 min⟩, ⟨1 lb, 7 min⟩, ⟨1/2 lb, 2 min⟩ **⟨2 lb, 5 min⟩**}

What has been changed from the expected domain for the simple exclamative is that now the members in the expected domain are pairs of the weight (the size) of the hamburger and the time spent to eat the hamburger. For example, eating a 2 pound hamburger in 15 minutes is normal, then a pair ⟨2 lb, 15 min⟩ is a member in this set. Other members in the set are similar. I follow Zanuttini & Portner (2003) that force of exclamatives is widening, then in order to widen the original domain of quantification, it is necessary to add a new member to the set, namely a pair of the size of the hamburger and the time spent to eat the hamburger. Since it has been known here that John ate a 2 pound hamburger in 5 minutes, a new pair ⟨2 lb, 5 min⟩ is added. Notice, again, that in order for this pair to be successfully added to the original set, it is necessary that the pair should not be in the original set.[40]

One consequence of this representation for the multiple exclamatives is that multiple-exclamatives do not arise as a simple addition of two independent simple exclamatives. The multiple exclamative (87) cannot be a simple exclamation just on the size of the hamburger John ate, since there is no expected set that consists of values of the weight of a hamburger. In a similar way, (87) cannot be a simple exclamation just on the time spent eating the hamburger, since there is no expected set that consists of values of the time spent. What is claimed here is that (87) exclaims the rarity of the combination between the two degrees. This analysis accounts for one property of multiple exclamatives: the two degrees involved in multiple exclamatives must be related to each other.

6.   Summary

In this chapter, we made clear where exclamatives occur in the embedded context. We have shown that exclamatives are found in some limited environments. It was shown that the distribution of exclamatives in Japanese is slightly different than that in English. It is not true that exclamatives in Japanese occur only with factive predicates. We showed that exclamatives occur in some non-factive contexts; in addition to that, we found that not all factive predicates can select Japanese exclamatives.

With respect to the island effects found in the dependency of exclamatives in Japanese, we concluded that those effects can be classified as intervention effects. We proposed the specific mechanism that deals with those effects.

We also discussed various properties of the exclamative wh-phrase *nante* and its morpho-syntactic variants. Finally, some semantic issues of multiple exclamatives were discussed. We provided some new observations and it was shown that the meaning of

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[40] Given the expected domain as above, there are at least two ways to find a member that is not normal. One, as I have shown, is to add a pair of a large hamburger and a short period of time, and the other is to add a pair of a small hamburger and a long period of time. It is clear that (87) cannot be used in a situation where it took a very long time for John to eat a very small hamburger. I suppose this restriction comes from the fact that an adjective *ookii* 'big' and an adverb *hayaku* 'fast' have been used.

multiple exclamatives in Japanese can be successfully dealt with by extending the analysis by Zanuttini & Portner (2003).

CHAPTER 4: EXCLAMATIVES AND SLUICING

1.   Introduction

Merchant's (2001) very detailed work on sluicing recently (re-)initiated much discussion on a range of issues. For example, it has been debated what the nature of "identity conditions" are; is it syntactic, semantic, both, or something else? Also, the investigation of sluicing raises many questions about the overall architecture of grammar. Ellipsis phenomena are observed clearly as PF realization (we do not hear parts of sentences which we expect to hear), but what can be (or sometimes "must be") missing and when it is possible does not seem to be regulated just by rules of PF. How we allow different components to talk to each other is quite a intricate puzzle. An example of sluicing is shown below; sluicing is a phenomenon in which a wh-phrase alone appears where the whole wh-clause is expected to occur, as originally observed by Ross (1969). In (1a), the wh-phrase *who* appears where we expect something like the wh-clause in (1b) to occur. Note that the interpretation of *who* is exactly the same as *who* in (1b); *who* is interpreted as an object of *talking to*.

Sluicing
(1)   a.   John was talking to someone, but I don't know who.
         b.   I don't know who John was talking to.

In this chapter we discuss how exclamatives behave under sluicing. As far as we know, all the work on sluicing has been done with interrogatives. One might think that showing that sluicing is available with exclamatives is good, but not interesting, since exclamatives are "similar to" interrogatives: after all, both involve wh- movement, and it is relatively easy to show that both obey the same island constraints. We disagree with the claim that exclamative sluicing is not interesting. First, it has been noted that the existence of wh-movement does not guarantee the availability of sluicing; for example, relative clauses do not allow sluicing despite the fact that they involve wh-movement (Merchant 2001:58, Lobeck 1995:57).

Relative clauses
(2)   a.   * Someone stole the car, but they couldn't find the person who.
         b.   * The judge gave five years each to the adults who participated in the riot, but she hasn't yet sentences the minors who.
         c.   * Although the place where is unclear, the time when the meeting is to be held is posted on the door.

The same is true for clefts (Merchant 2001:59).

Clefts
(3)   a.   * We thought it was Abby who stole the car, but it was Ben who.
         b.   * Somebody stole the car, but no one knew that it was Ben who.

Second, we contend that the fact that sluicing is available with exclamatives bears a much deeper theoretical significance. In fact, exclamative sluicing is an important argument for a thesis put forward by Pesetsky & Torrego (2001) that wh-interrogative clauses and wh-

exclamative clauses are syntactically the same (see further development of their idea by Fujii & Ono (2005)). These clauses are just "wh-clauses" as far as their syntax is concerned, and they are interpreted differently, depending on the structures they are in. The thesis is in a sense surprising, since wh-exclamatives and wh-interrogatives look quite different (e.g., lack of subject-auxiliary inversion in exclamatives, different predicates select those wh-clauses, etc.). Pesetsky & Torrego (2001), also Fujii & Ono (2005), argue, nonetheless, that differences between interrogatives and exclamatives can be accounted for on independent grounds. To the extent that their analyses are on the right track, illustrating that sluicing is available with exclamatives offers further support for the claim that the two "wh-clauses" are syntactically the same. If the analyses are right, it is in a sense predicted that sluicing is available with exclamatives, given that it is available with interrogatives, and that "sluicing" in those wh-clauses has to be the same thing. We hope the above discussion will justify why it is very important for us to show as much parallelism as possible between interrogatives and exclamatives.

Finally, let us mention one property that makes sluicing extremely interesting: sluicing seems to repair some "island violations." The following example illustrates that when ellipsis does not occur, the example is bad, but the example is acceptable with sluicing.

Island repair

(4)   They want to hire someone who speaks a Balkan language, but I don't
        remember which (Balkan language).
        (cf. *I don't remember which (Balkan language) they want to hire someone
        who speaks.)

Later, we will show that such "island amelioration" is also observed with examples of exclamative sluicing. Again, why do we have to observe various similarities between interrogative and exclamative wh-clauses (as far as such a property is testable in both)? We now know the answer: they are syntactically the same.

2.   Some Basic Properties of Sluicing

2.1   CP status

Merchant (2001:40–54) provides several arguments in order to show that the sluice (i.e., the leftover of sluicing) is actually a CP, not a DP. This is important for him since Riemsdijk (1978), for example, argues that the wh-phrases in sluicing are in fact complement of the predicates. Then, according to those who advocate such a "wh-phrase as a fragment" approach, the structure of the sluice is the following.

(5)   ... I don't [$_{VP}$ know [$_{DP}$ who]] .

We cannot repeat here all the cases provided in Merchant (2001), but we review a few of them that are relevant for sluicing in exclamatives.[41] To the extent that the data in

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[41] It might not be appropriate to call the phenomenon "exclamative sluicing," since what we would like to do here is to show that it is sluicing. Nonetheless, we keep using the term for the ease of exposition.

exclamative sluicing are parallel with that in interrogative sluicing, we can make sure that the "sluicing in exclamatives" discussed in this chapter is really the same kind of phenomenon observed in interrogative wh-clauses.

The first argument, originally put forward by Ross (1969), is that the sluice is available in the position where DPs are banned. Ross (1969) points out that a DP (an NP at that time) cannot be extraposed when the adjectival predicates, e.g. *clear*, *sure*, *certain*, etc., are used.

Extraposition bad
(6)   a.   [The correct approach] wasn't clear.
       b.   * It wasn't clear [the correct approach].

On the other hand, CPs can appear in either position.

(7)   a.   [$_{CP}$ Which of these approaches is correct] is not clear.
       b.   It is not clear [$_{CP}$ which of these approaches is correct].

Now, it is perfect for the wh-phrases in sluicing to appear in such an extraposed position. This shows that the distribution of the wh-phrase in sluicing matches with that of CPs, not that of DPs.

(8)   One of these approaches is correct, but it's not clear [which of them].

We can run the same test for exclamative sluicing, using factive adjectival predicates, such as *odd*, *exciting*, *impressive*, *unbelievable*. Those predicates do not take wh-interrogatives either in the subject position, or in the extraposed position.

(9)   a.   * [Whether he solved those question] is impressive.
       b.   * It is impressive [whether he solved those questions].

Also, it is very clear that those predicates do not tolerate an extraposition of a DP.

(10)   a.   [His solution] was impressive.
       b.   * It was impressive [his solution].

On the other hand, an exclamative clause can appear either in subject position or in the extraposed position.

(11)   a.   [$_{CP}$ How (very) difficult a question he solved] is quite impressive.
       b.   It is quite impressive [$_{CP}$ how (very) difficult a question he solved].

Finally, the exclamative wh-phrase can appear by itself in the extraposed position. This suggests that what looks like just the exclamative wh-phrase is in fact a CP in which an IP is elided.

Extraposed position
(12)   He told me that he solved an extremely difficult question, and it's quite
       impressive [how (very) difficult a question].

The second argument, also pointed out originally by Ross (1969), is concerned with number agreement. In general, when a wh-clause appears in the subject position, it triggers singular agreement on the verb. This remains the same even if the wh-phrase itself is plural, suggesting that the number marking on the wh-phrase is independent from the agreement on the matrix verb in (13).

Singular agreement
(13)   [CP Which problems are solvable] {is/*are} not obvious.

This agreement pattern remains the same in sluicing cases.

(14)   Some of these problems are solvable, but [which problems] {is/*are} not obvious.

We can apply this test in exclamative sluicing. First of all, an exclamative wh-clause with a plural exclamative wh-phrase requires singular agreement on the matrix verb.

(15)   [CP How (very) many singers he knows] {is/*are} quite impressive.

Then, as we saw in the interrogative sluicing cases, this remains the same even in the exclamative sluicing cases.

(16)   I heard that he knows very famous singers, and [how (very) famous singers] {is/*are} quite impressive.

To sum up, there are at least two parallel observations with respect to sluicing in interrogative wh-clauses and exclamative wh-clauses. Those two points suggest that the wh-phrases we can observe in the above examples are remnants of an ellipsis process.

2.2   P-stranding generalization

A further parallelism between sluicing in interrogatives and exclamatives relates to the P-stranding generalization noted in Merchant (2001:92).

P-standing generalization
(17)   A language L will allow preposition stranding under sluicing iff L allows preposition stranding under regular wh-movement.

This generalization is that in languages like English, where preposition (P)-stranding is available in regular wh-movement, P-stranding is also available in sluicing. In such a language, the remnant of sluicing can be just a wh-phrase DP, even when the wh-phrase DP is a complement of a preposition in the original extraction site. On the other hand, in languages like Spanish and German, where P-stranding is not available in regular wh-movement (a preposition will be pied-piped along with the DP), P-stranding is not available in sluicing, either. Hence when the original extraction site for the wh-phrase is a

complement of a preposition, the remnant of sluicing will be a wh-phrase with a preposition; leaving a preposition in the elided part of the structure is not legitimate.[42]

We can test whether this generalization holds in exclamative sluicing by constructing corresponding examples in those languages (most of the data on interrogative sluicing is taken from Merchant (2001)). First, let us start with English examples. Example (18a) shows that P-stranding is possible in regular wh-interrogatives, and example (18b) shows that *who*, which is the object of the preposition *with* in the antecedent clause, can appear without the preposition in sluicing.

P-standing OK
(18)   a. Who was he talking with?
         b. Peter was talking with someone, but I don't know who.

This pattern in English interrogatives holds true in exclamative sluicing as well. Assuming that the wh-phrase *what a tall guy* originates in the complement position of the preposition *with*, (19) suggests that the preposition is left behind in exclamative sluicing.

(19)   Peter was talking with a very tall guy, and I can't believe what a tall guy.

Spanish is one of many languages that do not allow P-stranding. The following data indicates that the preposition has to be pied-piped when the complement wh-phrase undergoes movement. In addition, the sluicing example is not good if it lacks the preposition.

Obligatory pied-piping
(20)   a. * Quién habló   con?
            who   speak.3SG with
            'Who does he talk with?'
         b. Ana   habló   con   alguien,   pero   no   sé
            A   speak.3SG with   someone   but   not   know.1SG

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[42] But see Almeida & Yoshida (to appear) for a counterexample to the generalization from Brazilian Portuguese. They show that in Brazilian Portuguese, which does not allow P-stranding in wh-interrogatives, P-stranding is possible in sluicing.
(i)   a. Com   quem que a   Maria dançou?
           with   who   that the   Maria danced   'With whom did Mary dance?'
         b. *Quem que a   Maria dançou com?
           who   that the Maria danced with   'Who did Mary dance with?'
(ii)   a. A Maria dançou com   alguém, mas eu não lembro   com quem
           the Maria danced with   someone but I   not   remember with who
           ~~<a Maria dançou>~~
           the Maria danced
           'Mary danced with someone, but I don't remember with who.'
         b. A Maria dançou com   alguém, mas eu não lembro   quem
           the Maria danced with   someone but I   not   remember who
           ~~<a Maria dançou com>~~
           the Maria danced with
           'Mary dance with someone, but I don't remember who.'

??(con)   quién.
       with   who
    'Ana talks to someone, but I don't know who.'

Exclamative sluicing seems to show that the P-stranding generalization holds true. The contrast between (21b) and (21c) indicates that the preposition has to be pied-piped in wh-exclamatives in Spanish.

Obligatory pied-piping

(21)   a.   Ana   habló   con   un   chico   muy   alto.
             A   speak.3SG   with   a   boy   very   tall
             'Ana talks to a very tall boy.'
       b.   Con   qué   chico   tan   alto   habló   Ana!
             with   what   boy   so   tall   speak.3SG   A
             'What a tall boy Ana talks to!'
       c. * Qué   chico   tan   alto   habló   Ana   con!
             what   boy   so   tall   speak.3SG   A   with

The following sluicing example with exclamatives is not acceptable under the interpretation of elided IP.

(22)   ?? Ana   habló   con   un   chico   muy   alto,   y   no   puedo
             A   speak.3SG   with   a   boy   very   tall   and   no   can.1SG
       creerme   qué   chico   tan   alto   ~~habló   Ana   con~~.
       believe   what boy   so   tall   speak.3SG   A   with
       'Ana talks to a very tall boy, and I cannot believe what a tall boy
       (Ana talks to).'

The example controls for the possibility that the wh-phrase is just a complement of *habló* as this verb requires a PP complement. This can make sure that the preposition is left in the elided site. It seems safe to conclude that P-stranding generalization holds true with respect to exclamative sluicing.

2.3   Swiping

One interesting property that is related to pied-piping of prepositions in sluicing is that, in certain cases, the preposition can show up after the wh-phrase. Merchant (2002) extensively discusses various characteristics of this kind of sluicing, which he calls "swiping". A typical example is shown in (23) (see also Ross 1969, Rosen 1976, Culicover 1999, van Craenenbroeck 2004, Sprouse 2005, and references cited therein).[43]

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[43] One thing we do not discuss here: Rosen (1976) notes that, in certain cases, swiping is better if the preposition does not appear in the antecedent clause (see relevant discussion in Merchant (2002), van Craenenbroeck (2004) and Sprouse (2005)). Merchant (2002) contends that a better generalization seems to be that swiping is available with the preposition if the PP is not selected. (i) is good since the PP is not an argument of *share*, but the PP *with someone* is a required constituent in (ii).
(i)   Howard shares the apartment with someone, but I have no idea who with.

Swiping
(23)   Peter went to the movies, but I don't know who with.

Note that the preposition *with* that seems to govern the wh-phrase appears to the right of the wh-phrase. Such a "head-final" property is extremely uncommon in English, and according to Merchant, it does not exist in non-sluicing environments. For example, it does not occur in wh-interrogatives.

(24)   a.   * Who with did you go to the movies?
        b.   With who did you go to the movies?

He also notes that it is not true that all ellipsis can license swiping: VP-ellipsis does not.

(25)   *Peter went to the movies, but I don't know who with he did.

(26)   Peter went to the movies, but I don't know who with.

The generalization then seems to be that only sluicing can license swiping, whatever principle ultimately explains it. Let us mention one more restriction on swiping. It seems that only 'minimal' wh-operators occur in swiping (Merchant 2002:297), where 'minimal' means 'head.' Then swiping is not available with complex wh-phrases such as, *which car*, *how much time*, etc., as shown below.

Complex wh-phrases bad
(27)   a.   * This opera was written by an Italian composer in the 19th century, but
                we're not sure which composer by.
        b.   * She's driving, but God knows what town to.
        c.   * He's renting an apartment with a rich guy, and wait till you hear
                how rich (of a guy) with.

To the extent that the generalization of swiping holds, it is expected that swiping is not available with exclamative wh-phrases, assuming that a phrase like *what a tall boy* or *how tall a boy* is not a head. The following example illustrates that sluicing is acceptable with pied-piping of the preposition, but swiping is not available.[44]

(ii)   We were with someone. *I forgot who with.
On the other hand, Nakao, Ono & Yoshida (2006) show that complement PPs license swiping when they undergo Heavy Shift or the complement PP is a pseudo-gapping remnant.
(iii)   a. *John talked [to someone] yesterday, but I don't remember who to.
         b. ?John talked yesterday [to someone], but I don't remember who to.
(iv)   a. *John talked to Mary, and Bill talked to someone. I don't remember who to.
         b. ?John talked to Mary, and Bill did to someone. I don't remember who to.
[44] There is some discussion that preposition pied-piping in exclamatives is not as fully available as that in interrogatives (Emonds 1985 and Nelson 1997). Although there are some variations among the native speakers, people find pied-piping of adjunct-like PPs better than that of argument-like PPs.

(28)　a.　A: Susan was crying yesterday.
　　　　　B: I know... for what a stupid reason!
　　　b.　* B: I know... what a stupid reason for! [45]

2.4　Pseudo-sluicing

Merchant (2001:ch.4) is concerned with a potential complaint that sluicing is in general derived from a kind of cleft construction. Under such an analysis, the sluicing example in (29a) has an underlying form (which he calls 'pseudosluicing') shown in (29b).

Pseudo-sluicing
(29)　a.　Guess who.
　　　b.　Guess who it was.

It is not immediately clear whether such a cleft-like analysis has advantages over Merchant's, but it might provide the impression that the various island amelioration effects (to be discussed below) can be accounted for very easily.[46] In any event, Merchant lists 10 arguments to show that pseudo-sluicing is not the general source of sluicing. Unfortunately, only two of them can be used for exclamatives, and we show that those illustrate that the cleft structure is not the general source of exclamative sluicing.
　　　The first argument is based on the fact that adjuncts and implicit arguments are not so great as a pivot of a "bare" cleft. Nonetheless, sluicing examples are acceptable.

Adjuncts bad as a pivot
(30)　a.　He fixed the car, but I don't know how (*it was).
　　　b.　He fixed the car, but I don't know why (*it was).

Implicit argument
(31)　She reads regularly, but I don't know what (*it was).

We can apply this to exclamative sluicing. The results are the same. Importantly, exclamative sluicing is acceptable.

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[45] With regard to the matrix exclamative sluicing, one might question whether ellipsis is in fact involved (compared to interrogative sluicing), given that it is perfectly natural to utter just *What a great car!* without any linguistic antecedent. This might suggest that what is involved is a kind of deep anaphora (see Hankamer & Sag 1976). I think that there is nothing special with exclamatives on this point, since Norbert Hornstein (p.c.) informed me that there are limited cases even in interrogatives that a sort of fragment can be uttered without any linguistic antecedent. Consider the following context: Fujii and Ono are in a TV studio as part of the audience for a political debate in which three candidates for mayor are discussing various issues. After listening to what each candidate said, Ono asked Fujii, "So, who?" Then the impression that fragments are more readily available for exclamatives might not so obvious.
[46] But see Lasnik (2005) for a clear illustration that it is not true, since the cleft construction obeys island constraints as noted in Chomsky (1977).

(32)   a. He fixed the car, and I was amazed (at) how very fast (*it was).
        b. He fixed the car, and I was amazed (at) how very fast it was that he fixed the car.

(33)   a. He solved such a difficult problem, and I was surprised (at) how very wisely (*it was).
        b. He solved such a difficult problem, and I was surprised (at) how very wisely it was that he solved such a difficult problem.

Second, sluicing can remedy the violations on Left Branch Condition (LBC) (Ross 1967), but the cleft construction with LBC violation is not acceptable.[47]

(34)   a. *It is rich that he married [a woman].
        b. *He married a rich woman—wait till you hear how rich it is!

We can construct similar examples in exclamative sluicing.

(35)   John married an extremely rich woman, and it is unbelievable how very rich (*it is).

Those show that it is plausible that even in exclamative sluicing the pseudosluicing (or a "bare" cleft) is not a general source.

3.   Island Effects in Exclamatives

In this section, we review arguments that exclamatives involve wh-movement. Particularly, the fact that exclamatives exhibit various island constraints suggests that movement of exclamative wh-phrases involved in exclamatives is characterized by the same grammatical operation as in interrogatives.[48]
        The dependency of exclamative wh-phrases is unbounded when adequate bridge-verbs are used.

Unbounded dependency
(36)   a. [What an expensive ring]$_1$ John thinks [Mary bought t_1]!
        b. [How fast]$_1$ John thinks [Mary ate the pie t_1]!

Of course, this is a property that is easily observed in wh-interrogatives.

Unbounded dependency
(37)   a. [Which ring]$_1$ does John think [Mary bought t_1]?
        b. [How fast]$_1$ does John think [Mary ate the pie t_1]?

Thus, wh-phrases in exclamatives can move long distance. Next, I will discuss the data concerning various island effects with exclamatives. We focus on the following islands (e.g., Ross 1967, Chomsky 1973, Huang 1982).

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[47] Much more detailed examination is to be conducted in section 4.3.1.
[48] Ross (1967:385) notes a few examples of exclamatives that exhibit island effects. Here we do a more comprehensive job.

(38)   a. Relative Clause
         b. Noun-Complement
         c. Adjunct Island
         d. Subject Island
         e. Sentential Subject Island
         f. Coordinate Structure Constraint
         g. That-t
         h. Left Branch Condition

In each case, we use *what* and *how*-type non-adverbial exclamative wh-phrases; in other words, the wh-phrase plugged in is in the form/pattern of either *what (a) adjective N* or *how adjective (a) N,* and not the form of *how adverb.*[49] We should emphasize that, as we expect, extractions of an exclamative wh-phrase out of those islands are totally unacceptable.

     Let us start with data showing the extraction of an exclamative wh-phrase out of a relative clause.[50] Examples in (39) are not acceptable.

Relative Clause
(39)   a. * [What an expensive ring]$_1$ John met [a girl [who bought t_1]]!
       b. * [How expensive a ring]$_1$ John met [a girl [who bought t_1]]!

Extraction out of Noun-complement structures is also unacceptable.

Noun-Complement
(40)   a. * [What an expensive ring]$_1$ John heard [the rumor [that Mary bought t_1]]!
       b. * [How expensive a ring]$_1$ John heard [the rumor [that Mary bought t_1]]!

We can also show that Adjunct Islands are also respected in exclamative wh-phrases as in interrogative wh-phrases.

Adjunct Island
(41)   a. * [What an expensive ring]$_1$ John left [after Mary bought t_1]!
       b. * [How expensive a ring]$_1$ John left [after Mary bought t_1]!

Extraction out of subjects is prohibited; it does not matter whether it is sentential or not.

Subject Island
(42)   a. * [What a famous politician]$_1$ [a biography of t_1] is going to be published!
       b. * [How famous a politician]$_1$ [a biography of t_1] is going to be published!

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[49] The data on Left Branch Condition is an exception. See the actual data below.

[50] For ease of exposition, I simply assume what has undergone movement is either *what a adjective N* or *how adjective a N,* without providing any evidence. Whether or not there is a separate movement within this, say, DP, must be cleared up at some point, as well as whether those words form a constituent, but it might not be so relevant for the purpose of illustrating the fact that the movement observed here obeys islands.

Sentential Subject Island
(43) a. * [What a powerful country]$_1$ [that [the UN security council would criticize t$_1$
            at the next meeting]] has been widely reported!
      b. * [How powerful a country]$_1$ [that [the UN security council would criticize t$_1$
            at the next meting]] has been widely reported!

Exclamative wh-phrases in coordinate structures cannot be extracted out of a coordinated phrase.

Coordinate Structure Constraint
(44) a. * [What a pretty girl]$_1$ John met [Susan and t$_1$]!
      b. * [How pretty a girl]$_1$ John met Susan and t$_1$]!

That-t effects are also observed.

That-t Effect
(45) a. * [What a cute girl]$_1$ John thought [that [t$_1$ is coming to the department]]!
      b. * [How cute a girl]$_1$ John thought [that [t$_1$ is coming to the department]]!

Finally, we will look at the data to see whether or not Left Branch Condition is respected in exclamatives.[51]

Left Branch Condition
(46) a. * [What a cute girl's]$_1$ John saw [t$_1$ pictures]!
      b. * [How cute a girl's]$_1$ John saw [t$_1$ pictures]!

To sum up, we have seen that unbounded dependencies are observed in exclamatives, and movement of the exclamative wh-phrases obeys various islands as has been observed in interrogative wh-phrases (and other operators like a null operator).

4.   Sluicing

In this section, data on sluicing in English exclamatives are introduced. One property of sluicing, noted by Ross (1969), which grabs the heart of many syntacticians, is that sluicing apparently rectifies various island violations (see Merchant 2001). The goal here is simple; first, we show that sluicing is available in exclamatives, and second, not surprisingly, island amelioration is observed even in sluicing with exclamatives. Before investigating sluicing with exclamatives, a small discussion of factivity is necessary, since it has a close tie with exclamatives, and is crucial for identifying exclamatives under sluicing. One basic example of sluicing is illustrated below:

Sluicing in interrogatives
(47) a. I heard that John met someone, but I wonder who.
      b. I heard that John met someone, but I wonder who [$_{IP}$ John met t].

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[51] Other kinds of Left Branch Condition, e.g., extraction of an AP out of a DP, will be discussed in the next section.

We assume that sluicing is an ellipsis of IP, acknowledging that its implementation is a controversial matter (see Chung, Ladusaw, and McCloskey (1995), in addition to the work cited above). Sluicing leaves a wh-phrase that corresponds to an indefinite in the antecedent clause, and the wh-phrase is understood as it carries the same theta-role of the corresponding indefinite. In other words, the wh-phrase *who* in the above example is understood as the object of *met*.

4.1   Factivity

There is one point we have to note in sluicing in exclamatives. In the examples in (48), we can tell that there is a missing clause, and *wonder* is such a verb that takes an interrogative clause as a complement. We need to make sure that we are dealing with exclamatives, by using an appropriate sort of predicate, namely, factive predicates (Kiparsky & Kiparsky 1970). This point is crucial especially in the case where the material left under sluicing is *how + adjective*. Note that just by looking at that material, we cannot tell whether it is sluicing with interrogatives or exclamatives, since a string *how + adjective* is available in interrogatives as illustrated in the following examples.

(48)   John went to Japan, but I wonder how long he will stay there.

We can tell that the above examples involve interrogatives, since the matrix verb is *wonder*, which only selects an interrogative complement. The reasoning behind the idea that factive predicates must be used is the following. It has been known that exclamative sentences, when embedded, must be selected by factive predicates (Elliott 1974, Grimshaw 1979). Thus, if the predicate that embeds exclamatives is an interrogative-taking one (or any non-factive one), examples are unacceptable.

Exclamatives with factive predicates
(49)   a.   It is unbelievable what a big car John bought.
        b.   I was surprised at what a large house he lives in.

Exclamatives with non-factive predicates
(50)   a.   *Mary wondered what a big car John bought.
        b.   *It is not clear what a large house he lives in.

Conversely, an interrogative clause, when embedded, cannot be selected by a factive predicate; the predicate that embeds an interrogative clause must be one of interrogative-taking predicates.

Interrogatives with factive predicates
(51)   a.   *It is unbelievable which car John bought.
        b.   *I was surprised at which house he lives in.

Interrogatives with interrogative predicates
(52)   a.   Mary wondered which car John bought.
        b.   It is not clear which house he lives in.

Using this as a criterion, we call tell whether a string *how + adjective*, as well as other remaining materials under sluicing, is a part of an exclamative clause as long as it appears

under a factive predicate. In the following sluicing examples with exclamatives, we use factive predicates in order to ensure that we are dealing with exclamatives.

4.2   Material Left Behind

Merchant (2001:62) notes the generalization that only wh-operators can remain in the left periphery of a clause under sluicing; no complementizer, no verb, and no clitic-like element is allowed to survive. For instance, in German, in which the matrix verb undergoes movement to C, the verb must not show up under sluicing.

German
(53)   a.   Max   hat   jemand   eingeladen.
             Max   has   someone   invited
             'Max invited someone.'
       b.   Echt?   Wen   (*hat)?
             really   who   has

Building on Lobeck's (1995) work, Merchant (2001:59) proposes the following condition for licensing IP-ellipsis:

(54)   Only the null [+wh, +Q] C of interrogatives will license the null IP.

Since sluicing is available with exclamatives, (54) must be modified in order to accommodate exclamatives to the following.[52]

(55)   Only the null [+wh, +Q/+Exc] C will license the null IP.

An issue I will investigate below concerns what material in exclamatives can remain under sluicing. The generalization is summarized below.

(56)   a.   Exclamative wh-phrase as a whole can remain under sluicing:
             the whole DP; *what a long paper, how long a paper*
             the whole Adverb Phrase; *how long, how quickly*
       b.   Extraction of just the wh-phrase out of DP or Adverb Phrase is not good;
             * what$_1$ … [~~t$_1$ a long paper~~]
             * how$_1$ … [~~t$_1$ long a paper~~]
             * how$_1$ … [~~t$_1$ quickly~~]
       c.   Non-constituent cannot remain under sluicing:
             **what a long, *what a, *how long a*

Note that the fact that elements listed in (56c) cannot remain under sluicing is not surprising since they are not even constituents. However, elements listed in (56b) must be handled with care. A similar observation, at least for *how*, is found in sluicing with

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[52] Of course, we surely want to make this condition more elegant so that it ties interrogatives and exclamatives as a natural class, excluding others, e.g., a relative clause formation and free relatives. We leave this issue for future research.

interrogatives (see Ross 1969:277, Merchant 2001:164). First, both in interrogatives and exclamatives, extraction of *how* alone without sluicing is flatly unacceptable.

Extraction of "how" *alone in Interrogatives*[53]
(57) a. *How_1 does he want [a [t_1 detailed] list]?
      b. *How_1 did she buy [a [t_1 {expensive/fast/big}] car]?
      c. *How_1 is your brother [a [t_1 smart] doctor]?

Extraction of "how" *alone in Exclamatives*
(58) a. *How_1 he wants [a [t_1 detailed] list]!
      b. *How_1 she bought [a [t_1 {expensive/fast/big}] car]!
      c. *How_1 your brother is [a [t_1 smart] doctor]!

Second, even with sluicing, examples are not acceptable when the wh-word *how* that is associated with an adjective is the only element left.

Attributive Adjectives in Interrogatives with Sluicing (adapted from Merchant (2001))
(59) a. *He wrote a long paper, but I don't know how_1 he wrote [a [t_1 long] paper].
      b. *He wrote a long paper, but I don't know how_1 ~~he wrote [a [t_1 long] paper]~~.

Attributive Adjectives in Exclamatives with Sluicing
(60) a. *He wrote an extremely long paper, but it is unbelievable how_1 he wrote
          [a [t_1 long] paper].
      b. *He wrote an extremely long paper, but it is unbelievable how_1 ~~he wrote~~
          ~~[a [t_1 long] paper]~~.

The same observation holds with *how*, when it is associated with predicative adjectives.

Extraction of "how" *alone in Interrogatives*
(61) a. *How_1 is he [t_1 proud of his son]?
      b. *How_1 was he [t_1 interested in baseball]?

Extraction of "how" *alone in Exclamatives*
(62) a. *How_1 he is [t_1 proud of his son]!
      b. *How_1 he was [t_1 interested in baseball]!

Predicative Adjectives in Interrogatives with Sluicing
(63) a. *He must be proud of his son, but I don't know how_1 he must be [t_1 proud
          of his son].
      b. *He must be proud of his son, but I don't know how_1 ~~he must be [t_1 proud~~
          ~~of his son]~~.

Predicative Adjectives in Exclamatives with Sluicing
(64) a. *He is extremely interested in baseball, but it is unbelievable how_1 he was
          [t_1 interested in baseball].
      b. *He is extremely interested in baseball, but it is unbelievable how_1 ~~he was~~
          ~~[t_1 interested in baseball]~~.

---

[53] The intended reading is, for instance in (b), not asking the way or reason she buys a fast car, but asking the degree of "fastness" of the car.

Based on these examples, Merchant (2001:166) suggests, citing Corver (1990), that the wh-word *how* associated with an adjective is a head of a functional projection in DP (e.g., DegP taking AP as its complement; see Abney (1987) as well), and given that heads are not allowed to move into SpecCP, examples above illustrate a case of illegitimate head movement. This explanation can be carried over to the prohibition of the extraction of *what* alone, assuming that what is also a head of a functional projection in DP.[54] Note that extraction of *what* is never acceptable in exclamatives regardless of sluicing.[55]

Extraction of "what" *in Exclamatives*
(65)   a.   *What$_1$ he wrote [t$_1$ a long paper]!
        b.   *What$_1$ he bought [t$_1$ a big car]!

Extraction of "what" *in Exclamatives with Sluicing*
(66)   a.   *He wrote an extremely long paper, but it is unbelievable what$_1$ he wrote
             [t$_1$ a long paper].
        b.   *He wrote an extremely long paper, but it is unbelievable what$_1$ ~~he wrote~~
             ~~[t$_1$ a long paper]~~.

There is one caveat for assimilating *how* in interrogatives with *how* in exclamatives. It has been observed that the *how + adjective* complex found in exclamatives allows an insertion of a modifier, such as *very* or *extremely*, in front of the adjective (Elliott 1974). Such a modifier cannot show up in the *how + adjective* complex in interrogatives, however.[56]

very + Adjective in Exclamatives
(67)   a.   How (very) expensive a ring he bought!
        b.   How (very) interesting a paper he wrote!

very + Adjective in Interrogatives
(68)   a.   How (*very) expensive a ring did he buy?
        b.   How (*very) interesting a paper did he write?

---

[54] The exact syntactic difference between *what* and *how* in exclamatives is to be investigated.
[55] Use of predicative adjectives in this context is irrelevant given the fact that *what* cannot be used in exclamatives with predicative adjectives even pied-piping the whole constituent.
(i) *What proud of his son he is!
(ii) *What interested in baseball he was!
Thus, we focus on the cases with attributive adjectives here.
[56] Norbert Hornstein (p.c.) nonetheless provides an example where a modifier *very* appears in interrogative wh-phrase:
(i)   A: Sam bought a really expensive ring for Mary. It was really really expensive.
       B: Oh, yeah? How very expensive a ring was it?
It might be that the example is fine if the part *very expensive* in (iB) is read in a special "quote and unquote" intonation of some sort.

This data does not argue against the idea that the *how* in exclamatives is a head of a functional projection in DP, but it might suggest that *how* in exclamatives is a functional head, but a different (maybe higher) head of a functional projection.[57]

4.3   Data

Let us start the discussion with cases in which no island is involved. As has been mentioned, factive predicates are used to embed exclamatives.

(69)   John wrote an extremely long paper, ...
    a.   ... and it is unbelievable what a long paper John wrote.
    b.   ... and it is unbelievable what a long paper ~~John wrote~~.

(70)   John wrote an extremely long paper, ...
    a.   ... and it is unbelievable how long a paper John wrote.
    b.   ... and it is unbelievable how long a paper ~~John wrote~~.
    c.   ... and it is unbelievable how long ~~John wrote a paper~~.

Below, we look at various cases with islands. Note that we have established that movement in exclamatives obeys those islands, and we see that island violations are rectified under sluicing. The materials left after sluicing do not change; only those listed in (56a) can survive. Thus, we use those materials in the illustration below.

4.3.1   Left Branch Condition

One very interesting observation noted by Merchant (2001), which shows a clear contrast with cases with exclamatives, is the following. He tested many island constraints to see which constraints are rectified under sluicing. One island constraint that is quite relevant in our cases with exclamatives is LBC, since LBC regulates the extractability of adjectival projections, and exclamatives also involve movement of adjectival projections. Merchant (2001) notes that LBC effects disappear under sluicing, as shown below.

Sluicing with LBC
(71)   a.   He wants a detailed list, but I don't know how detailed.
       b.   She bought an {expensive/fast/big} car, but I don't know how

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[57] Alternatively, we can speculate that *what* and *how* in exclamatives, both occurring at the beginning of a clause, are a special complementizer for exclamatives. Following the generalization by Merchant (2001:62) that complementizers cannot remain under sluicing, the fact that *what* and *how* cannot survive after sluicing must be explained by whatever analysis accounts for the generalization: a licensing condition of IP-ellipsis. See Merchant (2001: chapter 2, section 2). This idea might work with *what* since the DP following *what* seems to be a DP in which the materials inside are normally ordered (e.g., *a long paper*), but it might be harmful with *how*. It requires an additional stipulation for the ordering restriction on the materials following *how* (e.g., *long a paper*) via a mechanism of pied-piping.

{expensive/fast/big}.
c. Your brother is a smart doctor, but it's not clear how smart.

However, if the nominals that contain the *how + adjective* complex is inside another island, examples are unacceptable (Merchant 2001:175). He shows examples with Adjunct Island and Relative Clause.

LBC + Adjunct Island
(72) a. *She'll be angry if he buys an expensive car, but I don't know how expensive.
      b. *He got stressed because his boss wants a detailed list, but I don't know how detailed.

LBC + Relative Clause
(73) a. *She met a guy who bought an {expensive/fast/big} car, but I don't know how {expensive/fast/big}.
      b. *They want to hire someone who writes thorough reports, and wait till you see how thorough.
      c. *She wants to meet a guy who buys old paintings, but she didn't say how old.

He also shows that this cannot be due to the ban on long distance extraction of *how*-phrase by noting that in general, a long distance extraction does not cause any problem in sluicing.

(74) He said he needed a detailed list, but wait till you hear how detailed.

The contrast between cases with and without islands is quite peculiar. To make the matter even more peculiar, as will be shown below, exclamatives do not show this contrast; namely, extraction of the *how + adjective* complex seems to be allowed regardless of the presence of an island. We have already seen in (70) that examples with sluicing are fine if the nominal that contains an adjectival projection is not inside of an island. Below, we will see that examples remain acceptable even if the nominal with an adjectival projection is placed inside of an island. This is the case not only with Relative Clause and Adjunct Islands, as we will also see examples with Noun-Complement Islands, Subject Islands, Sentential Subject Condition, and Coordinate Structure Constraint.

4.3.2   Other Islands

Examples in (76) and (77) show that a violation of the Complex NP Constraint (Relative Clause) is ameliorated if sluicing applies.

Relative Clause + Sluicing
(75) John met a professor who wrote an extremely long paper,
      a. *..., but it is unbelievable [what a long paper]$_1$ John met a professor who wrote t$_1$.
      b. ..., but it is unbelievable [what a long paper]$_1$ ~~John met a professor who wrote t~~$_1$.

Relative Clause + Sluicing

(76)   John met a professor who wrote an extremely long paper,

    a.   *..., but it is unbelievable [how long a paper]$_1$ John met a professor who wrote t_1.

    b.   ..., but it is unbelievable [how long a paper]$_1$ ~~John met a professor who wrote t_1~~ .

    c.   ..., but it is unbelievable [how long]$_1$ ~~John met a professor who wrote a t_1 paper~~.

The same is true with Noun-Complement Islands.

Noun-Complement + Sluicing

(77)   Susan heard a news that a researcher found an extremely big spider,

    a.   *..., but it is unbelievable [what a big spider]$_1$ Susan heard a news that a researcher found t_1.

    b.   ..., but it is unbelievable [what a big spider]$_1$ ~~Susan heard a news that a researcher found t_1~~ .

Noun-Complement + Sluicing

(78)   Susan heard news that a researcher found an extremely big spider,

    a.   *..., but it is unbelievable [how big a spider]$_1$ Susan heard news that a researcher found t_1.

    b.   ..., but it is unbelievable [how big a spider]$_1$ ~~Susan heard news that a researcher found t_1~~ .

    c.   ..., but it is unbelievable [how big]$_1$ ~~Susan heard news that a researcher found a t_1 spider~~.

Though a little degraded, Adjunct Island violations are also repaired under sluicing.

Adjunct Island + Sluicing

(79)   Bill came to office because he had to sign an extremely important document,

    a.   *..., but it is unbelievable [what an important document]$_1$ Bill came to office because he had to sign t_1.

    b.   ?..., but it is unbelievable [what an important document]$_1$ Bill came to office because he had to sign t_1 .

Adjunct Island + Sluicing

(80)   Bill came to the office because he had to sign an extremely important document,

    a.   *..., but it is unbelievable [how important a document]$_1$ Bill came to office because he had to sign t_1.

    b.   ?..., but it is unbelievable [how important a document]$_1$ ~~Bill came to office because he had to sign t_1~~ .

    c.   ?..., but it is unbelievable [how important] ~~Bill came to office because he had to sign a t_1 document~~.

Other island cases exhibit more or less a similar pattern. The state of affairs is that examples with *how*-exclamatives are slightly better than that with *what*-exclamatives.

Subject Island + Sluicing

(81)   A biography of an extremely famous politician is going to be published, ...
      a.   *..., and it is unbelievable [what a famous politician]$_1$ [a biography of t$_1$] is going to be published.
      b.   ??..., and it is unbelievable [what a famous politician]$_1$ ~~[a biography of t$_1$] is going to be published~~.

Subject Island + Sluicing

(82)   A biography of an extremely famous politician is going to be published, ...
      a.   *..., and it is unbelievable [how famous a politician]$_1$ [a biography of t$_1$] is going to be published.
      b.   ?..., and it is unbelievable [how famous a politician]$_1$ ~~[a biography of t$_1$] is going to be published~~.
      c.   ?..., and it is unbelievable [how famous]$_1$ ~~[a biography of a t$_1$ politician] is going to be published~~.

Sentential Subject Island + Sluicing

(83)   That the UN security council would criticize an extremely powerful country at the next meeting has been widely reported, ...
      a.   *..., and it is unbelievable [what a powerful country]$_1$ [that [the UN security council would criticize t$_1$ at the next meeting]] has been widely reported.
      b.   ??..., and it is unbelievable [what a powerful country]$_1$ ~~[that [the UN security council would criticize t$_1$ at the next meeting]] has been widely reported~~.

Sentential Subject Island + Sluicing

(84)   That the UN security council would criticize an extremely powerful country at the next meeting has been widely reported, ...
      a.   *..., and it is unbelievable [how powerful a country]$_1$ [that [the UN security council would criticize t$_1$ at the next meeting]] has been widely reported.
      b.   ?..., and it is unbelievable [how powerful a country]$_1$ ~~[that [the UN security council would criticize t$_1$ the next meeting]] has been widely reported~~.
      c.   ?..., and it is unbelievable [how powerful]$_1$ ~~[that [the UN security council would criticize a t$_1$ country at the next meeting]] has been widely reported~~.

Coordinate Structure Constraint + Sluicing

(85)   John met Susan and an extremely cute girl, ...
      a.   *..., and it is unbelievable [what a cute girl]$_1$ John met [Susan and t$_1$]
      b.   ??..., and it is unbelievable [what a cute girl]$_1$ ~~John met [Susan and t$_1$]~~.

Coordinate Structure Constraint + Sluicing

(86)   John met Susan and an extremely cute girl, ...
      a.   *..., and it is unbelievable [how cute a girl]$_1$ John met [Susan and t$_1$].
      b.   ?..., and it is unbelievable [how cute a girl]$_1$ ~~John met [Susan and t$_1$]~~.
      c.   ?..., and it is unbelievable [how cute]$_1$ ~~John met Susan and [a t$_1$ girl]~~.

In this section, we saw a series of examples showing that various island effects disappear once sluicing has applied. For example, extraction of *what a big car* or *how big a car* out of various islands is in general prohibited, showing island effects, but once the IP following the extracted material has been elided, the examples are acceptable. Moreover, it is quite significant that the same contrast is observed with extraction of *how big* alone.

Merchant (2001) notes, with his sluicing with interrogative clauses, that such extraction (a clear LBC violation) is possible only when no other islands are involved. Once the extraction site is buried under another island, e.g., a complex NP, the examples are not acceptable. We, then, saw cases where exclamatives are different; regardless of the existence of other islands, LBC violations are remedied by sluicing.

5.   Summary

In this chapter, we observed that sluicing is available not only for interrogatives, but also for exclamatives. This forced us to revise a generalization noted by Merchant (2001) that only interrogative complementizers allow sluicing. We found out that, for sluicing, interrogatives and exclamatives form a natural class, excluding relative clauses and free relatives, among others. With respect to material left under sluicing, we suggest that the generalization based on interrogatives is also applicable. The fact that *what* and *how* alone cannot remain under sluicing can be explained by assuming Corver (1990)'s suggestion that these are a head of some extended projection of AP, and a head cannot move into [Spec,CP]. Then, we saw various cases in which islands are involved. We saw that, as with interrogatives, various island effects can be rectified by sluicing. The most interesting finding here is that although Merchant (2001) has observed that LBC violations in interrogatives can be rectified only when there are no other islands involved, we found that LBC violations in exclamatives can be rectified regardless of the involvement of other islands. LBC effects disappear not only when there is no other island involved, but also when the launching site is embedded under other islands.

CHAPTER 5: LICENSING CONDITIONS OF EXCLAMATIVES AND INTERVENTION EFFECTS

1.   Introduction: Two puzzles

This chapter is concerned with the distribution of exclamative clauses in English. We show that exclamatives are licensed by being c-commanded by a factive operator or predicate, contrary to the traditional assumption that exclamatives are selected by a factive predicate. It will be argued that the distribution of exclamative clauses can be accounted for by assimilating it to aggressively-non-D-linked wh-interrogative clauses (the hell-wh-interrogatives), although the relevant property for the former is factivity, while that for the latter is non-veridicality. We show that the analysis proposed by den Dikken & Giannakidou (2002) can be extended to explaining the distribution of exclamatives in English. The general conclusion obtained in this chapter suggests that exclamatives and the hell-wh-interrogatives are similar in that both involve very intricate semantic and pragmatic information. Figuring out the exact properties of both allows us to investigate to what extent semantic and pragmatic information play a role in syntax. Recall that in chapter 2, we argued that notions such as mood or speaker's point of view play a very important role in syntax, and we encode those by functional projections in the CP layer. We hope that the conclusion in this chapter helps us to examine what kind of projections are needed for exclamatives in English.

1.1   Selection of Exclamatives

It has been a standard observation that, when embedded, exclamative clauses have to be selected by a factive predicate. One repeatedly discussed paradigm, in (1) and (2), is that exclamative clauses cannot appear as the complement of an interrogative predicates, such as *wonder* or *ask*, which require an interrogative wh-clause (see e.g., Elliott 1971, 1974, Grimshaw 1979, Zanuttini & Portner 2003, Fujii & Ono 2005).[58]

Embedded under Factive Predicates
(1)   a.   It's amazing what a fool he is.
        b.   Susan regrets what a cheap house her parents bought.

(2)   a.   * John will ask what a fool he is.
        b.   * Susan wonders what a cheap house her parents bought.

Much attention has been paid to interrogative clauses, the distribution of which is complementary to that of exclamative clauses as shown in (3) and (4). Interrogative clauses, such as ones headed by *whether*, cannot occur as a complement of factive predicates, such as *be amazing*, *regret* or *be surprised at*.

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[58] We abstract away from cases where interrogative predicates select categories other than a clause, such as *I asked the name of the new student*. See Grimshaw (1979) and Pesetsky (1982, 1991).

Complementary Distribution
(3) a. Fred will ask whether he is a fool.
     b. Susan wonders whether her parents live in a large house.

(4) a. * It's amazing whether he is a fool.
     b. * Susan regrets whether he lives in a large house.

It is also well known that predicates such as *know* or *find out* can embed either interrogative or exclamative clauses.

Embedding Interrogatives or Exclamatives (Grimshaw 1979; (8))
(5) a. John knows whether he is a fool.
     b. John knows what a fool he is.
     c. John found out whether he lives in a large house.
     d. John found out what a large house he lives in.

Based on the paradigm illustrated above, Grimshaw (1979) suggests frames for complement selection building upon semantic types as shown in (6), which aims at explaining all the patterns observed above.

Semantic Selection Frames
(6) a. [__ Q]   interrogative taking predicates
     b. [__ E]   exclamative taking predicates
     c. [__ Q / E]   both

The particular intuition behind this is the close parallelism between interrogatives and exclamatives. That is, a certain type of clause (here, we are only concerned with clauses) has to be selected by a unique type of predicate when it is embedded. The connection between a clause and a predicate seems to be very tight in the case of interrogatives. Interrogative *wh*-clauses have to be selected by one of the interrogative predicates and interrogative predicates have to select an interrogative clause as a complement. That is how selection works.

It seems true that exclamative *wh*-clauses have to be selected by a factive predicate when they are embedded, but it is certainly not the case that factive predicates have to select an exclamative clause as a complement. Evidently, *that*-clauses can appear as a complement of factive predicates, as shown in (7). Examples in (8) show that the sentential complement for predicates such as *ask* or *wonder* is always interrogative. On the other hand, there is no predicate that must select exclamative clauses. If there were such a predicate, it would show the pattern shown in (9). If we take this point seriously, it suggests that the parallelism between interrogatives and exclamatives is not as complete as has been claimed.

That-*clause complement with factive predicates*
(7) a. It's amazing that John finally solved the problem.
     b. Susan regrets that her parents bought a very cheap house.

That-*clause never goes with* ask *and* wonder
(8) a. * Fred will ask that he is a fool.
     b. * Susan wonders that he lives in a large house.

Imaginary exclamative predicate: REGRET
(9)   a.   Fred REGRETs what a cheap house his parents bought.
         b. * Fred REGRETs that his parents bought a cheap house.

1.2   Licensing Exclamatives at a Distance

The second puzzle is related to the point made above. Since an interrogative predicate selects an interrogative clause, the *wh*-clause appears as a sister to the interrogative predicate, as shown in (10). (10b) is ungrammatical since there is no interrogative clause that is a sister of *wonder*.

Very local relation
(10)   a.   I wonder whether it is unclear Mary likes Christmas shopping.
         b. * I wonder it is unclear whether Mary likes Christmas shopping.

On the other hand, there is evidence that the relationship between the factive predicate and the exclamative *wh*-clause is not selection. First, the predicate *be unclear* usually cannot select an exclamative *wh*-clause, as shown in (11), while an interrogative *wh*-clause can appear as a complement of this predicate, indicating that *be unclear* is not a factive predicate. Now, the minimal pair in (12) shows that exclamative *wh*-clauses can appear as the sister of the predicate *be unclear* if a factive predicate such as *regret* or *realize* also appears in a position from which it can c-command the exclamative wh-clause. Note that predicates such as *think, say* or *claim*, being non-factive predicates, do not help license the exclamative clause.[59]

Long-Distance Licensing of Exclamative Wh-*Phrases*
(11)   a. * It is unclear how very big a house he has.
         b.   It is unclear whether he has a big house.

(12)   a.   Mary regrets/realizes that it is unclear how very big a house he has.
         b. * Mary thinks/says/claims that it is unclear how very big a house he has.

This observation is quite interesting when compared with the examples in (10). Again, the examples in (10) show that an interrogative predicate requires an interrogative clause in its complement position, and an interrogative clause is also required to be the complement of an interrogative predicate when embedded. On the other hand, the minimal pair in (12) shows that, unlike a very strict local relation like "selection", the c-command relation between the clause and the predicate licenses exclamative *wh*-clauses.

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[59] We have to be careful with the choice of the predicate. The paradigm can be established with a non-factive predicate, such as *be unclear* that can select either a *that*-clause or an interrogative clause. For that reason, we cannot use predicates such as *be likely, be certain*, etc., which only select *that*-clause. Relevant discussion is found in Adger & Quer (1997, 2001) where they discuss cases that the predicates such as *be clear* and *be obvious* that do not take a complement clause headed by *if*, but they do when the predicate is in question or negation is added.

A key to understanding this contrast between the interrogative and exclamative wh-clause will be found if the distribution of exclamative wh-clauses is investigated from a different perspective. One conclusion we draw is that although it is true that interrogative *wh*-clauses are licensed by selection by an appropriate predicate, exclamative *wh*-clauses are licensed by c-command: an embedded exclamative clause is only licit if it is c-commanded by certain veridical items, such as a factive operator (see Melvold 1991, Watanabe 1993, Zanuttini & Portner 2003). In order to show that the distribution of exclamative *wh*-clause is regulated by a proper c-command relation, we propose a system which is quite similar to the one argued for by den Dikken & Giannakidou (2002), who investigated the distribution of "aggressively non-D-linked" *wh*-phrases (*wh*-the hell). They argue that *wh*-the hell phrases are polarity items, and they have to occur in a non-veridical context, which is typically established by the presence of negation, a Q-operator, or an interrogative predicate.[60] We argue that exclamative *wh*-phrases are also some kind of "polarity" sensitive item, but the environment they have to occur in is not non-veridical, but a subset of the veridical contexts, namely factivity. Therefore, to the extent that the proposal here is successful, additional support can be given to the approach by den Dikken & Giannakidou (2002).

2.   den Dikken & Giannakidou (2002)

This section summarizes the analysis of *wh*-the hell phrases proposed by den Dikken & Giannakidou (2002). First, we introduce their phrase structure and discussion with respect to the landing sites of *wh*-phrases in English, then we review the critical component of their argument.

2.1   Phrase Structure and Landing Sites of *Wh*-phrases

Den Dikken & Giannakidou (2002) assume the multi-layered CP structure introduced in Rizzi (1997) where an IP is dominated by at least three functional projections: a Focus phrase (FocP), a Topic phrase (TopP) and a CP, as shown in (13).

Multi-Layered CP
(13)   [$_{CP}$ … [C [$_{TopP}$ … [Topic [$_{FocP}$ … [Focus [$_{IP}$ …]]]]]]]

Based on this phrase structure, they argue that the landing site of *wh*-movement in English is not uniform between the embedded and matrix clauses. Specifically, *wh*-movement targets [Spec,CP] in embedded clauses, but [Spec,FocP] in matrix clauses. First, one piece of support for the hypothesis comes from Hungarian data, where a *wh*-phrase moves into [Spec,FocP]. Examples in (14) show that in Hungarian, *wh*-phrases need to appear in a position immediately before the verb. Then, when there is another focused phrase within a clause, a wh-phrase cannot co-occur with the focused phrase, as shown in (15). Examples in (15) are explained straightforwardly if both phrases target the same [Spec,FocP].

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[60] The precise characterization of (non)veridicality is not an issue we can discuss here. See Giannakidou (1999).

Hungarian Focus Movement (dDG (45))

(14) a. Mari   *kit*   hívott   meg?
          Mari(TOP) who-ACC invited   PV
          'Who did Mari invite?'
      b. Kivánsci vagyok hogy   Mari   *kit*   hívott   meg.
          curious   I-am   that   Mari(TOP) who-ACC invited   PV
          'I wonder who Mari invited.'

Wh-Phrase and Focus Element Cannot Co-occur (dDG (46))

(15) a. * *Kit*   MARI   hívott   meg?
             who-ACC   Mari(FOC) invited   PV
      b. * MARI   *kit*   hívott   meg?
          Mari(FOC) who-ACC   invited   PV

With respect to the different landing sites of *wh*-movement between the embedded and matrix clauses, they use Pesetsky's (1989) observation on the relative order of *wh*-phrases and a leftward-moved topic phrases in English. Pesetsky (1989) observes that a *wh*-phrase follows a topic phrase in the matrix clause, while it precedes a topic phrase in the embedded clause. Assuming that there is a unique topic phrase in a clause, it seems that there is more than one position to which a *wh*-phrase moves. In the matrix clause (16), a *wh*-phrase moves to [Spec,FocP], which is lower than TopP, and in the embedded clause (17), a *wh*-phrase moves to [Spec,CP], which is higher than TopP.

Pesetsky 1989: topicalization

(16) a. ?<u>A book like this</u>, why should I buy?   (his (39))
      b. *Why, a book like this, should I buy?

(17) a. ?I wonder why, <u>a book like this</u>, I should buy.   (his (41))
      b. *I wonder, a book like this, why I should buy.

Wh-the-hell phrases exhibit the same ordering restriction with respect to the topic phrase.

Same Observation with Wh-*the-Hell Phrases*

(18) a. ?<u>A book like this</u>, why the hell should I buy?
      b. *Why the hell, a book like this, should I buy?

(19) a. ?I wonder why the hell, <u>a book like this</u>, I should buy.
      b. *I wonder, a book like this, why the hell I should buy.

2.2   *Wh*-the-Hell

"Aggressively non-D-linked" *wh*-phrases are *wh*-phrases with an extra phrase such as *the hell* or *on earth*. They are characterized as having semantic or pragmatic properties that are not readily available with "regular" *wh*-phrases (see Pesetsky 1987, den Dikken & Giannakidou 2002, Lee 1994, and Obenauer 1994 for more detailed discussion). Comparing examples in (20), an interrogative clause with a *wh*-the-hell phrase is used with an additional psychological attitude toward the answer (e.g., surprise), or it has a negative inference such as *nobody was supposed to buy the book*.

(20)　a.　Who bought the book?
　　　b.　Who the hell bought the book?

Den Dikken & Giannakidou (2002) introduce quite interesting observations with respect to the distribution of *wh*-the-hell phrases. They note that while *wh*-the-hell phrases cannot usually occur under a factive predicate like *know*, this restriction is lifted when the predicate is negated. Note further that polarity items such as *anyone* are also sensitive to elements like negation.

Complement of veridical predicates: Usually, "know" *cannot take* wh-*the-hell*
(21)　a.　　I know who would buy that book.　　　(dDG (5))
　　　b.　* I know who the hell would buy that book.　　(with factive predicates)

But OK if c-commanded by negation
(22)　a.　　I do*n't* know who would buy that book.　　(dDG (6))
　　　b.　　I do*n't* know who the hell would buy that book.

Polarity item: anyone
(23)　a.　* I know anyone would buy that book.
　　　b.　　I do*n't* know anyone would buy that book.

The parallelism between the *wh*-the hell and polarity items goes further. *Wh*-the-hell phrases are acceptable as long as they are c-commanded by elements like *only*, *nobody*, or if they are inside of *if*-clauses.

(24)　a.　*Only* John knows who the hell wrote this secret report.　(dDG (13-15))
　　　b.　*If* John knows who the hell wrote this secret report, he should tell us now.
　　　c.　*Nobody* knows who the hell wrote this secret report.

(25)　a.　*Only* John knows whether anyone is aware of this secret report. (dDG (13-15))
　　　b.　*If* John sees anybody, he should tell us now.
　　　c.　*Nobody* knows whether anyone wrote this secret report.

Based on these observations, den Dikken & Giannakidou (2002) conclude that *wh*-the-hell phrases are polarity items like *anyone*, which have to be licensed under certain contexts (i.e., non-veridical contexts).

2.3　Basic Analysis

In the previous section, we have reviewed some quite intriguing distributional properties of *wh*-the-hell phrases. This section reviews den Dikken & Giannakidou's (2002) analysis for how those observations follow from the polarity sensitive status of *wh*-the-hell phrases. Recall the paradigm in (26) where *wh*-the-hell phrases are not allowed to appear under predicates such as *know*, but they are if the predicate is negated. This observation follows straightforwardly from their analysis since the negation will c-command the *wh*-the-hell phrase. With respect to the ungrammatical example (26a), there is no negation that can c-command the *wh*-the-hell phrase.

No Embedding under "know"
(26) a. * I know who the hell would buy that book.
      b.   I don't know who the hell would buy that book.
      c.   I don't know anyone would buy that book.

At this point, it is mysterious how the *wh*-the-hell phrase at the beginning of the sentence could be licensed, since there is no overt element to the left of the *wh*-the-hell phrase. In order to explain this data, the assumption that the landing site of *wh*-movement in the matrix clause is [Spec,FocP] becomes very important. Den Dikken & Giannakidou (2002) argue that there is a Q operator in C, and it can c-command the *wh*-the-hell phrase in [Spec,FocP]. One piece of evidence that a Q operator is a legitimate licenser comes from the observation that polarity items are licensed in interrogatives in general as shown in (28).

Wh-*the-hell phrases at the root clause is c-commanded by a Q operator.*[61]
(27) a. Who the hell left?
      b. $[_{CP}$ C_Q $[_{FocP}$ [who the hell]$_i$ [Foc $[_{IP}$ t_i left]]]]

(28) Did Bill eat anything?

There is one more way to satisfy the polarity sensitivity of *wh*-the-hell phrases. Recall that when a *wh*-the-hell phrase occurs in embedded clauses, it moves to [Spec,CP], not [Spec,FocP]. Presumably [Spec,CP] cannot be c-commanded by a Q operator, so the *wh*-the-hell phrase has to have some alternative way to satisfy the requirement. The suggestion by den Dikken & Giannakidou (2002) is that the interrogative predicate, *wonder* in (29), c-commands the *wh*-the-hell phrase to satisfy the requirement.

Wh-*the-hell phrases at the embedded clause is c-commanded by an interrogative predicate.*[62]
(29) a. I wonder who the hell left?
      b. I $[_{VP}$ wonder $[_{CP}$ [who the hell]$_i$ C_Q $[_{FocP}$ Foc $[_{IP}$ t_i left]]]]

So far, we have seen at least three ways to satisfy the polarity sensitivity of *wh*-the-hell phrases: negation, a Q operator, and an interrogative predicate. The analysis reviewed here in fact can account for further properties of *wh*-the-hell phrases, which we discuss in the next section.

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[61] Examples of wh-questions with negative polarity item are not good, such as:
(i)   *Who bought anything?
Later, we discuss their account for the example above. In short, this is a case of an intervention effect. The wh-phrase intervenes between the licensor (Q-operator) and *anything*.
[62] This analysis is only concerned with predicates that must select an interrogative clause; i.e., predicates such as *know* are not included. See den Dikken & Giannakidou (2002).

2.4   *Wh*-the-Hell in Multiple *Wh*-Constructions

One property of *wh*-the-hell phrases that is not seen with regular *wh*-phrases is that when a *wh*-the-hell phrase in the matrix clause is used in a multiple *wh*-construction, it does not admit a pair-list interpretation. Den Dikken & Giannakidou (2002) observe that a pair-list interpretation only becomes available when a *wh*-the-hell phrase is embedded.[63]

Root / Embedded Asymmetry
(30)   a.   Who the hell is in love with who?   [pair-list reading unavailable]
        b.   I {am wondering/would like to know} who the hell is in love with who.
                                    [pair-list reading available]

They argue that their analysis can account for this asymmetry between the matrix and embedded clauses, under the assumption that in-situ *wh*-phrase must be licensed in the Focus projection and there is only one [Spec,FocP]. (31) illustrates one possible derivation; if the in-situ *wh*-phrase *with who* undergoes covert movement to [Spec,FocP], the *wh*-the-hell phrase cannot move into [Spec,FocP]. Then, alternatively, the *wh*-the-hell phrase undergoes movement to [Spec,CP]. However, this position cannot be c-commanded by a Q operator, thus this derivation cannot receive a pair-list interpretation.[64] Now, consider the alternative derivation in (32). Suppose the *wh*-the-hell phrase moves to [Spec,FocP] as has been argued to happen in the matrix clause. Then, the in-situ *wh*-phrase cannot move to [Spec,FocP], since this position is already occupied by the *wh*-the-hell phrase. Assuming that in-situ *wh*-phrases are licensed in the Focus projection, the in-situ *wh*-phrase in (32) cannot be licensed.

Analysis for (30a) #1
(31) $[_{CP}$ [who the hell]$_i$ C_Q $[_{FocP}$ [with who]$_j$ Foc $[_{IP}$ t_i is in love t_j]]]
        The *wh*-the-hell phrase is not c-commanded by the Q operator.

Analysis for (30a) #2
(32) $[_{CP}$ C_Q $[_{FocP}$ [who the hell]$_i$ Foc $[_{IP}$ t_i is in love [with who]]]]
        The *wh*-the-hell phrase is licensed, but not in-situ *wh*-phrase.

On the other hand, in the embedded clause, there is a way to license both of the *wh*-the-hell phrase and the in-situ *wh*-phrase, as shown in (33). As we have seen in (31), the only way to license an in-situ *wh*-phrase is by moving it to [Spec,FocP]. Since this is in the embedded clause, the *wh*-the-hell phrase moves to [Spec,CP]. Although this position cannot be licensed by a Q operator, there is an interrogative predicate, *wonder*, which can c-command the *wh*-the-hell phrase. Hence, this derivation can receive a pair-list interpretation.

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[63] See some related discussion in Lee (1994). Also, we disregard the availability of single-pair echo reading; see den Dikken & Giannakidou (2002).
[64] On the other hand, multiple wh-questions that do not contain wh-the hell phrase are licensed since the overtly moved wh-phrase can move to [Spec,CP], making available [Spec,FocP] for the in situ wh-phrase. This is possible since the regular wh-phrase does not have to be c-commanded by the Q operator.

Analysis for(29b)

(33)　… wonder [$_{CP}$ [who the hell]$_i$ C$_Q$ [$_{FocP}$ [with who]$_j$ [$_{IP}$ t$_i$ is in love t$_j$]]]

2.5　Intervention Effects

2.5.1　No In-Situ *Wh*-the Hell Phrase

It has been observed that *wh*-the hell phrases are restricted from appearing in situ (Pesetsky 1987, Lee 1994, and Obenauer 1994). In contrast with the multiple questions we have seen in the previous section, there is no asymmetry between the matrix and embedded clauses.

(34)　a.　*Who is in love with who the hell?
　　　 b.　*I {am wondering/ would like to know} who is in love with who the hell.

Den Dikken & Giannakidou (2002) argue that the lack of in-situ *wh*-the-hell phrases is an intervention effect (see, e.g., Rizzi 1990, de Swart 1992, Pesetsky 2000). For instance, the licensing of polarity items exhibits sensitivity with respect to the material occurring between the licensor and licensee. In (35), a referential expression *Mary* does not disrupt the relation between negation and a polarity item *a red cent*, while a quantifier *every charity* does. Den Dikken & Giannakidou (2002) argue that with respect to the *wh*-the-hell phrases, a quantifier *who* intervenes between the Q operator and the *wh*-the-hell phrase. Hence, this is an intervention effect.[65]

Intervention Effect of Polarity Items
(35)　a.　John did*n't* give Mary *a red cent*.
　　　 b.　* John did*n't* give every charity *a red cent*.

(36)　a.　*[Neg　　… [**every charity**　　… [a red cent …]]]
　　　 b.　*[Q　　　… [**who**　　　　 … [who the hell …]]]

In the embedded clause, as in (34b), the higher *wh*-phrase *who* should be in [Spec,CP], which is higher than a Q operator. In this case, what is intervening between the Q operator and the *wh*-the-hell phrase is the trace of *who*.[66]

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[65] Norbert Hornstein (p.c.) notes that it is not common for an indefinite quantifier to act as an intervener in intervention effects noted in the literature, providing the following example:
(i)　　John doesn't know when anyone is at home.
[66] There is some concern whether the prohibition of in-situ *wh*-the-hell phrases can be accounted for in this analysis. In particular, example (ic) is predicated to be acceptable. First, according to their analysis, the in-situ *wh*-the-hell phrase in (ic) is c-commanded by a Q operator in the embedded clause. Then there are some indications that *whether* does not function as an intervener. The acceptable example (ib) suggests that *whether* does not block the licensing requirement of *anyone*, which is a polarity item. If we assume that the set of items functioning as an intervener for *wh*-the-hell phrases is the same for *anyone*, then the *wh*-the-hell phrase in the same position should be licensed.

2.5.2 Lack of Scope Interaction

The second property that falls within the intervention effect apparoach is the lack of scope interaction. It has been noted in the literature that example (37a) is ambiguous with respect to the scope relation between the *wh*-phrase and a quantifier *everyone* (cf. May 1985, Lasnik & Saito 1992, among many others). In one interpretation, the *wh*-phrase takes wide scope with respect to *everyone*, everyone bought the same thing for Max. For example, *Susan bought a Beetle's CD, Mary bought another Beetle's CD, etc*. In the other interpretation, *everyone* takes wide scope with respect to the *wh*-phrase. One expected situation is that *Susan bought a Beetle's CD, Mary bought a pasta machine, and Lisa bought a pair of socks*. Den Dikken & Giannakidou (2002) observe that such a scope ambiguity is not available in (37b), in that the *wh*-the-hell phrase must take wide scope with respect to *everyone*. Their account of this observation is that if the *wh*-the-hell phrase is reconstructed to a position that is lower than *everyone*, which seems to be required for the wide scope universal quantifier interpretation, the representation exhibits intervention effects. As can be seen in (38b), the universal quantifier c-commands the *wh*-the-hell phrase and the Q operator c-commands the universal quantifier at the same time.

(37) a. What did everyone buy for Max?   [ambiguous]
      b. What the hell did everyone buy for Max?   [unambiguous] wh>every

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(i)   a. Who wonders whether Mary met who?
      b. Who wonders whether Mary met anyone?
      c. *Who wonders whether Mary met who the hell?

The second indication that *whether* is not a harmful intervener comes from the following examples. Assuming that a predicate like *know* does not host a Q operator, as they argue in their paper, the *wh*-the-hell phrase in (iia) is licensed by a Q operator that appears somewhere to the left of *wonder*. Again, the acceptable status of (iia) indicates that *whether* does not function as an intervener.

(ii) a. I wonder whether Mary knows who the hell left.
      b. I wonder whether Mary knows anyone left.

If the above consideration holds, we have to seek some alternative account for the prohibition of in-situ *wh*-the-hell phrases.

Furthermore, with respect to the status of *who* as an intervener, it seems that a regular *wh*-phrase does not function as an intervener with respect to licensing of *any*. As shown in (iiia), the polarity item *anything* is licensed even though *who* and its trace intervene between a Q operator and *anything*, as den Dikken & Giannakidou (2002) note in their paper. They claim that this fact indicates that *wh*-the-hell phrases are a new kind of polarity item, and the set of licensors for *wh*-the-hell phrases does not completely overlap that of other polarity items such as *anything*.

(iii) a. Who has given *anything* to Bill? (dDG (48))
      b. What did John give to *anyone*?

(38) a.   [Q … [what the hall   … [**everyone** …]]]
      b. * [Q … [**everyone**   … [what the hell   …]]]

3.   Exclamatives

3.1   Complementary Distribution

In the previous sections, we reviewed the analysis proposed by den Dikken & Giannakidou (2002) concerning the distribution of *wh*-the-hell phrases. In this section, we argue that a similar account is potentially available for the distribution of exclamative *wh*-phrases. We propose that exclamative *wh*-phrases are a kind of polarity item, the distribution of which is regulated by the presence of an appropriate licensor. In the case of *wh*-the-hell phrases, we have seen that the licensors include negation, a Q operator, interrogative predicates, and some others. We show that the distribution of exclamative *wh*-phrases is limited to a position where a Factive operator or a factive predicate can c-command them. Furthermore, we provide some data that illustrate the intervention effect as we have seen in the case of *wh*-the-hell phrases. First, the following data show that in the embedded context, the distribution of *wh*-the-hell phrases and exclamative *wh*-phrases is complementary. This makes sense since it has been shown that *wh*-the-hell phrases, being a polarity item that is sensitive to non-veridicality, cannot occur in a context where factivity is at work. On the other hand, if exclamative *wh*-phrases are polarity items that are sensitive to the presence of factivity, it is expected that exclamative *wh*-phrases are not allowed to occur where *wh*-the-hell phrases can occur (except for matrix exclamative *wh*-phrases; we will come back to this soon).

(39) a. I know who left.
      b. *I know who the hell left.
      c. I know what a big house he has.

(40) a. I don't know who left.
      b. I don't know who the hell left.
      c. *I don't know what a big house he has.

(41) a. I wonder who left.
      b. I wonder who the hell left.
      c. *I wonder what a big house he has.

(42) a. It is amazing who came.
      b. *It is amazing who the hell came.
      c. It is amazing what a big house he has.

(43) a. It is unclear who came.
      b. It is unclear who the hell came.
      c. *It is unclear what a big house he has.

One piece of evidence for the analysis proposed here comes from the availability of long-distance licensing of exclamative *wh*-phrases noted in the introduction. The minimal pair in (44) shows that although exclamative *wh*-phrase cannot usually appear under a non-factive predicate such as *be unclear*, the example becomes acceptable if the whole

sentence is further embedded under a factive predicate like *realize*. Assuming that factive predicates require the complement to have a factive operator (presumably the predicate and the factive CP are sisters), this factive operator c-commands the exclamative *wh*-phrase in (44a). On the other hand, there is no factive operator or factive predicate in (44b).

Long Distance Licensing
(44) a. Mary regrets/realizes that it is unclear how very big a house he has.
  b. * Mary thinks/says/claims that it is unclear how very big a house he has.

There is one point we want to make sure of before we proceed. Recall that there is an ordering restriction between the fronted *wh*-phrase and the fronted topic phrase. Also, what is significant is the asymmetry between the matrix and the embedded clause. As we have seen with regular *wh*-phrases and *wh*-the-hell phrases, exclamative *wh*-phrases obey exactly the same restriction as shown in (45) and (46). In the matrix clause, the topic phrase must precede the exclamative *wh*-phrase, and in the embedded clause, the topic phrase must follow the exclamative *wh*-phrase.

Relative Order with Topic Phrases
(45) a. ?To a jerk like him, what an expensive present you gave!
  b. *What an expensive present, to a jerk like him, you gave!

(46) a. ?It's awful what an expensive present, to a jerk like him, you gave.
  b. *It's awful to a jerk like him, what an expensive present you gave.

The observation above leads us to conclude that, like other *wh*-phrases in English, the landing sites of *wh*-movement is different depending on whether it is the matrix or embedded clause. In the matrix clauses, the fronted exclamative *wh*-phrase moves to [Spec,FocP], while in the embedded clauses, the fronted exclamative *wh*-phrase moves to [Spec,CP].

[Spec, FocP] in the Root Clause, [Spec, CP] in the Embedded Clause
(47) a. [$_{CP}$ …   [C [$_{TopP}$ [Top [$_{FocP}$ **Wh-Exc**   [Foc [$_{IP}$ …
  b. … realize [$_{CP}$ **Wh-Exc** [C [$_{TopP}$ [Top [$_{FocP}$ …   [Foc [$_{IP}$ …

3.2   Properties of Exclamative *Wh*-Phrases

In this section, we show how the proposed analysis accounts for some basic facts about exclamative *wh*-phrases. First, we argue that matrix exclamative *wh*-phrases can be licensed by a factive operator in C, which c-commands the exclamative *wh*-phrases, as shown in (48). Note that this follows if we assume that the landing site of the fronted exclamative *wh*-phrase in the matrix clause is not [Spec,CP], but [Spec,FocP].

FACT Operator in C
(48) a. What a big house he has!
  b. [$_{CP}$ C$_{FACT}$ [$_{FocP}$ [what a big house]$_i$ [Foc [$_{IP}$ he has t$_i$]]]]

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Next, when exclamative *wh*-phrases show up in the embedded clause, especially when the exclamative *wh*-phrase appears in a clause immediately dominated by a factive predicate as in (49a), the exclamative *wh*-phrase is licensed by the factive predicate, since the predicate c-commands the exclamative *wh*-phrase. In such a case, obviously, the factive operator cannot c-command the exclamative *wh*-phrase, and an alternative licensor would be the factive predicate itself.[67]

Embedded under Factive Predicates
(49) a. It is amazing what a tall man Mary met!
       b. * It is unclear what a tall man Mary met!

(50) It is amazing [$_{CP}$ [what a big house]$_i$ C$_{FACT}$ [$_{FocP}$ Foc [$_{IP}$ he has t$_i$]]]

As a difference between interrogatives and exclamatives, Elliott (1974) observes that polarity items such as *anything* are not licensed, as in (51). Under our account, it is possible to accommodate this fact very easily. In order to license the exclamative *wh*-phrase, there is a factive operator in C. Then, since *anything* has to appear in a non-veridical context, it can never satisfy its requirement in exclamatives. Also, we can conclude from (51) that in the structure there is no appropriate licensor for a negative polarity item. More specifically, there is no Q morpheme or interrogative predicates that would license a negative polarity item.

No NPI licensing
(51) a. *What a rich man has given *anything* to Bill!   (Elliott 1974)
       b. *What a cheap present John gave to *anyone*!

Finally, a small discussion on the long distance licensing of exclamative *wh*-phrase seems to be in order. We have shown that exclamative *wh*-phrases can show up under a non-factive predicate as long as a factive predicate appears somewhere higher in the structure. One important point in such an example seems to be the status of the intervening predicate, and predicates such as *be unclear* can be employed to show that long distance licensing is possible. Note that examples are not acceptable when interrogative predicates such as *wonder* are used, as shown in (53). This observation, nonetheless, does not undermine the current proposal; it is quite plausible that what is wrong with the example is not the licensing of exclamative *wh*-phrases, but a requirement of interrogative predicates. That is, in the example, the requirement that an interrogative predicate must have an interrogative *wh*-clause as a complement is not satisfied. A similar analysis can be provided for example (54). Again, the example is unacceptable,

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[67] Alternatively, we could say that there is a factive operator OPfact in [Spec,CP]. Under such an approach, the exclamative wh-phrase in the matrix clause is c-commanded by the factive operator OPfact. Furthermore, in the embedded clause, both a factive operator and an exclamative wh-phrase are in [Spec,CP], assuming multiple specifiers in CP. It could be that the exclamative wh-phrase is located in the inner specifier of CP, where it can be c-commanded by the factive operator; or the factive operator is in the inner specifier, but it c-commands the exclamative wh-phrase that is in the outer specifier, under certain assumptions of c-command.

but what is wrong is a requirement of the predicate *think*, that it is unable to take a *wh*-clause.

Long Distance Licensing
(52) a. Mary **realizes** that it is unclear what a big house he has.
      b. * Mary claims that it is unclear what a big house he has.

(53) *Mary realizes that John wonders what a big house his parents have.

(54) *Mary realizes that John thinks what a big house his parents have.

3.3   The Polarity-Based Approach

One empirical consequence of the analysis proposed by den Dikken & Giannakidou (2002) is that they can account for some quite mysterious properties of *wh*-the-hell phrases as instances of intervention. We would like to perform a similar task in this section, that is, some properties of exclamative *wh*-phrases are accounted for if viewed as instances of intervention.

First, it has been observed that exclamative *wh*-phrases are never good if they are left in situ (Obenauer 1994, Nelson 1997, Ono 2002, Oda 2002). There is no difference regardless of whether they are in the matrix or embedded clause.

No Multiple Exclamatives / No In-situ Exclamative Wh-*phrase*
(55) a. *What an expensive present you gave to what a stupid boyfriend!
      b. What an expensive present you gave to such a stupid boyfriend!

Same Observation in the Embedded Clause
(56) *John realizes what an expensive present you gave to what a stupid boyfriend!

If we assume that an exclamative *wh*-phrase acts as an intervener, we can account for the observation above as an instance of intervention. Although a factive operator in C c-commands the in situ exclamative *wh*-phrase, there is another exclamative *wh*-phrase (or a trace of it) intervening between the factive operator and the in situ exclamative *wh*-phrase, as shown in (57).

No In-Situ Wh-*Exclamatives*
(57) a. *What an expensive present you gave to what a stupid boyfriend!
      b. [$_{CP}$ .. [C$_{\textbf{FACT}}$ [$_{FocP}$ **Wh-Exc** [Foc [$_{IP}$ … **Wh-Exc**]]]]]
          |---------------*-------------------------|

The second observation in which intervention effects are at work is the lack of scope interaction with exclamative *wh*-phrases. As seen in *wh*-the-hell phrases, the fronted exclamative *wh*-phrase always takes higher scope with respect to a quantifier in the example of the sort in (58). This observation can be accounted for by assuming that a quantifier *everyone* acts as an intervener if the exclamative *wh*-phrase is reconstructed below the quantifier in order to take the lower scope with respect to the quantifier.

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No Scope Interaction

(58) a. What an expensive present everyone bought for Max!   [unambiguous]
      b. What did everyone buy for Max?   [ambiguous…]

No Scope Interaction

(59) a.   [C$_{FACT}$ … [**Wh-Exc** … [**everyone** …]]]

      b. * [C$_{FACT}$ … [**everyone** … [**Wh-Exc** …]]]
              |---------------*-----------------|

3.4   An Alternative

This chapter started by pointing out that c-command is the crucial ingredient in licensing exclamatives, rather than selection. This raises an interesting question with respect to the driving force of the movement of the exclamative wh-phrase (Norbert Hornstein p.c.). Assume that selection is a relation between the heads. In our current case, an interrogative taking verb selects a head of CP with a wh-feature. It can be posited that the interrogative wh-phrase will move to [Spec,CP] of that CP, to check some feature on the head. Since the feature on the head C has to be checked, an interrogative wh-phrase has to move to the [Spec,CP] that is local to the interrogative taking verb. On the other hand, if it is true that exclamative clauses are licensed not by selection but by c-command, the relation between the factive verb and the complement CP (and its head) does not have to involve wh-features. Adopting the insight by Kiparsky & Kiparsky (1970), it is possible to assume that the factive verb selects a complement CP with a feature that has something to do with factivity, which in turn might necessitate the presence of the factive operator in its specifier position. Again, our observation so far tells us that the wh-feature does not have to be involved since exclamatives are not licensed by selection and the sentential complement for the factive predicate can be a *that*-clause. Given that, we can ask why the exclamative wh-phrase has to move to [Spec,CP]. In the case of interrogative wh-phrases, an interrogative taking predicate requires its complement to bear a wh-feature, the wh-phrase moves to [Spec,CP] since it can check the feature of C by this movement. On the other hand, in the case of exclamative wh-phrases, the head of CP that is selected by a factive predicate does not bear a feature that has to be checked by movement of the wh-phrase. Nonetheless, it looks like the exclamative wh-phrase moves to [Spec, CP].

One possible suggestion is that the exclamative wh-phrase moves since the wh-phrase itself has a feature that has to be checked in [Spec,CP]. The derivation would crash if such a wh-phrase remains in situ, so the only possible way to derive a grammatical structure is to move the wh-phrase. We could speculate that this suggestion that the wh-phrase itself has a feature is tied with the intuition that exclamative wh-phrases are loaded with discourse-related information, or it involves the speaker's judgment / point of view. If such a property could be linked to the suggestion that the wh-phrase itself has a feature to be checked, it seems possible to say something similar for the wh-the hell phrases (see some related discussion in Ochi (2004)).

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## 4.	Conclusion

This chapter aims at explaining two puzzles in exclamatives. The first puzzle is that while predicates exist that take only an interrogative complement, there are no "exclamative predicates" that take only exclamatives as their complements. The second puzzle is that while embedded interrogative clauses have to occur as a sister to a interrogative predicate, embedded exclamative clauses can be licensed by a non-local factive predicate. The answer to the two puzzles is the licensing mechanism of exclamative *wh*-phrases. Unlike interrogative *wh*-phrases, exclamative *wh*-phrases are licensed not by selection by a predicate, but by c-command. This accounts for the observation that long distance licensing is possible in exclamative *wh*-phrases. We proposed that there are at least two elements, a factive predicate and a factive operator that can license exclamative *wh*-phrases. This property of exclamative *wh*-phrases is parallel to the properties of *wh*-the-hell phrases noted by den Dikken & Giannakidou (2002). According to their analysis, *wh*-the-hell phrases are polarity items and they have to be c-commanded by a non-veridical item, such as an interrogative predicate, negation, or a Q operator. With respect to exclamative *wh*-phrases, on the other hand, the set of licensors includes factive predicates and factive operators. Then, it is plausible to claim that exclamative *wh*-phrases are also some kind of polarity item that is sensitive to a subset of veridical items. One consequence of the current analysis is that a system employing some feature E (as in exclamative) in a semantic selection frame is shown to be inappropriate. The investigation conducted in this paper shows that the licensing mechanism of exclamative *wh*-clauses is different from that of interrogative *wh*-clauses: the former involves c-command, and the latter selection. Furthermore, the analysis here has the advantage of explaining some quite mysterious facts of exclamatives by regarding them as intervention effects.

CHAPTER 6: PROCESSING OF JAPANESE EXCLAMATIVES

1. Introduction

In this chapter, the process of dependency formation in sentence processing is investigated, using experimental data from Japanese interrogatives and exclamatives. Research on dependency formation is quite abundant in the sentence processing literature; much research has been done using, for example, fronted clause-initial interrogative wh-phrases in English and related languages. Since the distance between the fronted wh-phrase (filler, *what* in (1)) and the position where its non-wh variant would have occurred (gap, the position marked by "__" in (1)) is potentially infinite, it creates a massive ambiguity in the course of sentence processing. For instance, from a piece of the sentence in (2), there is no way for speakers of English to know where the exact position of the gap is beforehand; it could be found in the matrix clause as in (1a), in the embedded clause as in (1b), or somewhere further down in the structure. A research question that has been asked on numerous occasions is how the parser associates the filler with the gap.

(1) a. What does John believe __ ?
     b. What does John believe that Mary ate __ ?

(2) What does John …

The Filled Gap Effect
Using the paradigm shown in (3), Stowe (1986) observed a longer reading time at *us* in the embedded clause in (3b), compared with (3a).

(3) a. My brother wants to know if Ruth will bring us home to Mom at
        Christmas.
     b. My brother wants to know who Ruth will bring us home to __ at
        Christmas.

The longer reading time at *us* in (3b) is interpreted as the parser initially trying to interpret the fronted wh-phrase *who* to be a direct object of the verb *bring*, which would assign a theta-role to the fronted wh-phrase. Since the presence of an overt lexical item (i.e., *us*) reveals that the parser's prediction is wrong, the reading time increases at that position, possibly due to the parser revising its initial prediction. It was argued that the results show that the parser creates a gap as soon as it encounters the filler, establishing a dependency (see related work, such as Crain & Fodor, 1985; de Vincenti, 1991).

Typing Mismatch Effect
A similar conclusion has been reached in the research using languages such as Japanese, in which wh-phrases need not be fronted, and can remain in the canonical position. Miyamoto & Takahashi (2002) showed that the presence of the in situ wh-phrase in Japanese (i.e., wh-phrases remaining in the canonical position) initiates a search for the licensing particle *ka* at the earliest grammatically possible position. By comparing the

reading times of the embedded verb position as shown in (4), they observed that the reading time of the embedded verb region in (4b) is longer than that in (4a). They call this the Typing Mismatch Effect (TME). Crucially, they showed that the reading time of the embedded verb with the declarative complementizer is faster than that of the embedded verb with the Q-particle *ka* when not preceded by a wh-phrase.

(4) a. senmu-wa   kakarityoo-ga dono pasokon-o   tukatteiru-ka itta
         supervisor-TOP director-NOM which computer-ACC use-Q   said
         'The supervisor said which computer the manager uses.'
     b. senmu-wa   kakarityoo-ga dono pasokon-o   tukatteiru-to itta-no
         supervisor-TOP director-NOM which computer-ACC use-COMP   said-Q
         'Which computer did the supervisor say that the manager uses?'

Note that having the licensing particle *ka* in the clause with the wh-phrase is not a requirement of the grammar, as is clear from the fact that (4b) is grammatical. In either (4a) or (4b), the licensing particle *ka* c-commands the wh-phrase, which is the grammatical requirement of the wh-phrase. Therefore, it is argued that the reading time contrast observed above, the TME, arises due to a bias by the parser to satisfy the grammatical requirement of the wh-phrase as soon as possible.

The Filled Gap Effect in Japanese
Investigating fronted wh-phrases in Japanese, Aoshima, Phillips & Weinberg (2004) provide another piece of evidence that the parser prefers to establish a dependency as soon as possible. It was shown that the dative-marked sentence initial wh-phrase is interpreted in the most deeply embedded clause in a sentence that involves more than one clause. Using the Filled Gap Effect paradigm, they observed that the reading time of the dative NP (*kootyoosensee-ni* 'principal-DAT') in the embedded clause is longer in (5a), compared to (5b).

(5) a. dono sinnyuusei-ni   tannin-wa   sisyo-ga
         which new student-DAT class teacher-TOP librarian-NOM
         kootyoosensee-ni mangabon-o   susumeta-to   iimasita-ka
         principal-DAT   comic book-ACC recommended-COMP said-Q
         'To which student did the class teacher say that the librarian recommended
         the comic book to the principal?'
     b. dono sinnyuuse-ga   tannin-ni   sisyo-ga
         which new student-NOM class teacher-DAT librarian-NOM
         kootyoosensee-ni mangabon-o   susumeta-to   iimasita-ka
         principal-DAT   comic book-ACC recommended-COMP said-Q
         'Which student saidl to the class teacher that the librarian recommended
         the comic book to the principal?'

They argued that the reading time of the embedded dative NP increases because the reader tries to interpret the fronted dative-marked wh-phrase in the embedded clause. Since the position is already filled with another phrase, the reader has to revise his initial expectation.

This apparent long distance association between the sentence initial wh-phrase and the embedded verb can be accounted for by saying that the embedded verb is the first

available item that can assign a theta-role to the wh-phrase or license the wh-feature by the clause-final Q-particle. By positing a gap in the most deeply embedded clause, it is possible for the embedded verb to assign a theta role to the wh-phrase, establishing the dependency with respect to the theta role or wh-feature. Note that interpreting the fronted wh-phrase in the embedded clause is not driven by the grammar, i.e., a legitimate structure can be constructed with the dative-marked wh-phrase interpreted at the matrix clause. Thus, the results offer evidence that the parser is biased toward establishing a dependency as soon as possible.

Processing Exclamatives
Below, we present two kinds of experimental data on exclamatives. Exclamatives are quite useful for investigating the interaction between the parser's mechanism for establishing the dependencies and its mechanism for building the linguistic representation. According to the syntactic nature of exclamative sentences in Japanese, exclamative sentences require the parser to build very intricate functional projections in the CP layer. In exclamatives, the head of the functional projection is overtly realized as a verbal suffix, *no-da-roo*, which we treat as a head of functional projection Exclamative Phrase.

First, we show that Typing Mismatch Effects are observed with exclamatives, suggesting that the presence of the exclamative wh-phrase initiates the readers' expectation that the appropriate licensing particles occurs at the earliest grammatically available position. Second, we show that the sentence initial dative-marked exclamative and interrogative wh-phrases are handled differently. Our results, obtained from an off-line study show that unlike its interrogative counterpart, we have no evidence that the parser predominantly interprets the sentence initial exclamative wh-phrases in the most deeply embedded clause. Contrasting the results obtained with the sentence initial interrogative wh-phrases, we provide one potential account for the results of exclamative wh-phrases. Under this account, once-established dependency of the exclamative wh-phrase with the elements in the matrix clause was not changed even though it is in principle possible to re-establish the dependencies to satisfy the requirements as soon as possible. See Ono, Yoshida, Aoshima, & Phillips (to appear) for discussion of an alternative account.

In the following section, we first discuss various syntactic properties of Japanese exclamatives relevant for the current study. Then, we look at one off-line sentence completion experiment and one on-line self-paced reading experiment. In the first sentence completion experiment, we show that the in situ exclamative wh-phrases in the embedded clause receive completion with the local licensing particle as often as their interrogative counterparts do. This suggests that the strong local licensing requirement of the parser can be observed in the sentence generation task. Then, we show that the sentence initial dative-marked exclamative wh-phrases are treated differently from their interrogative counterparts. These results reveal that while the sentence initial interrogative wh-phrases receive more completion with licensing particles in the embedded clause than in the matrix clause, the sentence initial exclamative wh-phrases receive completions with licensing particles in the matrix clause. Finally, we show that the TME is observed with in situ exclamative wh-phrases by using an on-line self-paced (moving window) reading experiment.

2. Syntax of Japanese Exclamatives

The syntax of exclamatives in Japanese is to some extent similar to, and to other extents different from, the much-studied syntax of interrogatives. They are similar to each other to the extent that both involve *wh*-phrases and certain particles as their licensors. In this section, we review some syntactic properties of exclamatives and interrogatives relevant for the purpose of this study.

2.1 Exclamative Wh-Phrase

It is well known that interrogative wh-phrases are licensed by the so-called Q-particle *ka* that appears as a verbal suffix. There is an exclamative counterpart; the exclamative particle *no-da-roo* licenses the exclamative wh-phrase *nante*.[68]

Interrogatives
(6)   John-wa   [dono   ookina piza]-o   tabemasita-ka
        John-TOP   which   big   pizza-ACC   ate-Q
        'Which big pizza did John eat?'

Exclamatives
(7)   John-wa   [nante   ookina   piza]-o   tabeta-no-da-roo
        John-TOP   WH-EXC   big   pizza-ACC   ate-EXC
        'What a big pizza John ate!'

Another constraint is that the appropriate licensor has to c-command the base-generated position of the wh-phrase (see Harada (1972) for discussion about interrogative wh-phrases). Examples of exclamatives such as (8b) are ungrammatical since the exclamative particle *no-da-roo* in the embedded clause never c-commands the subject of the matrix clause. On the other hand, (8a) is grammatical since the exclamative particle c-commands the matrix subject.

C-command Requirement
(8)   a.   nante   takusan-no hito-ga   [sono gakusee-ga   mondai-o
              wh-EXC   many-GEN   man-NOM   that   student-NOM   problem-ACC
              toita-to]   omotta-no-da-roo
              solve-COMP   thought-EXC
              'What a lot of people thought that the student solved the problem!'
        b. * nante   takusan-no hito-ga   [sono gakusee-ga   mondai-o
              wh-EXC   many-GEN   man-NOM   that   student-NOM   problem-ACC
              toita-no-da-roo-to]   omotta
              solve-EXC-COMP   thought

---

[68] The particle used in exclamatives tends to be varied and undergoes quite robust morphological reduction, depending on the gender of the speaker and the register of the discourse. The form *no-da-roo* is taken to be the standard form. See Fujii & Ono (2006) and Chapter 2 and 3 in this dissertation for the details.

Extending the above noted observation, Saito (1989) shows that it is possible to front an interrogative wh-phrase to the position that is outside the c-commanding domain of the Q-particle as long as the base-generated position of the wh-phrase is c-commanded by the Q-particle. In (9), the base-generated position of the fronted interrogative phrase (marked with '*t*') is in the embedded clause and is c-commanded by the Q-particle at the end of the embedded clause.

(9)   dono hon-o   John-wa   [Mary-ga tosyokan-kara *t* karita-ka]
       which book-ACC J-TOP   M-NOM   library-from   borrowed-Q
       siritagatteiru
       wonder
       'John wonders which book Mary borrowed from the library.'

Note that the fronted interrogative wh-phrase is interpreted in the scope of the embedded clause, since the Q-particle appears in the embedded clause; hence the example is not a matrix question.

We can construct similar examples with exclamatives. Consider the following examples. In (10), the exclamative wh-phrase appears in the canonical position where it is c-commanded by the exclamative particle *no-da-roo*. On the other hand, in (11), the exclamative wh-phrase is fronted to the sentence initial position. [69]

(10)   John-wa [Mary-ga [nante   takusan-no gakusee]-ni A-o
       J-TOP   M-NOM   wh-EXC many-GEN   student-DAT A-ACC
       ageta-no-da-roo-to]   akireteita
       gave-EXC-COMP   amazed
       'John was amazed what a lot of students Mary gave an A to.'

(11)   [nante   takusan-no gakusee]-ni John-wa [Mary-ga *t*   A-o
        wh-EXC many-GEN   student-DAT J-TOP   M-NOM   A-ACC
       ageta-no-da-roo-to]   akireteita
       gave-EXC-COMP   amazed

Similar to the examples with interrogative wh-clauses, the fronted exclamative wh-phrase in (11) is interpreted in the embedded clause, since the exclamative particle determines the scope of the exclamative wh-phrase.

A further similarity between interrogatives and exclamatives is shown by the fact that the distance between wh-phrases and the particles can be non-local. In other words, they do not have to be in the same clause. In (12) and (13), wh-phrases appear in the embedded clause and the particles in the matrix clause. This data demonstrates the similarities between exlcamatives and interrogatives. However, in the next section, I will show a few differences.

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[69] See Ono et al. (to appear) for discussion of the environment where long distance scrambling is allowed in exclamatives.

Long Distance Dependency

(12) Mary-wa [John-ga   dono ookina piza-o   tabeta]-to omoimasita-ka
     Mary-TOP John-NOM which big   pizza-ACC ate-COMP thought-Q
     'Which big pizza did Mary think that John ate?'

(13) Mary-wa [John-ga nante   ookina piza-o   tabeta]-to omotta-no-da-roo
     Mary-TOP John-NOM wh-EXC big   pizza-ACC ate-COMP thought-EXC
     'What a big pizza Mary thought that John ate!'

So far, we have seen a few similarities between interrogatives and exclamatives. Wh-phrases in both constructions require particular licensing particles, and the licensing mechanism is also quite similar.

2.2   Exclamative Particle

A difference emerges in the cases where the particles appear in an embedded clause. When a wh-exclamative clause is embedded, the clause has to be followed by the complementizer *to* as shown in (14). On the other hand, as seen in (15), when wh-interrogative clauses are embedded, there are verbs that allow the clause to appear without the complementizer *to*. Furthermore, (16) illustrates that there are verbs such as *siritagaru* 'wonder' that requires the clause to appear without the complementizer *to*.

(14) Mary-wa [John-ga   nante   ookina piza-o   tabeta]-no-da-roo-*(to)
     Mary-TOP John-NOM wh-EXC big   pizza-ACC ate-EXC-COMP
     omotta
     thought
     'Mary thought, "What a big pizza John ate!" '

(15) Mary-wa [John-ga   dono   ookina piza-o   tabeta]-ka-(to)   kiita
     Mary-TOP John-NOM which   big   pizza-ACC ate-Q-COMP   asked
     'Mary asked which big pizza John ate.

(16) Mary-wa [John-ga   dono   ookina piza-o   tabeta]-ka-(*to)
     Mary-TOP John-NOM which   big   pizza-ACC ate-Q-COMP
     siritagatteita
     wondered
     'Mary wondered which big pizza John ate.

This observation can be captured by assuming that the Q-particle *ka* occurs in the Comp position where the complemtizer *to* occurs in the embedded clause (see the diagrams below). On the other hand, the exclamative particle *no-da-roo* occurs in a position lower than the Comp position.

(17) a. CP structure for exclamatives   b. CP structure for interrogative
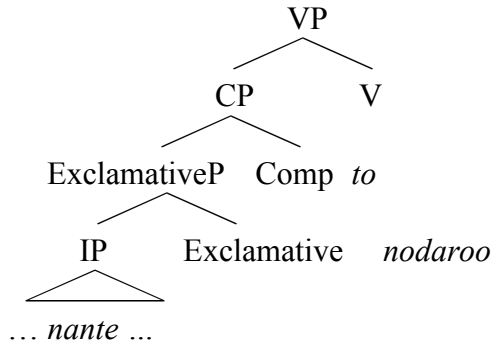
```
              VP                                    VP
            /    \                                /    \
          CP      V                             CP      V
         /  \                                  /  \
ExclamativeP  Comp  to                       IP    Comp  to / Q ka
    /  \                                     / \
  IP    Exclamative  nodaroo              ... dono ...
  / \
... nante ...
```
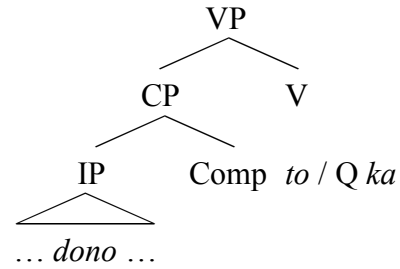
The exclamative particle *no-da-roo* is the head of Exclamative Phrase, which is dominated by CP (see (17a)). The Q-particle *ka* appears where the Comp *to* occurs otherwise (see (17b). The point is that having the Q-particle *ka* does not have to add any extra functional projection specifically for it, while there has to be an extra functional projection in the structure in order to project the exclamative particle *no-da-roo*.

To sum up, we saw that exclamative wh-phrases have similar requirements as interrogative wh-phrases have: namely the c-command requirement by the appropriate licensing particle. Yet, the differences between wh-exclamatives and wh-interrogatives arise when different properties of the licensing particles are investigated. The Q-particle *ka* occupies the position where the Declarative complementizer *to* occupies otherwise. On the other hand, the Exclamative particle *no-da-roo* occurs at a position lower than the Declarative complementizer. Below, we designed two experiments illustrating how the syntactic similarities and differences have effects on the processing of dependency formation by the parser.

3.   Experiment 1: Sentence Completion Task

An off-line sentence fragment completion task was designed to investigate what native speakers of Japanese predict, given a sentence fragment that strongly indicates that it is part of an exclamative sentence. The aim was to investigate whether the in situ exclamative wh-phrases are licensed in the embedded clause or in the matrix clause. The results obtained from Experiment 3 in Aoshima, et al (2004) showed that the sentence fragments with in situ interrogative wh-phrases with multi-clausal structures were completed with the licensing particle in the embedded clause, although putting the licensing particle only in the matrix clause is also grammatically allowed. Similarly, completing the sentence with the licensing particle in the matrix clause is also a grammatically allowed option for the in situ exclamative wh-phrases. If the presence of the in situ exclamative wh-phrase creates the expectation of the local existence of the licensing particles, as the interrogative counterpart does, the relevant sentence fragments will be completed with licensing particles at the embedded clause. The strength of the local bias would indicate that in situ exclamative wh-phrases are similar to the interrogative wh-phrases in that both create an expectation that the licensing particles occur in the local clause.

A second aim was to determine where the sentence initial exclamatives are interpreted. The results obtained from Experiment 3 in Aoshima, et al (2004) showed that

sentence fragments with the dative-marked sentence initial interrogative wh-phrases were predominantly interpreted in the embedded clause, measured by the number of completions with the licensing particles in the embedded clause and by the inspection of the argument structure of the embedded predicates. If the sentence initial exclamative wh-phrases are treated as interrogative wh-phrases are, the sentence fragments with the sentence initial exclamative wh-phrases are completed with the licensing particles at the embedded clause. Also the inspection of the argument structure of the embedded predicate shows that the embedded predicates should be compatible with the dative marked NP.

3.1   Procedures

Forty-two undergradutate native speakers of Japanese participated in the experiment. Experimental materials consisted of thirty sets of sentence fragments with six conditions each (see Appendix A for the complete list of items). The thirty sets of items were distributed among six lists in a Latin Square design. Each participant saw exactly one of the lists intermixed with sixty unrelated fillers in a random order.[70]

Target items consisted of three NPs, each of which was marked by different case markers (topic, nominative, and dative). Target items were manipulated by two factors; the type of the wh-phrase (exclamative vs. interrogative), and by the position of the wh-phrase (in-situ vs. fronted). (18) illustrates an example set.

(18)   Sample set of experimental conditions for Experiment 1
    a. Exclamative / In situ (E/IS)
        sono sensee-wa   gakusee-ga   nante takusan-no onnanoko-ni ...
        that teacher-TOP   student-NOM   wh-EXC many-GEN girl-DAT
    b. Exclamative / Frotned (E/F)
        nante takusann-no onnanoko-ni   sono sensee-wa   gakusee-ga ...
        wh-EXC many-GEN girl-DAT   that teacher-TOP   student-NOM
    c. Interrogative / In Situ (W/IS)
        sono sensee-wa   gakusee-ga   dono onnanoko-ni ...
        that teacher-TOP   student-NOM   which girl-DAT
    d. Interrogative / Fronted (W/S)
        dono onnanoko-ni   sono sensee-wa   gakusee-ga ...
        which girl-DAT   that teacher-TOP   student-NOM

In Exclamative conditions, a dative-marked exclamative wh-phrase was used. In In-Situ conditions, the dative-marked NP appeared after a topic-marked NP and a nominative-marked NP. In the Fronted conditions, the dative-marked NP appeared at the beginning of the sentence fragment. In Interrogative conditions, an interrogative wh-phrase was used instead of an exclamative wh-phrase. In order to complete the sentence fragments, participants had to supply at least two predicates, since there is no predicate that can take

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[70] Although the target items contained six conditions, we eliminated two conditions from the analysis; the eliminated conditions included just an exclamative wh-phrase *nante* wituout any adjective or adverb. Unfortunately, those sentence fragments were apparently misinterpreted as a colloquial form of "what name of N". Thus, in the following sections, the results and analyses are based on twenty sets of items with four conditions each.

all three NPs (case-marked as such) as arguments. Optionally, they can add an accusative marked NP as an argument of the embedded clause. In addition, they must use a licensing particle (for exclamative or interrogative) in order to license a wh-phrase. The experiment lasted about 45 min.

3.2 Results

3.2.1 Task Accuracy

Based on the forty-two participants, 840 responses (42 × 20) were expected to be generated. However, nine participants were eliminated in total, since they did not complete more than 25% of the target items. The rest of the participants completed the target items in average 98.2%. Eight incomplete responses were eliminated from further analyses.

Table 1: Experiment 1, counts and percentages of ungrammatical/grammatical responses

Conditions	Codable	Grammatical	Ungrammatical	
			N	%
Interrogative in-situ	164	162	2	1.2
Exclamative in-situ	165	153	12	7.3
Interrogative fronting	162	156	6	3.7
Exclamative fronting	161	123	38	23.6
Total			58	8.9

Out of 652 codable responses, there were fifty-eight ungrammatical responses, as illustrated in Table 1. The number of errors in the Exclamative fronting condition is significantly larger than other conditions ($\chi^2(3) = 60.81$, $p < 0.01$); it could be speculated that exclamatives with a fronted wh-phrase are quite difficult for the participants since they would be quite rare in naturalistic corpora. Investigation of ungrammatical responses revealed that two main factors are applicable to most of the errors. The most frequent kind of error was lack of a licensing particle. The second most frequent kind of error was lack of a predicate. In order to complete the fragment grammatically, the participant must provide at least two predicates.

3.2.2 Licensing Particles

The next step is to examine the position in which the licensing particle occurs. The result is based on the grammatical responses, fifty-eight ungrammatical responses being eliminated from the codable responses. Table 2 illustrates where the licensing particle occurred: either at the embedded verb or the matrix verb position.[71]

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[71] In the following, we disregard the responses 'both,' in which the participants added the licensing particles both at the embedded and the matrix verbs, since the 'both' responses do not provide us any insight into the preference of the participants. This does not weaken the overall conclustion since there are just a few such responses.

Table 2: Experiment 1, distribution of the licensing particles *-ka* (interrogative) and *-nodaroo* (exclamative) in off-line sentence fragment completions.

Conditions	Licensing Particle					
	Embedded Clause		Main Clause		Both	
	N	*%*	*N*	*%*	*N*	*%*
Interrogative in-situ	159	98.1	3	1.9	0	0
Exclamative in-situ	151	98.7	2	1.3	0	0
Interrogative fronting	33	21.1	114	73.1	9	5.8
Exclamative fronting	25	20.3	96	78.0	2	1.6

With respect to the 'embedded' and 'matrix' responses, Fisher Exact tests showed that there was no reliable difference between two in-situ conditions ($p > .40$). Both conditions showed that an overwhelming number of completions contained a particle in the embedded verb position, although this is not grammatically required in either case. On the other hand, Fisher Exact tests showed that the patterns were significantly different in the two exclamative conditions ($p < .001$, 2-tailed). A similar pattern emerged in the pairwise comparison between the two interrogative conditions; Fisher Exact tests revealed that there were a large number of completions with a licensing particle at the embedded verb position in the interrogative-in situ condition, while that was not the case in the interrogative-fronting condition ($p < .001$, 2-tailed). Finally, Fisher Exact tests showed that there is no reliable difference between the two fronting conditions ($p > .40$).

Regarding the licensing particle in the exclamative conditions, we observed some optionality in whether *noda* or *ka* was used as the licensing particle. In the exclamative-in situ condition, out of 151 completions with a licensing particle at the embedded verb position, ninety-four responses (62.3%) used *ka* while fifty-seven responses (37.7%) used *noda*. Such optionality was not observed in interrogative conditions; the licensing particle was always *ka*. One might suggest that the participants were confused with the distinction between interrogatives and exclamatives. However, a further inspection of the data revealed that such confusion was not present at least for the most part. It was clear that the licensing particle *ka* in interrogative conditions and exclamative conditions were handled differently. In the following, an additional criterion was added so that all the cases in which the participants could be confused are eliminated for further analysis.

Table 3: Experiment 1, presence of particle *to* at the embedded verb position

		with *to*		without *to*	
Conditions	particle	*N*	*%*	*N*	*%*
Exclamative-in situ	*noda*	57	100	0	0
Exclamative-in situ	*ka*	43	45.7	51	54.3
Interrogative-in situ	*ka*	4	2.5	155	97.5

In all cases where *noda* was used in the exclamative in situ condition, it was always followed by another particle *to* as seen in Table 3. When *ka* was used, the data showed that it was not always the case that *to* was present; in only about half of the cases (45.7%), was *to* used. Fisher Exact tests show that the percentage of the presence of *to* after the

particle *ka* in the interrogative in situ condition (97.5%) was quite different from the exclamative in situ condition (54.3%) (*p* < .001, 2-tailed).

The presence of *to* following the licensing particle *ka* in the exclamative in situ condition seems to be related to whether the predicate can select an interrogative complement or an exclamative complement with *ka* and *to*, as shown in Table 4.

Table 4: Experiment 1, presence/absence of particle *to* after the licensing particle *ka* in E/IS condition, kinds of predicates

	without *to*		with *to*	
Predicates	*N*	%	*N*	%
Interrogative taking	37	72.5	3	7.0
Exclamative taking	14	27.5	40	93.0

Out of fifty-one cases where the particle *to* was absent, predicates that take an interrogative complement were used in thirty-seven cases (72.5%), whereas predicates that take an exclamative complement were used in fourteen cases (27.5%). On the other hand, out of forty-three cases where the particle *to* was present, predicates that take an interrogative complement were used only in three cases (7.0%), whereas predicates that take an exclamative complement are used in forty cases (93.0%). Fisher Exact tests showed that the difference was reliable (*p* < .001, 2-tailed). One can imagine that the cases where *to* was not used after the particle *ka* illustrate that the participants did not treat them as exclamatives, which seems reasonable. When all the cases (fifty-one responses without *to*) were eliminated where the participants might have been confused with the distinction between the interrogative and exclamative case, the overall pattern did not change. Out of 102 responses in the exclamative in situ condition, 100 sentence fragments were completed with the licensing particle at the embedded clause (98.0%). Taken together, it seems reasonable to conclude that the variations of the licensing particles found in exclamative conditions do not show that the participants misunderstood the exclamative wh-phrase as interrogative, but the data from the predicate show that the exclamative allows some variations of the licensing particles.

3.2.3   Where the fronted wh-phrases are interpreted

Turning to the results in the fronting conditions, Table 2 illustrates that, regarding the position where the licensing particle occurs, there was no reliable difference observed. In Experiment 3 of Aoshima, et al (2004), an analysis of the argument structure was conducted with respect to the scrambling conditions. This extra work is important since, when the licensing particle is placed in the embedded verb position, we can be certain that the thematic-role for the fronted phrase originates from the embedded clause due to the grammatical requirement that the licensing particle has to c-command the base-generated position of the wh-phrase. On the other hand, when the licensing particle is placed in the matrix verb position, the fronted phrase can receive a thematic-role either from the embedded or the matrix predicate, since the licensing particle at the matrix clause can c-command the base-generated position of the wh-phrase either in the embedded clause or the matrix clause.

In the argument structure analysis below, fifteen instances of embedded licensing from Exclamative fronting condition were eliminated due to the following reasons (hence only 10 counts in Table 5: 25−15=10). First, those are the cases where *ka* was used to license exclamative wh-phrases, and second, those did not have an extra particle *to*. Recall in the results from the Exclamative In-Situ condition, there was some concern that those cases illustrate that the participants might be confused with the distinction between interrogative and exclamative wh-phrases.

Secondly, an analysis was conducted to determine how often the fronted wh-phrases in exclamatives and interrogatives were interpreted in the embedded clause. The counts were obtained, following Aoshima, et al (2004), by adding (i) the number of completions in which the licensing particle occurred in the embedded clause to (ii) the number of completions in which the embedded predicate can, either obligatorily or optionally, take a dative argument. Importantly, this excludes the trials with the particle *ka* in the embedded clause. The results are shown in Table 5.

Table 5: Experiment 1, fronting conditions; counts and percentage of verbs that select a dative-marked argument in completions with main clause licensing particles.

Conditions	Embedded obligatory		Embedded optional		Main only	
	N	*%*	*N*	*%*	*N*	*%*
Interrogative fronting	23	20.2	25	21.9	66	57.9
Exclamative fronting	17	17.7	5	5.2	74	77.1
Total	40		30		140	

This illustrates that there were at most 22 cases (22.9%) where the fronted exclamative wh-phrases received their thematic-role in the embedded clause, while there were 48 cases (42.1%) where the frotned interrogative wh-phrases received their theta-role in the embedded clause. A Fisher Exact test showed that he difference was significant ($p < .001$, 2-tailed).

3.3   Discussion

3.3.1   In Situ Wh-phrases

This off-line experiment showed that there is a strong local licensing bias for the in situ conditions. When a wh-phrase (either interrogative or exclamative) was found in the embedded clause, participants added a licensing particle in the embedded verb position. No difference was observed between the interrogative and exclamative wh-phrases in this regard. This particular observation of interrogative wh-phrases in the embedded clause illustrates that our experiment replicates the results found in Experiment 3 in Aoshima, et al (2004) and to certain extent our results conform to those in Miyamoto & Takahashi (2002) obtained by on-line experiments. In addition, a very similar tendency was found for exclamative wh-phrases. Although exclamatives use different wh-phrases and different licensing particles, the results in this experiment suggest that the presence of the exclamative wh-phrase in the embedded clause creates an expectation that there must be a licensor at the embedded clause.

Aoshima, et al (2004), following the conclusion in Miyamoto (2002), note that a sequence of a topic-marked NP and a nominative-marked NP is a strong cue for the

participants that more than one clause is involved. Also, since there is no single predicate that can license all three NPs (topic, nominative, and dative), it is clear that more than one predicate must be supplied. Assuming that the presence of an exclamative wh-phrase suggests to the participants that there must be a licensor at an appropriate place, there are three options the participant can choose in order to complete this fragment as a grammatical sentence. Option (a) is to place the particle *noda* at the closest verb position. This forces the participants to add another particle *to* as well. Then, the participants can add an appropriate predicate that can select an embedded exclamative clause. Option (b), is to place the particle *noda* only at the matrix clause. This option does not place the particle at the closest verb position. A grammatical sentence can be generated in this option since the licensing particle satisfies the c-command requirement of the exclamative wh-phrase. Finally, Option (c) is to place the particle at the embedded verb position as well as the matrix verb position. The particle attached at the embedded verb position must be followed by the particle *to*.

The results of our experiment suggest that the subjects overwhelmingly choose option (a). The choice of (a) over (c) makes sense, under the assumption that adding the unnecessary exclamative particle is costly. One licensing particle that can c-command the wh-phrase is enough to satisfy the grammatical requirement of the wh-phrase. Hence, assuming that declarative sentences are the default, and that adding the exclamative particle in absence of the exclamatory wh-phrase is costly, it is quite understandable that the participants decided not to choose option (c).

We still have to explain the participants' choice of option (a) over option (b). As noted before, the participants' preference for lacing the licensing particle at the closest verb position is not specific to exclamatives, but is also observed in the in situ interrogative condition (see also Aoshima et al., 2004). Based on the results of on-line experiments, Miyamoto & Takahashi (2002) argue that the presence of the *wh*-phrase creates an expectation of the licensing particle at the earliest grammatically legitimate position, leading to TME at the embedded verb position.

The pattern observed in our in situ *wh*-phrase conditions can be interpreted as indicating that the same processing mechanism is underlying interrogatives and exclamatives, although the details of their materials are slightly different from ours (they use accusative-marked *wh*-phrases; we used dative-marked *wh*-phrases), and the current experiment is an off-line experiment. One finding in our study, then, is that the bias for placing the local licensing particle is not specific to interrogative *wh*-phrases, but it can be extended to exclamative *wh*-phrases as well. Taken together, it shows that the preference of local licensing is quite strong when processing not only interrogative *wh*-phrases but also exclamative *wh*-phrases. Since the next experiment also targets the processing of the in situ exclamative wh-phrases, we discuss more of the issues related to this point.

3.3.2 Fronted Wh-Phrases

The results from the fronted conditions reveal a slightly different picture. Results from the fronted interrogative wh-phrases are quite the same as seen in Experiment 3 of Aoshima, et al (2004). In their experiment, 32.4% of the wh-scrambling conditions were completed either having the interrogative particle at the embedded position, or both at the embedded and matrix position (112/346; see their Table 7). From the argument structure

analysis, they showed that 41.0% of the cases where there was a licensing particle at the matrix clause had an embedded predicate which can (optionally or obligatory) take a dative argument (96/234; see their Table 8). In total, 61.4% of the fronted wh-phrases are interpreted in the embedded clause (208/346). In our experiment, 21.1% of the interrogative wh-scrambling conditions were completed with the interrogative particle at the embedded position, (33/156; see Table 2). From the argument structure analysis, 42.1% of the cases where there was a licensing particle at the matrix clause had the embedded predicate which can (optionally or obligatory) take a dative argument (48/114). In total, 55.1% of the fronted wh-phrases are interpreted in the embedded clause (81/147). Fisher Exact tests showed that there is no difference between our results and theirs.

On the other hand, our results from the exclamative fronted condition showed that only 31.2% of the fronted wh-phrases are interpreted in the embedded clause in total (32/106). Therefore, the exclamative fronted condition was not only different from the interrogative fronted condition in our experiment, but also different from the results obtained with interrogatives in Aoshima, et al (2004). In the following, a potential account is proposed for the contrast between the fronted interrogative and exclamative wh-phrases.

In the interrogative fronted condition, the participants first encounter the dative-marked interrogative wh-phrase, followed by two NPs, each marked with a topic and nominative marker. The results from Aoshima, et al (2004) show that although it is grammatically possible to interpret the wh-phrase either at the matrix or the embedded clause, the readers predominantly interpret the fronted interrogative wh-phrase at the embedded clause. Also, a similar pattern is observed in our off-line experiment. According to Aoshima, et al (2004), a dependency is established between the fronted wh-phrase and the gap in the embedded clause, since the embedded verb position is the earliest grammatically allowed position where the wh-phrase can receive a thematic role or the wh-phrase can be licensed by the Q-particle (see more discussion of the Q-marker in Aoshima, et al (2005) and Yoshida, et al (2006)).

Upon encountering the fronted interrogative wh-phrase followed by a topic-marked NP, and since at this point there is no evidence for the parser that there is an upcoming embedded clause and the dative-topic is not the canonical order in a clause, it seems reasonable to assume that the parser takes it to mean that the wh-phrase is fronted from some base-generated position. This leads the parser to posit a gap and the licensing Q-particle in the matrix clause, eventually establishing a dependency between the wh-phrase and the Q-particle. Then, following Miyamoto's (2002) observation, when the nominative-marked NP shows up, it seems that the parser builds a structure for the embedded clause. The results from Aoshima, et al (2004) and ours indicate that the parser "re-establishes" the dependency by positing a new gap in the embedded clause.

Having a gap in the most deeply embedded clause is motivated since the posited gap can establish the dependency with the licensing Q-particle and satisfy the grammatical requirement as soon as possible. At the same time, what the parser has to do is to change the type of the embedded clause to interrogative, by position the Q-particle at the embedded Comp position. Crucially, there is no need to build any extra projections in the structure to determine the scope of the wh-phrase.

Now, let us consider the case with the fronted exclamative wh-phrase. The following diagram illustrates the situation where the parser encounters the sentence on a

word-by-word basis. When the parser encounters the two initial words (a dative-marked exclamative wh-phrase and an NP), the parser can posit a functional projection in CP. Since the fronted wh-phrase is exclamative, before encountering the actual heads, the parser specifically posits that there is a functional projection, Exclamative Phrase, and its overt realization: *nodaroo*. The parser makes a prediction on the presence of the morpheme since they are a grammatically required element in order to license the exclamative wh-phrase. Again the word order between the two phrases "Wh-DAT + NP-TOP" informs the parser that the exclamative wh-phrase is dislocated. Crucially, it seems reasonable to assume that the exclamative wh-phrase is taken to be an argument of the matrix clause.

The predominant pattern observed in the experiment shows that the fronted exclamative wh-phrase is not interpreted in the most deeply embedded clause when the next word, NP-NOM, shows up. In other words, the parser keeps its initial hypothesis that the sentence initial exclamative wh-phrase is an argument of the matrix verb, and it is licensed by the functional projection at the matrix clause (see Figure 1).

Figure 1: Fronted exclamative wh-phrase
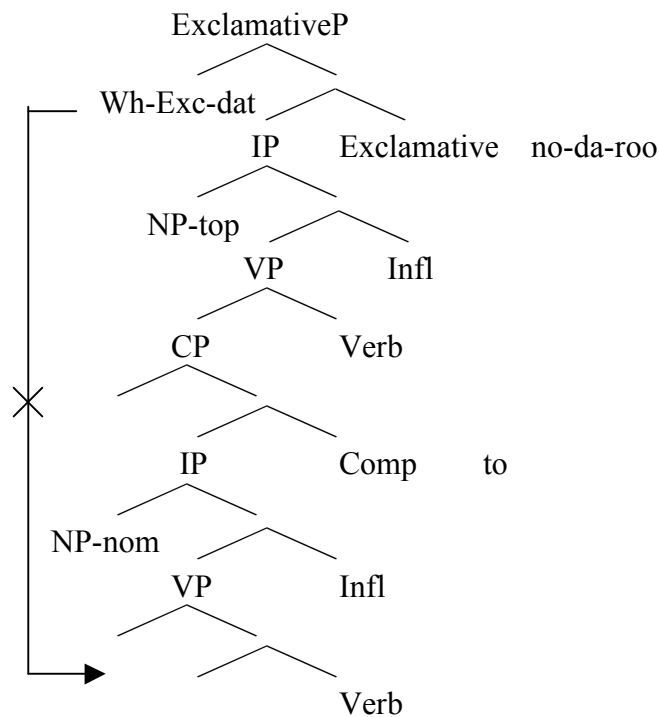
Recall that the parser's revision of the gap position and re-establishment of the dependency, as seen with the fronted interrogative wh-phrase, is motivated by the idea that the new gap in the embedded clause allows the grammatical requirement to be satisfied as soon as possible, since the gap in the embedded clause can form a dependency with the licensing particle at the embedded clause. The fact that the fronted exclamative wh-phrase is not taken by the parser as an argument of the embedded clause suggests that the parser is unwilling to posit the gap in the embedded clause or to re-

establish the dependency. If the parser posits the gap and the necessary projection in the embedded clause, the structure would be something like the one in Figure 2.

Figure 2: Fronted exclamative wh-phrase

```
                    ExclamativeP
                   /\
        Wh-Exc-dat    /\
     ┌──         IP      Exclamative    ~~no-da-(roo)~~
     │         /\
     │     NP-top   /\
     │            VP      Infl
     │           /\
     │         CP     Verb
     │        /\
     │   ExclamativeP   /\
     │      /\      Comp      to
     │    IP    Exclamative    no-da-(roo)
     │   /\
     │ NP-nom  /\
     │       VP    Infl
     │      /\
     │    /\
     └──►      Verb
```
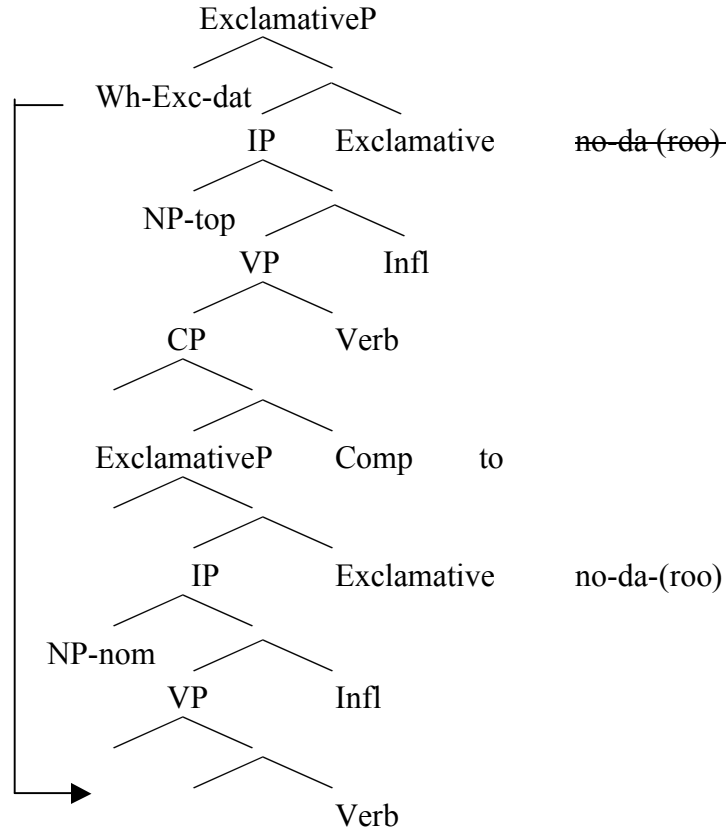
Unlike the case of interrogative wh-clauses, what the parser would have to do after recognizing that there is an embedded clause is to posit that there is an extra functional projection, eventhough the parser has already posited a gap and established a dependency in the matrix clause. This is crucially different from what the parser has to do in wh-interrogatives. With the fronted interrogative wh-phrase, in order to re-establish the dependency, the parser has to change the overt realization of the embedded Comp from the Declarative complementizer *to* to the Q-particle *ka*. On the other hand, what the parser might be willing to do in the case of the fronted exclamative wh-phrase is to build an extra projection in order to re-establish the dependency so that the grammatical requirement of the exclamative wh-phrase is satisfied as soon as possible. Supposing that the choice is motivated only by re-establishing the dependency, and given the fact that the parser does not decide to posit the new gap, we argue that when the parser has a choice whether an extra projection is to be built or not, the parser does not choose to create the projection if the whole purpose of doing it is to re-establish the dependency.

We should emphasize the "if" clause since it is crucial for explaining another set of data. Recall the finding by Miyamoto & Takahashi (2002) that when the interrogative wh-phrase appears in situ, the parser prefers to encounter the licensing particle *ka* in the closest grammatically possible Comp position, though it is grammatically possible to

place the licensing particle *ka* at the matrix Comp position. Our data on exclamatives indicates that when the exclamative wh-phrase appears after a sequence of two nominative marked NPs, it shows a very strong local licensing preference, exactly as seen in the case of interrogative wh-phrases. Again, in the case of exclamative wh-phrases, it is grammatically possible to place the licensing particles at the matrix clause. Hence, concerning the in situ cases, there is no difference between interrogative and exclamative wh-phrases in terms of how they are processed.

For the in situ cases, the parser encounters the exclamative wh-phrase after a sequence of the two NPs (NP-TOP and NP-NOM). Our data show that the parser forms a dependency between the exclamative wh-phrase and the licensing particle in the embedded clause. Note that the dependency is formed for the first time at this point. The underlying intuition employed to account for the results of the sentence initial exclamative wh-phrases is that building an extra projection is dispreferred for re-establishing the dependency. Since the dependency is established for the first time in the in situ cases, building an extra projection is possible and it is done in the most economical way, namely in the way that the grammatical requirement is satisfied as soon as possible. As argued above, the distinction between establishing and re-establishing the dependency is crucial. The basic idea is that building an extra structure is not harmful for establishing the dependency for the first time, but it is for re-establishing the dependency afterwards.

Based on the results from Experiment 1, an on-line self-paced reading experiment was designed in order to investigate the time course of processing the in situ exclamative wh-phrases.

4.   Experiment 2: Self-Paced Reading Task

The aim of this experiment is to examine whether the TME can be observed with exclamative *wh*-phrases on-line, using a self-paced reading task. Given the results obtained in the sentence generation task, it is expected that the in situ exclamative wh-phrases yield a local licensing bias, and the presence of the licensing particles for the exclamative wh-phrase at the embedded verb position. This will be reflected in the reading time in the embedded verb region that includes the licensing particles. After the reader encounters the in situ exclamative wh-phrase in the embedded clause, the reading time of the embedded verb position with the licensing particle is predicted to be shorter then that without the licensing particle.

4.1   Participants

Forty-three native speakers of Japanese participated in the experiment. All of them were students at Hiroshima University, Japan. All participants were financially compensated. The experiment lasted about 20 min.

4.2   Materials and Design

Experimental materials consisted of twenty-four sets of sentences with four conditions each (Appendix B for the complete list of items used). The twenty-four sets of items were distributed among four lists in a Latin Square design. Each participant saw exactly one of the lists intermixed with seventy-two fillers in a random order. Target items were

manipulated by two factors; by the type of the dative argument in the embedded clause (an NP with non-exclamative modifier *very* vs. exclamative *wh*), and by the position of the particle *noda-to* or just *to* (at the embedded vs. matrix verb position). (19) illustrates an example set.

(19) Sample set of experimental conditions for Experiment 2

sono-kantoku-wa nintaiduyoi sensyu-ga …
that-manager-TOP patient   player-NOM

a. Exclamative / *noda*

nante   ooku-no fan-ni   hidoi waruguti-o itta-noda-to
wh-EXC many-GEN fan-DAT awful word-ACC   said-EXC-COMP
benti-no   ura-de   gakkarisi-teiru
bench-GEN   behind-at disappointed-ING
'That manager disappointed, what a lot of fans the patient player said awful words to.'

b. Non-exclamative / *noda*

totemo   ooku-no fan-ni   hidoi waruguti-o itta-noda-to
very   many-GEN fan-DAT awful word-ACC   said-EXC-COMP
benti-no   ura-de   gakkarisi-teiru
bench-GEN   behind-at disappointed-ING
'That manager disappointed that the patient player said awful words to a lot of fans.'

c. Exclamative / *to*

nante   ooku-no fan-ni   hidoi waruguti-o it-teita-to
wh-EXC many-GEN fan-DAT awful word-ACC   said-ING-COMP
benti-no   ura-de   kantigaisita-noda
bench-GEN   behind-at misunderstood-EXC
'What a lot of fans the manager disappointed that the patient player said awful words to!'

d. Non-exclamative / *to*

totemo   ooku-no fan-ni   hidoi waruguti-o it-teita-to
very   many-GEN fan-DAT awful word-ACC   said-ING-COMP
benti-no   ura-de   gakkarisi-teiru
bench-GEN   behind-at misunderstood-EXC
'That manager disappointed that the patient player said awful words to a lot of fans.'

In the Exclamative conditions, an exclamative *wh*-phrase is used in an NP marked with a dative case *-ni*. In the Non-exclamative conditions, a modifier for an adjective *totemo* 'very' substitutes for the exclamative *wh*-phrase. In the *noda* conditions, the exclamative licensing particle *noda* was placed in the embedded verb position, which is grammatically possible and linearly the closest position for the *wh*-phrase. In the *to* conditions, just the Declarative complementizer *to*, not the exclamative particle, appears in the embedded verb position, and the exclamative particle *noda* is placed at the matrix verb position. Also in the *to* conditions, the embedded verb appears in the *teiru* form in order to match the relative length of the embedded verb region.

4.3　Procedure

The experiment was conducted on a Dell computer running Linger developed at MIT. Participants were timed in a phrase-by-phrase self-paced non-cumulative moving-window reading task (Just & Carpenter, 1982). Most of the sentences were presented on a single line. Each trial item was segmented with spaces as shown in Table 6. The various particles used in this experiment were presented together with the preceding verbs, for those particles are not an independent prosodic word, but a bound morpheme.

Table 6: Experiment 2, segmentation in the self-paced reading task

1	2	3	4	5	6
NP-TOP	Adj	NP-NOM	exc-wh Adj NP-DAT very Adj NP-DAT	Adj	NP-ACC

7	8	9	10
V-EXC-COMP V-TEIRU-COMP	NP-GEN	NP-at	V V-NODA

In order to make sure that the participants paid sufficient attention to the experiment, a comprehension task was used. After each stimulus sentence, participants saw a yes-no comprehension question, which requires comprehension of the sentence. Data points were not included in the reading time analyses if the participant did not answer the comprehension task correctly. The experimental trials are preceded by instructions and three practice trials.

4.4　Results

4.4.1　Task Accuracy and Data Analyses

Some participants and items were eliminated from further analyses due to various reasons. Out of forty-three participants, four participants were eliminated due to the poor accuracy (below 70%). Overall accuracy for the experiment is 83.33% without those four participants. We also disregarded two other participants, whose reading times are considerably longer, compared to others, and one participant, whose reading times are considerably shorter, compared to others. As for items, two items were disregarded due to their poor accuracy rate (53% and 60%, respectively), and one item due to some pragmatic awkwardness (an unnatural habitual reading arises due to the use of the present tense in the embedded clause). The remaining data has been winsorized: data points that are 3.5 SD away from the average for each region were eliminated; only 1.0% of the total data points were affected.

4.4.2　Reading Time

The reading time analysis yielded the following results. Regions 7 to 10 were the critical regions.

Table 7: Experiment 2, reading times (ms) and standard errors (in parentheses) per region

Conditions	Region 7 emb.V	Region 8 NP-gen	Region 9 NP-P	Region 10 mat.V
a. Exclamative-noda	604 (25)	529 (18)	435 (9)	570 (19)
b. Exclamative-to	579 (22)	528 (15)	463 (10)	710 (23)
c. Non-exclamative-noda	593 (23)	514 (16)	448 (11)	608 (20)
d. Non-exclamative-to	589 (24)	534 (16)	462 (11)	684 (21)

Regarding Region 7 (the embedded verb region), there was no main effect of the object type (exclamative or non-exclamative; $Fs < 1$) nor the complementizer type (declarative or exclamative; $F_1(1,35) = 1.17$, $p > .28$; $F_2(1,20) < 1$). In Region 8 (the NP-GEN region), there was also no main effect of the object type or the complementizer type ($Fs < 1$).

At Region 9 (the NP-postposition region), there was a main effect of the complementizer type in the item analysis, and marginally significant main effect of it in the participant analysis ($F_1(1,35) = 3.37$, $p < .075$; $F_2(1,20) = 6.43$, $p < .02$), due to the longer reading times in the *to* conditions. There was no main effect of the object type ($Fs < 1$). Pairwise comparisons revealed that, within the exclamative conditions, the *to* conditions were read significantly more slowly than the *noda* conditions ($F_1(1,35) = 4.48$, p<.05; $F_2(1,20) = 9.88$, p<.01). The same comparison for the non-exclamative conditions showed no significant differences ($F_1(1,35) < 1$; $F_2(1,20) = 1.23$, p>.25).

At Region 10 (the matrix verb position), there was no main effect of the object type ($Fs < 1$), but the main effect of the complementizer type was significant ($F_1(1,35) = 30.14$, $p < .01$; $F_2(1,20) = 19.20$, $p < .01$), showing that conditions with the exclamative licensors at the matrix clause were read more slowly. The interaction of the object type and the complementizer type was marginally significant in the participant analysis, but not in the item analysis ($F_1(1,35) = 3.52$, $p < .07$; $F_2(1,20) = 1.16$, $p > .25$).

4.5   Discussion

In Experiment 1 of Miyamoto & Takahashi (2002), the condition with the wh-phrase where the embedded verb was followed by the Declarative complementizer *to* was read slower than the condition with the Q-particle *ka*, which is similar to our result. However, without the presence of a wh-phrase, the condition where the embedded verb was followed by the Q-particle was read slower than the condition with the Declarative complementizer, which is comparable to our Non-Exclamative conditions. In our experiment, no difference was observed in Non-Exclamative conditions. Regarding the results in Miyamoto & Takahashi (2002), they provide two explanations: (a) the occurrence of the Q-particle is unexpected given the lack of *wh*-phrase, and (b) in general, interrogative sentences are read slower than declarative sentences. One difference between our exeriment and theirs is that the presence of Q-particle *ka* without being preceded by any *wh*-phrase unambiguously types a clause as interrogative (yes-no question), while the presence of the exclamative particle *noda* without being preceded by any *wh*-phrase does not type a clause as exclamative, but the particle *noda* indicates that some constituent in the structure is focused (Hiraiwa & Ishihara, 2002). Crucially, the clause remains typed as declarative. Such a difference between the grammatical
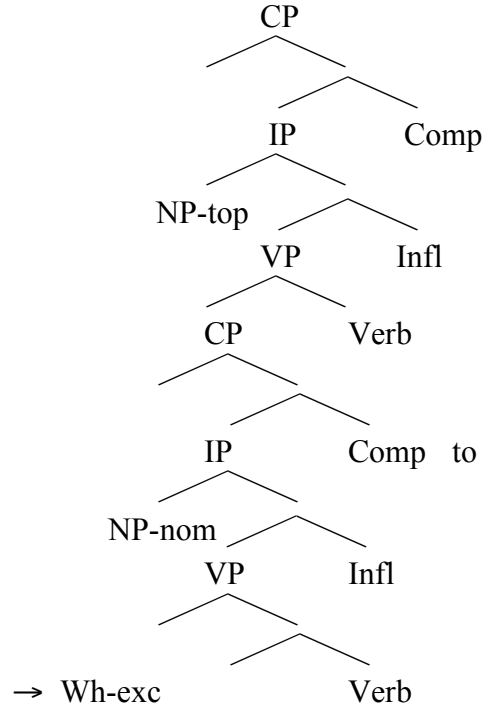
properties of the relevant particles seems to contribute to the lack of reading time differences in Non-Exclamative conditions in our experiment.

The fact that the Exclamative-*to* condition was read slower than the Exclamative-*noda* condition was the expected result. The reading time results in two Exclamative conditions showed that the presence of in situ exclamative wh-phrases yields a prediction that the licensing particles appear in the closest grammatically possible position. The reading times in the Exclamative-*to* condition indicated that the absence of the licensing particle was unexpected for the reader; i.e., this illustrates that the TME is also observed with exclamative *wh*-phrases. Combined with the results obtained from the off-line studies, the data suggest that the parser posits the presence of the particle incrementally. When compared with the results in Miyamoto & Takahashi (2002) and Aoshima, et al (2004), our results from the on-line study were weak and the effects showed up two regions after the reader encountered the crucial embedded verb region. Also, the main effect of the object type in that region was significant in the item analysis, but marginally significant in the participant analysis. One speculation about our results is that, compared to interrogatives, it is possible that there are fewer chances for the native speakers to encounter exclamatives. It seems that there are a lot of variations (possibly dialectal) with respect to the verbal suffixes that license exclamatives, again when compared to interrogatives. In our experiment, the licensing particles for exclamatives are set only to *noda*. It could be that for some readers other forms of the licensing particles are more accessible. Those issues need to be investigated further in future research.

Now, recall the pattern of the sentence initial exclamative wh-phrases in our Experiment 1; the results showed that the sentence initial exclamative wh-phrases were predominantly not interpreted in the embedded clause. It was argued that the pattern is accounted for if the parser does not make a prediction that there are licensing particles at the embedded clause. On the other hand, in conditions in which the exclamative wh-phrase is located in the embedded clause in the sentence completion study and this self-paced reading study, it was observed that there was a preference by the parser to posit the embedded licensing particles when it sees the exclamative wh-phrase in the embedded clause. An account needs to be provided that explains the difference between the conditions with the sentence initial exclamative wh-phrase and the in situ exclamative wh-phrase.

At the point where the parser encountered the exclamative wh-phrase in the embedded clause, it seems plausible to assume that the parser has the representation in Figure 3.

Figure 3: In situ exclamative wh-phrase

```
                        CP
                       /  \
                      /    \
                    /  \
                  IP    Comp
                 /  \
            NP-top   /  \
                   VP    Infl
                  /  \
                CP    Verb
               /  \
              /    \
            IP     Comp  to
           /  \
      NP-nom   /  \
             VP    Infl
            /  \
           /    \
  →  Wh-exc      Verb
```

From the previous experiments, it seems plausible that the parser expects that there is an embedded clause, and research on the processing of the relative clause in the literature indicates that the parser expects that the embedded clause is the complement clause. Given that, when the parser sees the exclamative wh-phrase, the parser posits the presence of the licensing functional heads in the structure. What is crucial is that this is the earliest possible stage in which the parser is compelled to posit the licensing particles for the exclamative wh-phrase. The grammar allows two possible positions where the parser posits the licensing particles: the embedded or matrix Comp position. The experimental results from Miyamoto & Takahashi (2002) and Aoshima, et al (2004) and the ones from our experiments suggest that the parser makes a prediction that the licensing particles will occur at the embedded Comp position, since the embedded Comp position is the earliest point where the grammatical requirement of the exclamative wh-phrase can be satisfied.

The crucial point in the in situ cases is that the parser realizes the presence of the exclamative wh-phrase for the first time after it recognizes that there is more than one clause. In other words, when it tries to establish the relevant dependency, it has already made a choice between putting the exclamative licensing particle in the embedded clause or the matrix clause. Our experimental results indicate that the parser predicts that there is an exclamative licensing particle at the embedded verb position, i.e., there is an extra functional projection in the embedded clause. The data from the fronted exclamative wh-phrase suggest that positing this extra projection is possible in case it is the first time the parser establishes the relevant dependency. Note that in such a case, the parser is not re-establishing the dependency. When the parser realizes that positing an extra functional projection is required in order to determine the dependency at the earliest point, the parser gives up positing that projection.

5. General Discussion

The discussion above based on the two experiments shows that there is no processing difference between interrogative and exclamative wh-phrases when they occur in an embedded clause. Given the preference of the parser, the relevant licensing particles are expected to occur in the embedded CP domain. Now, what needs to be accounted for is the processing difference between the fronted and in situ exclamative wh-phrases. When the parser sees the embedded exclamative wh-phrase in the embedded clause, the parser has to determine that the licensing particles for exclamatives occur overtly, given the grammatical requirement for the exclamatives. On the other hand, when the parser sees the fronted exclamative wh-phrase and the subsequent sequence of two NPs marked with the nominative case-marker, the parser has already posited the overt realization of the licensing particles in the structure. As argued above, in order to license the fronted exclamative wh-phrase in the embedded clause, the parser has to predict the overt realization of the same licensing functional heads in the embedded clause. Since these were not the results we got in our experiment, we need to say that the parser does not predict whether the licensing functional heads are overtly realized in order to solely shorten the dependency. The situation is different when the parser sees the exclamative wh-phrase in the embedded clause. Here, the overt realization of the licensing heads is predicted in order to build a grammatical representation. Without the licensing heads, the sentence is ungrammatical. With respect to the fronted interrogative wh-phrase, after the parser sees the second NP marked with the nominative case marker, the parser predicts that there is an embedded complement clause in which the overt Comp is also predicted independently from the presence of the interrogative wh-phrase. Crucially, the parser does not have to build another functional projection to posit a gap in the embedded clause We then argue that re-establishing the dependency for the fronted wh-phrase is possible by virtue of the fact that the position in which the licensing particle *ka* occurs happens to be Comp where the overt realization of the Declarative complementizer *to* is guaranteed. On the other hand, the positions in which the licensing particles for the exclamative wh-phrase are different in the sense that the positions are overtly realized only to satisfy the grammatical requirement, such as licensing exclamatives. In short, we argue that, when the parser's preference (such as scope-marking) is at issue, predictions of what form a given head is realized are relatively easier than predictions of whether a given head is overtly realized or not.

Obviously, it is very important to determine exactly where such a ranking is relevant. The effect is counter-intuitive in the area where the preference of shortening the dependency is not at issue. For instance, when the parser realizes that it is dealing with a sentence in Japanese, the parser can predict the verb is overtly realized even before it is encountered. On the other hand, there is no evidence that the parser predicts the full content of the verb itself. The case we discussed here is, nonetheless, the prediction regarding the functional projections, the content of which is extremely limited. The alternation between the Declarative complementizer *to* and the Q-particle *ka* is quite specific; so is the form of the licensing particles for exclamatives.

Taken together, based on a series of experiments on exclamative sentences in Japanese, we have shown that TME is observed in exclamatives. Furthermore, we argued

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that not all functional projections are treated equally by the parser. Specifically, we suggested that the Comp where the Declarative complementizer *to* or the Q-particle *ka* occurs is handled in a slightly different manner than functional projections such as Exclamative Phrase. The difference between those two "types" of functional projections emerges in a specific situation where the parser's preference to shorten the dependency is involved.

6. Appendix A: items in the sentence completion task A.

Each of the items in this list represents one full set of stimuli from Experiment 1. Alternative words are given in parenthesis, separated by a slash (/). In fronted conditions, the parts in parenthesis are fronted to the beginning of the fragment.

1,その先生は学生が{どの女の子に}/{なんてたくさんの女の子に} …
sono sensee-wa gakusee-ga {dono onnanoko-ni}/{nante takusan-no onnanoko-ni}
that teacher-top student-nom {which girl-dat}/{wh-exc many-gen girl-dat}
2,店長はお客が{どの従業員に}/{なんてかわいい従業員に} …
tentyoo-wa okyaku-ga {dono zyuugyooin-ni}/{nante kawaii zyuugyooin-ni}
store manager-top customer-nom {which worker-dat}/{wh-exc cute worker-dat}
3,その女の子は彼氏が{どの男の子に}/{なんてちいさな男の子に} …
sono onnanoko-wa karesi-ga {dono otokonoko-ni}/{nante tiisana otokonoko-ni}
that girl-top boyfriend-nom {which boy-dat}/{wh-exc small boy-dat}
4,近所の奥さんはそのセールスマンが{どの老人に}/{なんてかわいそうな老人に} …
kinzyo-no okusan-wa sono seerusuman-ga {dono roozin-ni}/{nante kawaisoona roozin-ni}
neighbor-gen house wife-top that salesman-nom {which old man-dat}/{wh-exc poor old man-dat}
5,その社長は社員が{どの取引先に}/{なんてたくさんの取引先に} …
sono syatyoo-wa syain-ga {dono torihikisaki-ni}/{nante takusan-no torihikisaki-ni}
that president-top worker-nom {which customer-dat}/{wh-exc many-gen customer-dat}
6,組長は警察が{どの警察官に}/{なんてひ弱な警察官に} …
kumityoo-wa keesatu-ga {dono keesatukan-ni}/{nante hiyowana keesatukan-ni}
yakuza boss-top police-nom {which policeman-dat}/{wh-exc weak policeman-dat}
7,その活動家は市長が{どの家族に}/{なんて恵まれない家族に} …
sono katudooka-wa sityoo-ga {dono kazoku-ni}/{nante megumarenai kazoku-ni}
that activist-top mayor-nom {which family-dat}/{wh-exc poor family-dat}
8,部長は社長が{どの秘書に}/{なんて無能な秘書に} …
butyoo-wa syatyoo-ga {dono hisyo-ni}/{nante munoona hisyo-ni}
manager-top president-nom {which secretary-dat}/{wh-exc incompetent secretary-dat}
9,その医者は患者が{どの看護婦に}/{なんて役に立たない看護婦に} …
sono isya-wa kanzya-ga {dono kangohu-ni}/{nante yakunitatanai kangohu-ni}
that doctor-top patient-nom {which nurse-dat}/{wh-exc useless nurse-dat}
10,その助手は学生が{どの教授に}/{なんて頑固な教授に} …
sono zyosyu-wa gakusee-ga {dono kyoozyu-ni}/{nante gankona kyoozyu-ni}
that assistant-top student-nom {which professor-dat}/{wh-exc stubborn professor-dat}
11,奥さんはお手伝いさんが{どのお客に}/{なんて失礼なお客に} …
okusan-wa otetudaisan-ga {dono okyaku-ni}/{nante situreena okyaku-ni}
wife-top house keeper-nom {which guest-dat}/{wh-exc impolite guest-dat}
12,その歌手はプロデューサーが{どの作詞家に}/{なんて人気のない作詞家に} …
sono kasyu-wa purodyuusaa-ga {dono sakusika-ni}/{nante ninkinonai sakusika-ni}
that singer-top producer-nom {which lyric writer-dat}/{which unpopular lyric writer-dat}
13,その社長はプログラマーが{どの下請けに}/{なんて多くの下請けに} …

sono syatyoo-wa puroguramaa-ga {dono sitauke-ni}/{nante ooku-no sitauke-ni}

that president-top programmer-nom {which subsidiary-dat}/{wh-exc many-gen subsidiary-dat}

14, 秘書はその政治家が{どの資産家に}/{なんて裕福な資産家に} …

hisyo-wa sono seezika-ga {dono sisanka-ni}/{nante yuuhukuna sisanka-ni}

secretary-top that politician-nom {which property owner-dat}/{wh-exc rich property owner-dat}

15, その魚屋は近所の八百屋が{どの子供たちに}/{なんて貧乏な子供たちに} …

sono sakanaya-wa kinzyo-no yaoya-ga {dono kodomotati-ni}/{nante binboona kodomotati-ni}

that fish dealer-top neighbor-gen vegetable dealer-nom {which children-dat}/{wh-exc poor children-dat}

16, 近所の花屋は隣のラーメン屋が{どの記者に}/{なんて高慢な記者に} …

kinzyo-no hanaya-wa tonari-no raamenya-ga {dono kisya-ni}/{nante koomanna kisya-ni}

neighbor-gen flower dealer-top next door-gen ramen dealer-nom {which writer-dat}/{wh-exc snobby writer-dat}

17, 助手はその教授が{どの学生に}/{なんてばかな学生に} …

zyosyu-wa sono kyoozyu-ga {dono gakusee-ni}/{nante bakana gakusee-ni}

assistant-top that professor-nom {which student-dat}/{which stupid student-dat}

18, その夫婦は子供たちが{どの友達に}/{なんて疎遠な友達に} …

sono huuhu-wa kodomotati-ga {dono tomodati-ni}/{nante soenna tomodati-ni}

that married couple-top children-nom {which friend-dat}/{which estranged friend-dat}

19, そのカップルはガイドが{どのドライバーに}/{なんて気難しいドライバーに} …

sono kappuru-wa gaido-ga {dono doraibaa-ni}/{nante kimuzukasii doraibaa-ni}

that couple-top guide-nom {which driver-dat}/{wh-exc hard to please driver-dat}

20, 担任は校長が{どの生徒に}/{なんてやさしい生徒に} …

tannin-wa kootyoo-ga {dono seeto-ni}/{nante yasasii seito-ni}

class teacher-top principle-nom {which student-dat}/{wh-exc kind student-dat}

21, 叔母は母親が{どの子供に}/{なんてさみしがりやの子供に} …

oba-wa hahaoya-ga {dono kodomo-ni}/{nante samisigariya-no kodomo-ni}

aunt-top mother-nom {which child-dat}/{wh-exc lonely-gen child-dat}

22, 牧師はボランティアが{どの病人に}/{なんて年寄りの病人に} …

bokusi-wa borantia-ga {dono byoonin-ni}/{nante tosiyori-no byoonin-ni}

clergyman-top volunteer-nom {which patient-dat}/{wh-exc old-gen patient-dat}

23, 監督は選手が{どのファンに}/{なんて熱心なファンに} …

kantoku-wa sensyu-ga {dono fan-ni}/{nante nessinna fan-ni}

manager-top player-nom {which fan-dat}/{wh-exc enthusiastic fan-dat}

24, スチュワーデスは機長が{どの乗客に}/{なんて太っている乗客に} …

sutyuwaadesu-wa kityoo-ga {dono zyookyaku-ni}/{nante hutotteiru zyookyaku-ni}

stewardess-top pilot-nom {which passenger-dat}/{wh-exc fat passenger-dat}

25, 指揮者は音楽家が{どのピアニストに}/{なんて若いピアニストに} …

sikisya-wa ongakuka-ga {dono pianisuto-ni}/{nante wakai pianisuto-ni}

conductor-top musician-nom {which pianist-dat}/{wh-exc young pianist-dat}

26, 妻は夫が{どの獣医に}/{なんていかつい獣医に} …

tuma-wa otto-ga {dono zyuui-ni}/{nante ikatui zyuui-ni}

wife-top husband-nom {which veterinarian-dat}/{wh-exc stern veterinarian-dat}

27, その国会議員は知事が{どの建設会社に}/{なんてうさんくさい建設会社に} …

sono kokkaigiin-wa tizi-ga {dono kensetugaisya-ni}/{nante usankusai kensetugaisya-ni}

that politician-top mayor-nom {which construction company-dat}/{wh-exc suspicious construction company-dat}

28, 記者はそのやくざが{どの女優に}/{なんて美しい女優に} …

kisya-wa sono yakuza-ga {dono zyoyuu-ni}/{nante utukusii zyoyuu-ni}

reporter-top that gang-nom {which actress-dat}/{wh-exc beautiful actress-dat}

29, 留学生はその医者が{どの婦長に}/{なんてやせた婦長に} …

ryuugakusei-wa sono isya-ga {dono hutyoo-ni}/{nante yaseta hutyoo-ni}

exchange student-top that doctor-nom {which chief nurse-dat}/{wh-exc skinny chief nurse-dat}

30, 店長はその販売員が{どの女性に}/{なんて気弱な女性に} …
tentyoo-wa sono hanbaiin-ga {dono zyosee-ni}/{nante kiyowana zyosee-ni}
store manager-top that worker-nom {which lady-dat}/{wh-exc weak lady-dat}

7.　　　Appendix B: items in the self-paced reading task

Each of the items in this list represents a full set of stimuli from Experiment 2. In the Japanese items, alternative words are given in curly brackets, separated by a slash (/). English translations are provided only for the non-exclamative conditions (b) and (d). The alternative forms of the main clause and embedded verbs are given in curly brackets, separated by a slash (/). The words in square brackets correspond to the phrase that is an exclamative wh-phrase in the exclamative conditions (a) and (c). See example (19) for one full set of items.

1，そのウェイトレスは 料理長が ｛なんて/とても｝要領の悪い見習いに 料理の 盛りつけを ｛頼んだのだ/頼んでいた｝と キッチンの 裏で ｛こぼしていた。/言いふらしていたのだ。｝
sono ueetoresu-wa ryoorityoo-ga {nante/totemo} yooryoonowarui minarai-ni ryoori-no morituke-o {tanonda-noda/tanondeita}-to kittin-no ura-de {kobositeita/iihurasiteita-noda}
that waitress-top chef-nom {wh-exc/very} inefficient apprentice-dat dish-gen garnish-acc {asked-exc/asked}-comp kitchen-gen behind-at {complained/spread the word-exc}
Behind the kitchen, that waitress {complained about/spread the word that} the chef {asking/asked} [a very inefficient apprentice] to garnish the dish.
2，その院長は 新人の 医者が ｛なんて/とても｝年老いた患者に 困難な 手術を ｛するのだ/している｝と 病院の 理事会で ｛怒っていた。/主張したのだ。｝
sono intyoo-wa sinzin-no isya-ga {nante/totemo} tosioita kanzya-ni konnanna syuzyutu-o {suru-noda/siteiru}-to byooin-no rizikai-de {okotteita/syutyoosita-noda}
that chief doctor-top new doctor-nom {wh-exc/very} old patient-dat difficult operation-acc {conduct-exc/conduct}-comp hospital-gen executive meeting-at {got angry/exclaimed-exc}
At the executive meeting, that chief doctor {got angry about/exclaimed that} the new doctor {conducting/conducted} a difficult operation on [a very old patient].
3，その見習いは 思慮深い 棟梁が ｛なんて/とても｝不器用な大工に 責任重大な 現場監督を ｛まかせたのだ/まかせていた｝と 新築祝いの 打ち上げで ｛憤っている。/勘違いしたのだ。｝
sono minarai-wa siryobukai tooryoo-ga {nante/totemo} bukiyoona daiku-ni sekininzyuudaina genbakantoku-o {makaseta-noda/makaseteita}-to sintikuiwai-no utiage-de {ikidootteiru/kantigaisita-noda}
that apprentice-top thoughtful chief-nom {wh-exc/very} clumsy builder-dat responsible management-acc {left-exc/left}-comp building ceremony-gen party-at {is angry/misunderstood-exc}
At the building dedication, that apprentice {is angry at/misunderstood that} the thoughtful chief {leaving/left} [a very clumsy carpenter] responsible for managing the place.
4，その秘書は 注意深い 教授が ｛なんて/とても｝浅はかな学生に 重要な 仕事を ｛与えるのだ/与えていた｝と 学科の 会議で ｛嘆いている。/思い込んだのだ。｝
sono hisyo-wa tyuuibukai kyoozyu-ga {nante/totemo} asahakana gakusee-ni zyuuyoona sigoto-o {ataeru-noda/ataeteita}-to gakka-no kaigi-de {nageiteiri/omoikonda-noda}
that secretary-top careful professor-nom {wh-exc/very} careless student-dat important job-acc {give-exc/gave}-comp department-gen meeting-at {is lamenting/misunderstood-exc}
At the department meeting, that secretary {is lamenting/misunderstood that} the careful professor {giving/gave} an important job to [a very careless student].
5，その課長は 厳しい 部長が ｛なんて/とても｝若い社員に 長期の 有給休暇を ｛与えたのだ/与えている｝と 帰りの 電車で ｛嘆いている。/ふれ回ったのだ。｝
sono katyoo-wa kibisii butyoo-ga {nante/totemo} wakai syain-ni tyooki-no yuukyuukyuuka-o {ataeta-noda/ataeteiru}-to kaeri-no densya-de {nageiteiru/huremawatta-noda}

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that supervisor-top strict manager-nom {wh-exc/very} young worker-dat long-gen paid leave-acc {gave-exc/give}-comp return-gen train-at {is lamenting/spread the word-exc}
On the train home, that supervisor {is lamenting/spread the word that} the strict manager {giving/gave} [a very young worker] paid leave.

6, その演歌歌手は まじめな マネージャーが {なんて/とても}評判の悪いイベント会社に コンサートの 宣伝を {依頼したのだ/依頼している}と 事務所の 駐車場で {激怒している。/思い込んだのだ。}

sono enkakasyu-wa mazimena maneezyaa-ga {nante/totemo} hyoobannowarui ibentogaisya-ni konsaato-no senden-o {iraisita-noda/iraisiteiru}-to zimusyo-no tyuusyazyoo-de {gekidositeiru/omoikonda-noda}
that enka singer-top serious manager-nom {wh-exc/very} disreputable ad company-dat concert-gen ad-acc {asked-exc/ask}-comp office-gen parking-in {is furious/misunderstood-exc}
In the office parking lot, that enka singer {is furious about about/misunderstood that} the serious manager {asking/asked} [a very disreputable ad company] to advertise the concert.

7, そのミュージシャンは ベテランの マネージャーが {なんて/とても}うさんくさいプロデューサーに 新しいアルバムの 制作を {任せたのだ/任せている}と テレビ局の 楽屋で {憤慨していた。/非難したのだ。}

sono myuuzisyan-wa beteran-no maneezyaa-ga {nante/totemo} usankusai purodyuusaa-ni atarasii arubamu-no seisaku-o {makaseta-noda/makaseteiru}-to terebikyoku-no gakuya-de {hungaisiteita/hinansita-noda}
that musician-top experienced-gen manager-nom {wh-exc/very} odd producer-dat new album-gen produce-acc {asked-exc/asked}-comp TV station-gen green room-at {got angry/railed about-exc}
In the green room at the TV station, that musician {got angry about/railed about the fact that} the experienced manager {asking/asked} [a very odd producer] to produce the new album.

8, その校長は 常識的な 先生たちが {なんて/とても}幼い児童に 難しい 数学を {教えたのだ/教えていた}と 学校の 職員会議で {言い張っていた。/勘違いしたのだ。}

sono kootyoo-wa zyoosikitekina senseetati-ga {nante/totemo} osanai zidoo-ni muzukasii suugaku-o {osieta-noda/osieteita}-to gakkoo-no syokuinkaigi-de {iihatteita/kantigaisita-noda}
that principal-top responsible teachers-nom {wh-exc/very} young student-dat difficult math-acc {taught-exc/taught}-comp school-gen meeting-at {exclaimed/misunderstood-exc}
At the school meeting, that principal {exclaimed/misunderstood that} the responsible teachers {teaching/taught} difficult math to [very young children].

9, その銀行員は 堅実な 支店長が {なんて/とても}腹黒い商人に 多額の 融資を {認めたのだ/認めている}と 支店の 会議で {驚いている。/信じたのだ。}

sono ginkooin-wa kenzituna sitentyoo-ga {nante/totemo} haraguroi-ni syoonin-ni tagaku-no yuusi-o {mitometa-noda/mitometeiru}-to siten-no kaigi-de {odoroiteiru/sinzita-noda}
that bank worker-top conservative chief manager-nom {wh-exc/very} bad company-dat a lot-gen debt-acc {accepted-exc/accepted}-comp branch-gen meeting {is surprised/misunderstood-exc}
At the branch meeting, that bank worker {is surprised about/misunderstood that} the conservative chief manager {allowing/allowed} [a very bad campany] to borrow a lot of money.

10, その保護者は 正直そうな お巡りさんが {なんて/とても}たくさんの 子供に 強力な 覚せい剤を {広めたのだ/広めている}と PTAの 集まりで {告発していた。/言い張るのだ。}

sono hogosya-wa syoozikisoona omawarisan-ga {nante/totemo} takusan-no kodomo-ni kyooryokuna kakuseezai-o {hirometa-noda/hirometeiru}-to PTA-no atumari-de {kokuhatusiteita/iiharu-noda}
that parent-top respectable policeman-nom {wh-exc/very} many-gen children-dat strong drug-acc {spread-exc/spread}-comp PTA-gen meeting-at {pointed out/claimed-exc}
At the PTA meeting, that parent {pointed out/claimed that} the respectable policeman {giving/gave} strong drugs to [very many children].

11, その監督は やさしい 選手が {なんて/とても}行儀の悪い観客に チームの グッズを {配ったのだ/配っていた}と 遠征先の ホテルで {あきれている。/信じたのだ。}

sono kantoku-wa yasasii sensyu-ga {nante/totemo} gyooginowarui kankyaku-ni tiimu-no guzzu-o {kubatta-noda/kubatteita}-to enseesaki-no hoteru-de {akireteiru/sinzita-noda}
that manager-top kind player-nom {wh-exc/very} ill-mannered spectator-dat team-gen goods-acc {provided-exc/provided}-comp expedition-gen hotel-at {is amazed/mistook-exc}

At the hotel, that manager {is amazed about/wrongly mistook the fact that} the kind player {providing/provided} team goods to [a very ill-mannered spectator].

12，その監督は 忍耐強い 選手が ｛なんて/とても｝多くの ファンに ひどい 悪口を ｛言ったのだ/言っていた｝と ベンチの 裏で ｛がっかりしている。/勘違いしたのだ。｝

sono kantoku-wa nintaizuyoi sensyu-ga {nante/totemo} ooku-no fan-ni hidoi waruguti-o {itta-noda/itteita}-to benti-no ura-de {gakkarisiteiru/kantigaisita-noda}

that manager-top patient player-nom {wh-exc/very} many-gen fan-dat bad words-acc {told-exc/told}-comp bench-gen behind-at {is disappointed/misunderstood-exc}

Behind the bench, that manager {is disappointed about/misunderstood that} the patient player {swearing/swore} at [very many fans].

13，その球団社長は 寛容な 監督が ｛なんて/とても｝優秀なピッチャーに 厳しい 罰を ｛与えたのだ/与えた｝と 球場の ブルペンで ｛がっかりしている/期待しているのだ｝。

sono kyuudansyatyoo-wa kanyoona kantoku-ga {nante/totemo} yuusyuuna pityaa-ni kibisii batu-o {ataeta-noda/ataeta}-to kyuuzyoo-no burupen-de {gakkarisiteiru/kitaisiteiru-noda}

that owner-top patient manager-nom {wh-exc/very} great pitcher-dat harsh penalty-acc {gave-exc/gave}-comp ball park-gen bullpen-at {is disappointed/expected-exc}

In the bullpen of the ballpark, that owner of the team {is disappointed about/sees that} the patient manager {giving/gave} a harsh penalty to [a very talented pitcher].

14，そのカメラマンは 有能な アシスタントが ｛なんて/とても｝たくさんの女優に 写真集の モデルを ｛頼んだのだ/頼んでいた｝と スタジオの 控え室で ｛悔やんでいる。/誤解したのだ。｝

sono kameraman-wa yuunoona asisutanto-ga {nante/totemo} takusan-no zyoyuu-ni syasinsyuu-no moderu-o {tanonda-noda/tanondeita}-to sutazio-no hikaesitu-de {kuyandeiru/gokaisita-noda}

that cameraman-top efficient assistant-nom {wh-exc/very} many actress-dat photo album-gen model-acc {asked-exc/asked}-comp studio-gen room-at {regret/misunderstood-exc}

In the studio green room, that cameraman {regrets/misunderstood that} the efficient assistant {asking/asked} [very many acresses] to be models in a photo album.

15，その町内会長は 実直な 村長が ｛なんて/とても｝がらの悪い テキ屋に 祭りの 手伝いを ｛させたのだ/させていた｝と 近所の 会合で ｛びっくりした。/噂したのだ。｝

sono tyoonaikaityoo-wa zittyokuna syuhu-ga {nante/totemo} garanowarui tekiya-ni maturi-no tetudai-o {saseta-noda/saseteita}-to kinzyo-no kaigoo-de {bikkurisita/uwasasita-noda}

that local official-top honest mayor-nom {wh-exc/very} bad street vendor-dat festival-gen help-acc {let-exc/let}-comp neighborhood-gen meeting-at {surprised/gossiped-exc}

At the neighborhood meeting, that local official {was surprised about/gossiped that} the honest mayor {asking/asked} [a very bad street vendor] to help with the festival.

16，その大学生は 頼もしい 指導教官が ｛なんて/とても｝評判の悪い 教授に 優秀な 友達を ｛推薦したのだ/推薦していた｝と 研究室の 前で ｛がっかりしていた。/決めつけたのだ。｝

sono daigakusee-wa tanomosii sidookyookan-ga {nante/totemo} hyoobannowarui kyoozyu-ni yuusyuuna tomodati-o {suisensita-noda/suisensiteita}-to kenkyuusitu-no mae-de {gakkarisiteita/kimetuketa-noda}

that student-top reliable professor-nom {wh-exc/very} disreputable professor-dat talented friend-acc {recommended-exc/recommended}-comp office-gen front-at {was disappointed/asserted-exc}

In front of the office, that student {was disappointed about/asserted that} the reliable professor {recommending/recommended} a talented friend to [a very disreputable professor].

17，その社長は 聡明な 秘書が ｛なんて/とても｝大事な 取引先に 大きな 損害を ｛与えたのだ/与えている｝と 役員の 会議で ｛失望している。/誤解したのだ。｝

sono syatyoo-wa soomeina hisyo-ga {nante/totemo} daizina torihikisaki-ni ookina songai-o {ataeta-noda/ataeteiru}-to yakuin-no kaigi-de {situboosita/gokaisita-noda}

that president-top smart secretary-nom {wh-exc/very} important customer-dat big loss-acc {caused-exc/caused}-comp executive-gen meeting-at {is disappointed/misunderstood-exc}

At the executive meeting, that president {is disappointed about/misunderstood that} the smart secretary {causing/caused} a big loss to [a very important customer].

18，その女優は 実力派の 監督が ｛なんて/とても｝有名な 男優に 次回作の 脇役を ｛頼んだのだ/頼んでいた｝と ロケバスの 中で ｛あきれている。/期待したのだ。｝

sono zyoyuu-wa zituryokuha-no kantoku-ga {nante/totemo} yuumeena danyuu-ni zikaisaku-no wakiyaku-o {tanonda-noda/tanondeita}-to rokebasu-no naka-de {akireteita/kitaisita-noda}

that actress-top skillful-gen director-nom {wh-exc/very} famous actor-dat next movie-gen supporting actor-acc {asked-exc/ask}-comp broadcast van-gen inside-at {is amazed/anticipated-exc}

In the broadcast van, that actress {is amazed at/anticipated that} the skillful director {asking/asked} [a very famous actor] to be a supporting actor in the next movie.

19，その社長は 新しい 部下が｛なんて/とても｝頑固な取引先に 長期の 契約を｛とりつけたのだ/とりつけた｝と 年度末の 株主総会で｛感心している。/願ったのだ。｝

sono syatyoo-wa atarasii buka-ga {nante/totemo} gankona torihikisaki-ni tyooki-no keeyaku-o {torituketa-noda/torituketa}-to nendomatu-no kabunusisookai-de {kansinsiteiru/negatta-noda}

that president-top new worker-nom {wh-exc/very} difficult customer-dat long term-gen contract-acc {made-exc/made}-comp end of year-gen stock holder meeting-at {is impressed/wished-exc}

At the year-end stock holder meeting, that president {is impressed by/wished that} the new worker {making/had made} a long-term contract with [a very difficult customer].

20，そのマネージャーは 生意気な アイドルが｛なんて/とても｝たくさんのファンに 直接 サイン色紙を｛渡したのだ/渡していた｝と コンサートの 会場で｛感動していた。/言い張ったのだ。｝

sono maneezyaa-wa namaikina aidoru-ga {nante/totemo} takusan-no fan-ni tyokusetu sainsikisi-o {watasita-noda/watasiteita}-c konsaato-no kaizyoo-de {kandoositeita/iihatta-noda}

that manager-top insolent idle-nom {wh-exc/very} many-gen fan-dat directly autograph-acc {gave-exc/gave}-comp concert-gen place-at {was moved/claimed-exc}

At the concert, that manager {was moved by/claimed that} the insolent idol {giving/gave} an autograph directly to [very many fans].

21，その編集者は 無名の 作家が｛なんて/とても｝たくさんの 読者に 深い 感動を｛与えたのだ/与えている｝と 出版社の 編集会議で｛言っていた。/誇張したのだ。｝

sono hensyuusya-wa mumei-no sakka-ga {nante/totemo} takusan-no dokusya-ni hukai kandoo-o {ataeta-noda/ataeteiru}-to syuppansya-no hensyuukaigi-de {itteita/kotyoosita-noda}

that editor-top unknown-gen writer-nom {wh-exc/very} many-gen readers-dat deep impression-acc {gave-exc/gave}-comp publisher-gen editorial meeting-at {mentioned/exaggerated-exc}

At the meeting at the publisher's office, that editor {mentioned/exaggerated the claim} that the unknown writer made a strong impression on [very many readers].

22，その牧師は 熱心な 信者が｛なんて/とても｝たくさんの 人々に 心の 安らぎを｛もたらしたのだ/もたらしている｝と 教会の バザーで｛感動していた。/宣伝したのだ。｝

sono bokusi-wa nessinna sinzya-ga {nante/totemo} takusan-no hitobito-ni kokoro-no yasuragi-o {motarasita-noda/motarasiteiru}-to kyookai-no bazaa-de {kandoositeita/sendensita-noda}

that clergy-top enthusiastic congregation-nom {wh-exc/very} many-gen people-dat heart-gen peace-acc {provided-exc/provided}-comp church-gen bazaar-at {was moved/announced-exc}

At the church bazaar, that clergyman {was moved by/announced that} the enthusiastic congregation {providing/provided} peace of mind to [very many people].

23，その画家は 画廊の 主人が｛なんて/とても｝たくさんの コレクターに 偽物の 作品を｛売り払ったのだ/売り払っている｝と 展覧会の 会場で｛激怒していた。/誤解していたのだ。｝

sono gaka-wa garoo-no syuzin-ga {nante/totemo} takusan korekutaa-ni nisemono-no sakuhin-o {uriharatta-noda/uriharatteiru}-to tenrankai-no kaizyoo-de {gekidositeita/gokaisiteita-noda}

that painter-top gallery-gen manager-nom {wh-exc/very} many collector-dat fake-gen product-acc {sold-exc/sold}-comp exhibition-gen place-at {got angry/misunderstood-exc}

At the art exhibition, that painter {got angry at/misunderstood that} the manager of the art gallery {having/had} sold fake art work to [very many collectors].

24，その力士は がんこな 親方が｛なんて/とても｝たくさんの 新弟子に 深夜の 外出を｛許可してしまったのだ/許可してしまった｝と 雑誌の 記事で｛おどろいている。/勘違いしたのだ。｝

sono rikisi-wa gankona oyakata-ga {nante/totemo} takusan-no sindesi-ni sinya-no gaisyutu-o {kyokasitesimatta-noda/kyokasitesimatta}-to zassi-no kizi-de {odoroiteiru/kantigaisita-noda}

that sumo wrestler-top stubborn boss-nom {wh-exc/very} many-gen new apprentice-dat mid night-gen stayout-acc {allowed-exc/allowed}-comp magazine-gen article-at {is surprized/misunderstood-exc}

In the magazine article, that sumo wrestler {is surprised at/misunderstood that} the stubborn sumo boss {allowing/allowed} [very many new apprentices] to stay out until midnight.

CHAPTER 7: CONCLUSION

In this thesis, we discussed a variety of empirical facts about exclamatives in English and Japanese. By employing Rizzi's (1997) proposal of left periphery structures, we argued that Japanese exclamatives involve Mood phrase, Focus phrase, and Finite phrase, and that the head of each functional projection is overtly realized. This work showed not only that the left / right periphery analysis is a powerful tool which can shed light on the rich empirical facts of exclamatives, but also that it can guide us toward discovering further empirical facts about exclamatives. Therefore one contribution of this work is in providing facts and generalizations regarding exclamative. We further touched upon the issue of how the human sentence processor handles exclamatives. With a few experiments, we examined what mechanisms the parser has to have, given a theory of phrase structure that contains very complex properties. The conclusion we have reached is that the parser is equipped with a mechanism that does not treat all the functional projections in the exactly same way.

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