

UNDERSTANDING AND INTERPRETING JAPANESE NP<sub>1</sub> WA NP<sub>2</sub> DA SENTENCES:

MECHANISM AND CONTEXTUAL FACTORS

by

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A dissertation submitted to the Graduate Faculty in Linguistics in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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## ABSTRACT

UNDERSTANDING AND INTERPRETING JAPANESE NP<sub>1</sub> WA NP<sub>2</sub> DA SENTENCES:

MECHANISM AND CONTEXTUAL FACTORS

BY

MEGUMI YOSHIDA

ADVISER: PROFESSOR WILLIAM MCCLURE

This dissertation investigates the contextual factors that affect the understanding and interpretation of one Japanese topicalized construction, NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, by native speakers of Japanese. The construction allows two possibilities in the relation between the NP<sub>1</sub> and the NP<sub>2</sub>. When the two NPs are not syntactically connected (Type I), the sentence is generally vague, and a particular context is required to specify the meaning. When they are syntactically connected (Type II), they can refer to a semantically identical referent, and the sentence is naturally interpreted as an identity sentence. The aim of the study is to examine how context determines the meaning of Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. These sentences were examined in a set of controlled experimental contexts by two kinds of test: Understandability and Interpretation.

Results showed that readers generally tried to connect the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences to the

context syntactically, semantically, or pragmatically when the sentences were presented in a context. Specifically, a syntactic and semantic relation with a particular verb in the preceding context sentence and the NP<sub>2</sub> or information about a particular place presented by a locative frame enhanced the comprehension of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. When these contextual factors were presented consistently and appropriately, Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences could be interpreted as non-identity sentences. When such context was not available, the interpretations tended to depend on the sentence-internal conceptual connection between the NP<sub>1</sub> and the NP<sub>2</sub> in both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

These results suggest the reader's use of their linguistic and pragmatic knowledge differs according to the context and sentence type. The results also reveal a new understanding of the 'aboutness' relation, a notion that accounts for the non-syntactic connections between the topic and the predicate. Specifically, in the process of understanding NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, establishing an 'aboutness' relation refers to the process of finding an appropriate predicate in the context to create a proposition to connect the predicate (NP<sub>2</sub>) to the topic NP (NP<sub>1</sub>).

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## LIST OF ABBREVIATIONS

ACC	Accusative
COMP	Complementizer
COP	Copula
COP (formal)	Copula in a formal style
FP	Sentence final particle
GEN	Genitive
NOM	Nominative
NOMI	Nominalizer
PAST	Past tense form
PI	Plural form
Q	Question marker
TOP	Topic marker

## CHAPTER 1

### INTRODUCTION

#### 1.1. General Introduction of NP<sub>1</sub> wa NP<sub>2</sub> da sentences

This study examines the comprehension of a particular kind of Japanese sentence that has the structure NP<sub>1</sub> wa NP<sub>2</sub> da.<sup>1</sup> There are two types of this sentence depending on what the two NPs refer to, as in examples (1) and (2).

##### Type I

- (1) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

##### Type II

- (2) *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP

In Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences, the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, are typically not understood as referring to an identical referent. While example (1) could mean ‘Miyata is a miso-soup’, this interpretation is unlikely. Rather, (1) tells something about the topic NP,

---

<sup>1</sup> The copula *da* can be elided or replaced by a sentence final particle in this construction. The following examples are all regarded as the same structure.

- (i) *Miyata-san wa misosiru*  
Miyata-Mr./Ms. TOP miso-soup  
(ii) *Miyata-san wa misosiru yo*  
Miyata-Mr./Ms. TOP miso-soup FP  
(iii) *Miyata-san wa misosiru da yo*  
Miyata-Mr./Ms. TOP miso-soup COP FP  
(iv) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

*Miyata-san*. At the same time, the referent of the NP in the predicate, *misosiru*, is not obvious, so it is not clear how the two NPs are related. The sentence would sound strange and be difficult to interpret if it is presented without context.

In Type II examples, the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, can refer to a semantically identical referent. This interpretation is context independent, so example (2) will be interpreted naturally as ‘Tanuma is a lawyer’ when it is presented without context.<sup>2</sup>

When these sentences are presented in particular contexts, both of these sentence types can be interpreted differently according to that context. When (1) (of Type I) is read in the context of (1’), the sentence would have a clear meaning.

(1) *Sakurai-san wa syokutaku de gohan o okawari-si-ta*  
Sakurai-Mr./Ms. TOP table at rice ACC another helping-did  
‘Sakurai had another bowl of rice at the table.’

*Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP  
‘Miyata had another bowl of miso-soup.’

---

<sup>2</sup> Strictly speaking, example (2) and its English translation are not ‘identity’ sentences in which the NP<sub>1</sub> and the NP<sub>2</sub> refer to an identical referent in the logical sense as (i) below.

(i) *Ake no myouzyou wa yoi no myouzyou da*  
Morning star TOP evening star COP  
‘The morning star is the evening star.’

Nevertheless, the NP<sub>2</sub> in example (2) obviously describes the referent of the NP<sub>1</sub>, and there is a clearcut distinction between Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in this sense. In the current study, the terms ‘identity’ sentence and ‘identity’ interpretation are used for expressing the sentences as Type II and their interpretations as shown in example (2). For more discussion of the classification of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, see Nishiyama (2003).

In (1'), the referent of the NP<sub>2</sub>, *misosiru*, is somehow more obvious than (1), and it is possible to infer that the NP<sub>2</sub> refers to the miso-soup that Miyata was eating. Now compare (1') with (1'').

(1'') *Sakurai-san wa tyuui-si-ta*  
Sakurai-Mr./Ms. TOP warned  
'Sakurai warned.'

*Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP  
'Miyata (?) miso-soup.'

While (1') shows an example of a concrete context where (1) could be interpreted, the same sentence would be more difficult to interpret in (1''). The preceding sentence in (1'') gives some contextual information, but it is not so obvious how this sentence can be related to sentence (1).

The context seems to allow a number of different interpretations of sentence (1), such as 'Miyata ate a miso-soup because Sakurai warned him/her to do so', 'Miyata often spills his/her miso-soup, and Sakurai warned about that', etc. It might be possible to infer the meaning of (1) in the context of (1''), but it would be more difficult to determine that meaning than in the context of (1'). Thus, Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences such as (1) can be more or less difficult to understand when read in particular contexts.

A sentence of Type II, on the other hand, is basically a self-contained sentence, so the sentence is usually interpreted as in (2) when it is read without context. However, there is still a

possibility that the same sentence can be interpreted in a different way if the sentence is put into a particular context. If, for instance, (2) is uttered in a context of (2'), a different interpretation might be available.

(2') *Isiyama-san to Tanuma-san wa dareka o sagasite-iru*  
Isiyama-Mr./Ms. and Tanuma-Mr./Ms. TOP someone ACC are looking for  
'Isiyama and Tanuma are looking for someone.'

*Isiyama-san wa kaikeisi o sagasite-iru*  
Isiyama-Mr./Ms. TOP accountant ACC is looking for  
'Isiyama is looking for an accountant.'

*Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP  
'Tanuma is looking for a lawyer.'

In (2'), the preceding sentences suggest that the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, in the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence (2) should not refer to a semantically identical referent since the first sentence describes an activity that the agent referred to by the NP<sub>1</sub> in (2) is engaged in, i.e. looking for someone. If (2) is read as a description of that activity conducted by the referent of the NP<sub>1</sub>, it is more likely that the referent of the NP<sub>2</sub> would be understood as a theme of the predicate, 'is looking for'. In the context in (2'), *Tanuma-san wa bengosi da* is most naturally interpreted, not as an identity sentence, but as meaning 'Tanuma is looking for a lawyer'.

(2'') is another example of the context in which (2) may not be understood as an identity sentence.

(2'') *Tanuma-san wa bengosi sikaku o hakudatusa-re-ta*  
Tanuma-Mr./Ms. TOP license of a lawyer ACC deprived  
'Tanuma's license as a lawyer has been canceled.'

*Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP  
'Tanuma is a lawyer (?).'

In (2'') the first sentence describes a situation in which the identity interpretation of (2) cannot apply. As a result, the sentence (2), an identity sentence, no longer sounds like an unambiguous identity sentence. In other words, the identity interpretation of the sentence (2) is more likely to be hindered by the context of (2'').

Thus, as these examples show, both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can be interpreted differently according to their context, and the easiness or difficulty of understanding and interpreting the sentence is also affected by that context. The purpose of this study is to examine the relationship between sentences of the form NP<sub>1</sub> *wa* NP<sub>2</sub> *da* and the context. The general assumption is that there is an interaction between these sentence types and the context of use. The goal of this study is to investigate what kind of contextual information will or will not be helpful to interpret both types of this sentence.

## 1.2. Theoretical Background

The target construction of this study, the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, is a particular kind of Japanese topicalized sentence, and therefore the sentence should have the characteristics of

topicalization in Japanese. According to previous studies, the topic marker *wa* works in a sentence in at least two ways:

A) *Wa* can mark an argument of the verb, i.e. it can mark a subject or an object. In such sentences, the topic has a syntactic connection with the rest of the sentence.

B) It may also be the case that the relationship between the topic and the rest of the sentence is not obvious. In such cases, it may seem that there is no syntactic connection between them.

Examples (3) and (4) illustrate the situation described in A). The subject of the corresponding non-topicalized sentence is topicalized in (3'), and the object is topicalized in (4').

As such, the topic and the rest of the sentence are syntactically connected. Example (2) in the previous section, a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence which can be interpreted as an identity sentence, is also categorized in this way. Although not discussed in detail in this dissertation, as shown in (5), adjunct NPs with other particles, such as *de*, *to*, *kara*, can be also topicalized by attaching *wa* to the particles.

Topic/subject  
(3) *Boku wa Tanaka da.*

I TOP Tanaka COP  
'Speaking of myself, I am Tanaka.'

(3') *Boku ga Tanaka da.*  
I NOM Tanaka COP  
'I am Tanaka.'

Topic/object

(4) *Kono tokei wa titi ga katte kure-masi-ta.*  
this watch TOP father NOM buy give-formal-PAST  
'As for this watch, my father bought it (for me).'

(4') *Titi ga kono tokei o katte kure-masi-ta*  
father NOM this watch ACC buy give-formal-PAST  
'My father bought this watch (for me).'

Topic/PP

(5) *Yama de wa sakura ga saite-iru*  
mountain in TOP cherry blossom NOM blooming  
'In the mountain, cherry trees are blooming.'

(5') *Yama de sakura ga saite-iru*  
mountain in cherry blossom NOM blooming  
'Cherry trees are blooming in the mountain.'

The function of *wa* described in B) above was first described by Kuno (1973). Kuno (1973, p.253 in footnote 12) claims that the relationship between the topic and the rest of the sentence in topicalized sentences is not necessarily syntactic since some topicalized sentences do not have a corresponding non-topicalized form. Examples are found in (6) and (7).<sup>3</sup>

(6) *Are wa zettaini Amerika ga warui*

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<sup>3</sup> Example (7) is created from the corresponding noun-modifying construction in Matsumoto (1997, p.48), presented as an example of a noun-modifying construction in which there is no apparent syntactic gap in the modifying clause. More details of Matsumoto's study will be discussed in Section 2.2.3.

that TOP absolutely America NOM wrong  
'Speaking of that matter, absolutely, America is to blame.'  
(Mikami (1960, p.84))

- (7) *Sono komaasyaru wa toire ni ike-nai*  
that commercial TOP bathroom to go can-not  
'During that TV commercial, (people) cannot go to the bathroom (since they do not want to miss it).'

In sentences such as (6) or (7) above, the predicate seems to have something to do with the topic NP, although what that is remains unclear. This relation between the topic NP and the predicate is called an 'aboutness' relation, but the specific nature of 'aboutness' has never been clarified. Examples (3)-(5) and (6)-(7) are extreme cases of A) and B), respectively, and there are other examples that are less extreme, but at the very least, the examples presented above indicate that the property of the topic marker *wa* is not straightforward.

Most previous studies on topicalization have focused on clarifying the syntactic representation of the construction by demonstrating how the topic is derived from the corresponding non-topicalized sentences. Analyses so focused typically set aside the kinds of examples described in B). Such cases are simply licensed by 'aboutness' relations when the syntactic account does not seem to apply.

To sum up so far, the property of *wa* that connects the topic and the rest of the sentence might be syntactic, as in A), or it might be some other relation, as in B). It is argued below that both properties might apply as well to the topics found in Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da*

sentences. Moreover, as with the sentential examples discussed so far, it is also assumed that the context of use interacts with the kind of relationship between the topic and the rest of the sentence in both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. While the identity interpretation of example (2) above depends on a syntactic relation as in A), the same sentence might be forced to be interpreted based on some other relationship as in B) if the sentence is put into a context which hinders the identity interpretation as in (2') or (2''). In this case, the analysis would not assume a syntactic relation between the topic and the rest of the sentence. On the other hand, example (1) can be categorized as an example of a B) type sentence in that the topic does not have a syntactic connection with the rest of the sentence. Unlike (2) (and also unlike (6) and (7)), (1) is not usually comprehensible without context. Rather, a particular context is needed to determine a particular referent for NP<sub>2</sub> (as in example (1')), and when it becomes obvious what NP<sub>2</sub> refers to, the relationship between the topic and the rest of the sentence is more clearly specified.

Thus, it can be assumed that an examination of the interaction between the context and the interpretation of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence will contribute to identify the possible relationships that *wa* can establish between the topic and the rest of the sentence and therefore the specific nature of the 'aboutness' relation. Through experimental studies of the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, this study aims to clarify the possible relationships between NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and their context. This will shed light on how

context works in general when understanding and interpreting sentences.

### 1.3. Overview

This study investigates the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the context of use. The main goal of this study is to help clarify the mechanism of how the topic marker *wa* works in connecting the topic and the rest of the topicalized sentence through the experimental study of one particular example of topicalization. In Chapter 2, previous studies on the topic marker *wa* and on NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in particular are discussed in detail. In Chapter 3, other possible relationships between the topic and the rest of the sentence in topicalization are investigated based on previous studies on combining concepts and theories of inference. In Chapters 4 and 5, the methodology and results of the experimental studies on the understanding and interpretation of Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are presented. In Chapter 6, some examples of both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in naturally occurring contexts are introduced. In Chapter 7, the mechanism of interpreting these NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is examined based on the results of the experiments and observations.

## CHAPTER 2

### TOPIC MARKER *WA*

The Japanese topic marker *wa* has been studied from several different perspectives. As introduced in Chapter 1, some researchers have attempted to reveal the inner structure of the topicalized sentences either syntactically or through an ‘aboutness’ relation. Other kinds of studies focus on the pragmatic function that the topic marker *wa* plays in a sentence. Speakers use *wa* to make particular kinds of assertions, and this is a fundamental function of *wa* which must be taken into account when examining the actual uses of topicalized sentences in particular contexts. In the following sections, these pragmatic analyses of *wa* will be introduced in Section 2.1. Studies on the structure of topicalization will be examined in Section 2.2. Finally, studies specifically on sentences with the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* form will be presented in Section 2.3. Some studies on topicalization focus on particular kinds of semantic connections between the topic and the rest of the sentence. These studies are reviewed in the next chapter when the conceptual structure of such sentences is examined.<sup>4</sup>

#### **2.1. Pragmatic function of *wa*: a speech act marker**

When people make an assertion, they express a judgment on the items that they mention.

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<sup>4</sup> There is also a group of studies on the effect of using *wa* mainly in discourse (cf. Hinds et al. 1987). The current study will not discuss them as they are not directly relevant.

By marking a particular noun with *wa* or with a non-*wa* form such as *ga*, speakers express different kinds of judgments about those nouns. Kuroda (1965, 1992, 2005) argues that the use of *wa* expresses a judgment called ‘categorical judgment’. It is a speaker’s judgment to categorize an item by attributing to it a property. Kuroda (1992, p.23) says that the categorical judgment “involves the cognitive act of apprehending something as substance and attributing to it a certain property perceived in a situation.” In a topicalized sentence, the topic is apprehended as a substance, and its property is attributed by the predicate. In (1), the specific entity, the cat, is apprehended as a substance, and the property of fulfilling a particular role, ‘is sleeping there’, is attributed to this entity.

(1) *Neko wa asoko de nemutte iru*  
cat TOP there sleeping  
‘The cat is sleeping there.’

According to Fiengo and McClure (2002), the property attributed to the item referred to by the topic NP can be either a name or a description of the item. They argue that *wa* is used to express two kinds of speech acts, calling or describing. In both speech acts, the speaker, given an item, produces the predicate that matches the item. *Wa* is used to mark the given item. It becomes a marker to let the hearer assume the item it marks. Examples (2) and (3) (Fiengo and McClure 2002, p.33) show the uses of *wa* for two kinds of speech acts: calling and describing.

(2) Calling

Q1: *Are wa nan to iu hana desu ka.*  
that TOP what Quotative say flower COP(formal) Q  
'What is that flower called?'

R1: *(Ano hana wa) sakura desu yo.*  
(that flower TOP) cherry COP(formal) FP  
'It (that flower) is a cherry blossom.'

Q2: *Soo desu ka. Sakura to tyotto tigau to omoimasen ka.*  
so COP(formal) Q cherry from little different Comp think-not Q  
'Really. Are you sure about that? Are you sure it's not something else?'

R2: *Soo desu nee. Ume ka mo siremasen nee.*  
So COP(formal) FP plum possibly is-not FP  
'Hmm. Maybe it is a plum.'

(3) Describing

Q1: *Are wa dono yoo na hana desu ka.*  
that TOP which way flower COP(formal)Q  
'What kind of flower is that?'

R1: *(Ano hana wa) sakura desu yo.*  
that flower TOP cherry COP(formal) FP  
'(that flower) cherry is !'

Q2: *Soo desu ka. Demo, sakura wa moo sukosi usui pinku zya arimasen ka.*  
so COP(formal) Q but cherry TOP a little bit more thin pink is-not Q  
'Really. But, aren't cherries a somewhat paler shade of pink?'

R2: *Aa soo desu ne. Sakura yori tyotto akai desu ne.*  
ah so COP(formal) FP cherry more than a little red COP(formal) FP  
'I see now. It's a little too red to be a cherry blossom.'

In both (2) and (3), an item (a flower) is presented as given, and what is asked for is a predicate that fits to it. In (2), the given item, *ano hana* 'flower', is marked by *wa*, and the predicate *sakura desu yo* 'cherry blossom' is produced. (2) is concerned with the accuracy of this label. The item (flower) is taken for granted and whether calling it by the sense of the predicate

*sakura desu yo* is appropriate or not is discussed. On the other hand, (3) is concerned with the accuracy of describing. The flower is described by the predicate *sakura desu yo*, and whether the item (flower) is of a type that matches the sense of the predicate is discussed. In both cases, the speakers express their judgment on the categorization of the topic NP, *ano hana* ‘that flower’.

Thus, from the studies by Kuroda and by Fiengo and McClure, it can be concluded that *wa* is used to mark a given item about which a particular property is asserted. That property can be either a name in the case of ‘calling’ or a description in the case of ‘describing’. By marking a NP with *wa*, the speaker assumes and lets the hearer assume that the item is given. The use of *wa* marks the speaker’s judgment on how they see and categorize a particular item as given; it can then be the basis for asserting a property.

## **2.2. The relation between the topic marker *wa* and the predicate**

The topic marker *wa* allows a wide variety in the combination of the topic NP and the predicate, and analyses of *wa* have generally attempted to seek an underlying principle which connects the topic and the predicate. As introduced in Chapter 1, previous studies basically claim two ways of making a connection. One depends on a syntactic relation between the topic and the predicate, and the other on a non-syntactic relation called an ‘aboutness’ relation.

Syntactic analyses of *wa* have generally been developed in the framework of classical generative transformational grammar and the theory of Government and Binding. Their concern

is how the topic is generated, and whether it is derived by movement or base-generated.

Assuming a syntactic relation between the topic and the predicate, traditional Japanese linguists have developed a movement hypothesis. Analyses in the framework of the Government and Binding theory by Saito (1985) and Hoji (1985) claim both movement and base-generation hypotheses. All of these studies are discussed in Section 2.2.1.

In contrast to a movement based analysis, the base-generation hypothesis of the topic *wa* can explain the grammaticality of topicalized sentences which do not have a corresponding non-topicalized sentence form. Following Kuno's (1973) idea, researchers claim that such sentences are licensed by an 'aboutness' condition. This condition is also discussed to explain why syntactic constraints on movement sometimes do not apply to some examples of topicalization. Kuno (1973) and later studies on topicalization licensed by 'aboutness' are discussed in Sections 2.2.2 and 2.2.3.

### **2.2.1. Syntactic analyses on *wa***

Some Japanese linguists have studied topicalization in the framework of classical generative transformational grammar. They argue for a movement hypothesis of topic phrase which presupposes an underlying non-topicalized structure from which the topic phrase is derived (Kuroda 1965, Inoue 1969, Muraki 1974, for example). A typical transformation of topic phrase presented in this framework is something like the one proposed by Kuroda (1965).

Example (5), taken from Saito (1985, pp. 327-328), explains Kuroda's derivation of (4). First, *wa* is attached to the non-topicalized sentence. Next, the sentence-final *wa* is attached to a constituent NP constructing a topic phrase. Then, the sentence-final *wa* is deleted. Finally, the *wa*-phrase is moved to the sentence initial position though this operation is optional.

(4) *Ano hon wa John ga katta*  
 that book TOP John NOM bought  
 'As for that book, John bought.'

(5)  
 [S *John+ga - ano hon - katta*] - *wa*  
 →[S *John+ga - ano hon+wa - katta*] - *wa* (*wa* attachment)  
 →[S *John+ga - ano hon+wa - katta*] (*wa*-deletion)  
 →[S *ano hon+wa - John+ga - katta*] (*wa*-inversion)

In the framework of Government and Binding, Saito (1985) and Hoji (1985) argue for the movement hypothesis for particular types of topicalization. For Saito, it is the topicalization of postpositional phrases that is derived by movement, and for Hoji it is contrastive *wa* that is derived by movement.<sup>5</sup> Both Saito and Hoji argue for the movement hypothesis based on the

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<sup>5</sup> According to Kuno (1973), the topic marker *wa* expresses two meanings: a theme of a sentence (topic *wa*) or the contrast of the NP with other items (contrastive *wa*). The theme of the sentence is further classified as generic or anaphoric. The generic theme consists of generic noun phrases marked with *wa*. The anaphoric theme consists either of the objects or concepts that are recorded in the temporary registry of the present discourse by being mentioned or of some particular objects which are recorded in the permanent registry and do not have to be mentioned, such as 'the sun' or 'my wife'. (i), (ii), and (iii) are the examples of topic *wa* (generic or anaphoric) and contrastive *wa* respectively.

observation that the construction under consideration, i.e. postpositional topicalization for Saito and contrastive topic for Hoji, follows the syntactic rules of movement. In particular, both constructions are subject to the subjacency constraint. Example (6) is from Hoji (1985, p166); he claims that only the contrastive reading of *wa* shows a subjacency violation.

- (6) [NP[S e<sub>i</sub> [VP *Ginza de e<sub>j</sub> katta*] yubiwa<sub>j</sub> ]<sub>k</sub> wa/\***wa**<sub>k</sub> [S *John<sub>i</sub> ga* [VP[NP[S e<sub>j</sub> [VP  
*Ginza at bought ring TOP/TOP John NOM*  
e<sub>k</sub> /t<sub>k</sub> *nusunda*]] *otoko<sub>i</sub>*] *o sagasiteiru*]]  
stole man ACC is looking for  
‘As for the ring that he<sub>i</sub> bought at Ginza, John<sub>i</sub> is looking for the man that stole it.’  
‘\*The ring that he<sub>i</sub> bought at Ginza, John<sub>i</sub> is looking for the man that stole.’

Similarly, Saito (1985, p.332) claims that example (7) is constrained by subjacency while the corresponding NP topicalization in (8) shows a much less severe violation.

- (i) Topic *wa* (generic)

*Kuzira wa honyuu-doobutu desu*  
whale TOP mammal COP (formal)  
‘Speaking of whales, they are mammals.’  
(Kuno (1973, p.44))

- (ii) Topic *wa* (anaphoric)

*John wa watakusi no tomodati desu*  
John TOP my of friend COP (formal)  
‘Speaking of John, he is my friend.’  
(Kuno (1973, p.44))

- (iii) Contrastive *wa*

*Ame wa hutte imasu ga...*  
rain TOP is falling but  
‘It is raining, but...’  
(Kuno (1973, p.59))

(7) \**Pekin ni wa John ga [NP [S e itta koto ga aru] hito] o mituketa rasii*  
 Peking to TOP John NOM went fact NOM have person ACC found seem

(8) ??*Pekin wa John ga [NP [S e itta koto ga aru] hito] o mituketa rasii*  
 Peking TOP John NOM went fact NOM have person ACC found seem  
 ‘It seems that John found a person who has been to Peking’

According to Hoji and Saito, the *wa* phrase that has a topic reading in (6) and the NP topicalization in (8) respectively, show no or milder violations of the subadjacency constraint. This supports the base-generation of topic-*wa* phrase or NP topicalization.

Hoji (1985, p.132) also claims that example (9) is a base generated topic NP (with a topic reading); the sentence is ungrammatical because the empty pronoun  $e_i$  in the topicalized NP is not bound by the quantified NP *daremo* by reconstruction. The corresponding scrambling construction in (10) binds the variable to the quantified NP by the reconstruction of the copy of the moved element in the matrix object position, which makes the sentence grammatical.

(9) \* $[_{NP} [_{S} e_i \textit{ sono mise de hitome e mita}] \textit{ hito}]_j \textit{ wa daremo}_i \textit{ ga sukini natta}$   
 that store at one glance saw person TOP everyone NOM fell in love  
 ‘\*As for [the person that he<sub>i</sub> saw in that store]<sub>j</sub> everyone<sub>i</sub> fell in love with him<sub>j</sub>.’

(10)  $[_{S} [_{NP} [_{S} e_i \textit{ sono mise de hitome e mita}] \textit{ hito}] \textit{ o}_k [_{S} \textit{ daremo}_i \textit{ ga} [_{VP} \textit{ t}_k \textit{ sukini natta}]]]$   
 that store at one glance saw person ACC everyone NOM fell in love  
 ‘The person that he<sub>i</sub> saw in that store, everyone<sub>i</sub> fell in love with.’

Saito (1985, p.283) also presents additional examples that show the base-generation of topic NPs. They involve the apparent topicalization of a subject out of an adjunct clause (11) and

out of a relative clause (12). Saito (1985, p.245) claims that their topicalization is not constrained by an island constraint while the scrambling in (13) is. These examples are originally from Kuno (1973).

(11) *Soho hito<sub>i</sub> wa [S[Adjunct e<sub>i</sub> sinda noni] dare mo kanasima-nakat-ta]*  
 that person TOP died although anyone saddened-not-PAST  
 ‘Speaking of that person, no one was saddened although (he) died.’

(12) *Sono sinsi<sub>i</sub> wa [S[NP[S e<sub>i</sub> e<sub>j</sub> kite iru] yoohuku<sub>j</sub>] ga yogorete iru]*  
 that gentleman TOP wearing suit NOM dirty be  
 ‘Speaking of that gentleman, the suit (he) is wearing is dirty.’

(13) *?\*Ano hon o<sub>i</sub> [S John ga [NP[S e<sub>j</sub> t<sub>i</sub> katta hito<sub>j</sub>]] o sagasite iru rasi]*  
 that book ACC John NOM bought person ACC looking-for seem  
 ‘It seems that John is looking for the person who bought that book.’

Additionally, while Hoji claims the movement hypothesis for contrastive *wa*-phrases, he implies the base generated derivation for some contrastive *wa*-phrases as well. He argues that (14) and the corresponding non-topicalized construction (15) in Hoji (1985, pp.157-158) do not show a subjacency violation although they should if the contrastive *wa*-phrase in (14) and the subject in (15) are derived by movement.

(14) ?? (*Kono boosi zya-nakute*) *sono boosi wa<sub>i</sub> [S John ga [NP[S e<sub>j</sub> t<sub>i</sub> kabutteita] hito<sub>j</sub>] o yoku sitteiru*  
 this hat not that hat TOP John NOM was wearing  
 person ACC well know  
 ‘Lit. \*That hat (as opposed to this hat), John knows well the person who was wearing.’

(15) ?? (*Kono boosi zya nakute*) *sono boosi ga<sub>i</sub> [S John-ga [NP[S e<sub>j</sub> t<sub>i</sub> kabutteita]*

this hat not that hat NOM John NOM was wearing  
*hito] o yoku sitteiru*  
 person ACC well know  
 ‘It is that hat (and only that hat) that John knows well the person who was wearing it.’

Saito and Hoji argue that these examples which suggest the base-generation of topic phrase (and subject) are licensed by an ‘aboutness’ condition. Roughly, this means that the predicate is ‘about’ the topic. Kuno (1973) introduces this idea in explaining some ‘grammatical’ examples of topicalization. These are discussed in the next section.

### 2.2.2. Kuno (1973)

As presented in Chapter 1, Kuno (1973, pp.253-254 in footnote 12) claims that the relationship between the topic and the rest of the sentence in topicalized sentences is not necessarily syntactic since some topicalized sentences do not have a corresponding non-topicalized sentences from which an NP is topicalized. Such examples are found in (16) (repeated from (6) in Chapter 1), (17), and (18).

(16) *Are wa zettaini Amerika ga warui*  
 that TOP absolutely America NOM wrong  
 ‘Speaking of that matter, absolutely, America is to blame.’

(17) *Sakana wa tai ga ii*  
 fish TOP red-snapper NOM good  
 ‘Speaking of fish, red snapper is the best.’

(18) *Sinbun o yomi-tai hito wa koko ni arimasu*  
 newspaper ACC read-want people TOP here in exist

‘Speaking of those who want to read newspapers, they (=newspapers) are here.’  
(originally in Mikami 1960, p.84)

Kuno argues that in such topicalized sentences, at the very least, the predicate has something to do with the topic. This explains why (19), which has the same structure as (17), is much less understandable than (17). The predicate ‘Mary is sick’ has nothing (obvious) to do with the topic ‘fish’.

(19) \**Sakana wa Mary ga byooki da*  
fish TOP Mary NOM sick COP  
‘Speaking of fish, Mary is sick.’

However, Kuno also indicates that not all topicalized sentences become ‘grammatical’ even if the predicate has something to do with the topic. He claims that example (20) is ungrammatical even if U.S. Steel is responsible for the speaker’s windows being dirty.

(20) \**U.S. steel wa boku no apaato no mado ga kitanai*  
U.S. steel TOP I GEN apartment GEN window NOM dirty  
‘Speaking of U.S. Steel, the windows of my apartment are dirty.’

What Kuno refers to as the notion of ‘something to do with the topic’, others now refer to as ‘aboutness’. Kuno suggests that the ‘aboutness’ relation depends on some kind of a semantic relation. He argues that (19) is ungrammatical because it is anomalous out of context. The sentence would be grammatical if it is put into a particular context such as in (21).

(21) Speaking of fish, Mary got sick after last night's banquet. I suspect that the red snapper served there was not fresh.

However, Kuno does not provide any further explanation for this relation, giving no indication of what is or is not an appropriate relation for 'aboutness'. He concludes that it is not clear what kind of relationship the topic and the predicate must hold for topicalized sentences to be 'grammatical', although what is clear is that it cannot be a simple syntactic constraint.

This relationship, the so-called 'aboutness' relation between the topic NP and the predicate in topicalized sentences, appears in later studies. In particular, and has already been discussed in Section 2.2.1, it is used in Saito (1985) and Hoji (1985) as a licensing condition for topicalization when syntactic constraints cannot explain the grammaticality of particular examples. Though Saito and Hoji do not provide a clear definition of the 'aboutness' condition, some later studies have attempted to give more detailed explanations of the meaning of 'aboutness'. These studies are introduced in the next section.

### **2.2.3. 'Aboutness' relation**

Attention to the 'aboutness relation' arises in the examination of the constructions of topicalization or relativization. Since these two constructions share many syntactic and semantic characteristics, they are often discussed together.<sup>6</sup> The 'aboutness' relation is used mainly as an

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<sup>6</sup> Though topicalization and relativization share many characteristics, their relationship does not

alternative licensing condition of these constructions when syntactic constraints do not seem to explain the ‘grammaticality’ of the sentence.

In topicalization or relativization from embedded clauses, a subject-object asymmetry has been observed in many examples (Kuroda 1965, Hasegawa 1984, Yoshimura 1987, for example).

When the target of the topicalization (or relativization) is in the object position of the embedded

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show a complete parallelism as Matsumoto (1997) and Shimojo (2002) argue. There are noun-modifying constructions whose corresponding topic constructions are not acceptable as shown in (i) and (ii) below.

- (i) [[*kinoo watasi-tati ga resutoran de tabeta*] *nokori*] *o kyoo taberu*  
yesterday we NOM restaurant at ate leftover ACC today eat  
‘( ) will eat today the leftover from our eating at a restaurant yesterday.’

(Matsumoto 1997, p.66)

- (ii) \**Sono nokori wa kinoo watasitai ga resutoran de tabeta*  
the leftover TOP yesterday we NOM restaurant at ate  
‘The leftover, (it’s from) our eating at a restaurant yesterday.’

(Shimojo 2002, p.118 on footnote 18)

Matsumoto (1997, p.30) attributes the difference in acceptability between (i) and (ii) to the semantic differences in the properties of the referent of the topic NP and of the target of relativization. Kuno (1973) argues that Japanese topic NP is either generic or anaphoric. This means that the topic NP, if not generic, expresses an entity that can be assumed in the discourse while the target of relativization can be “brand-new” or indefinite as Matsumoto (1997) claims. It should also be noted that as Kuroda (1965, 1992, 2005) and Fiengo and McClure (2000) argue, the topic marker *wa* is a pragmatic marker which expresses the speaker’s judgment about a given item, a topic NP, and the predicate is produced so that it attributes a property to the topic NP, as discussed in Section 2.1. This is not a necessary function for the head NP and its modifying clause in a relative clause construction.

clause, the acceptability of the sentence drops as in (22) compared to the cases in which the target is in the subject position as in (23).

(22) ?? *Sono inu<sub>i</sub> wa [[[e<sub>j</sub> e<sub>i</sub> kawai gatte ita] kodomo<sub>j</sub>] ga sinde simatta]*  
 that dog TOP taking care of was child NOM dying ended  
 ‘As for that dog<sub>i</sub>, the child<sub>j</sub> who e<sub>j</sub> was keeping e<sub>i</sub> died.’

(23) *Sono kodomo<sub>i</sub> wa [[[e<sub>i</sub> e<sub>j</sub> kawai gatte ita] inu<sub>j</sub>] ga sinde simatta]*  
 that child TOP taking care of was dog NOM dying ended  
 ‘As for that child<sub>i</sub>, the dog<sub>j</sub> that e<sub>i</sub> was keeping e<sub>j</sub> died.’

At the same time, three types of counterexamples to this asymmetry are observed by Hasegawa (1984), and though she proposes an account based on ‘aboutness’ for only one of these three examples, Haig (1996, p.76) argues that all three types are licensed by ‘aboutness’ relations. These counterexamples are constructions which includes the ‘empathy predicate’ *kureru*, constructions that express the logical entailment or natural cause-and-effect relationships, and constructions which deal with major characteristics of the topic phrase. Examples are found in (24), (25), and (26), respectively. Example (26) is from Saito (1985) and is originally discussed in Section 2.2.1 as example (8); it is repeated here with his judgment.

(24) *John<sub>i</sub> wa [ [e<sub>j</sub> e<sub>i</sub> aisite kurenai] hito<sub>j</sub> to kekkon sita]*  
 John TOP loving give not person with marriage did  
 ‘John<sub>i</sub> got married to someone<sub>j</sub> who e<sub>j</sub> didn’t love e<sub>i</sub>’

(25) *Sooiu gakusei<sub>i</sub> wa [[[e<sub>j</sub> e<sub>i</sub> osieru] kyoosi<sub>j</sub>] ga kuroo suru].*

such student TOP teach instructor NOM suffer do  
 ‘As for that kind of student<sub>i</sub>, instructors<sub>j</sub>, who e<sub>j</sub> teach e<sub>i</sub> suffer.’

(26) ??*Pekin wa [John ga [[e<sub>i</sub> e<sub>j</sub> itta koto ga aru] hito<sub>i</sub>] o mituketa rasii*  
 Peking TOP John NOM went fact NOM have person ACC found seem  
 ‘Beijing<sub>j</sub>, John seems to have found someone who<sub>i</sub> has gone to e<sub>j</sub>’

Haig explains that these sentences as a whole create a unit that includes both the embedded and matrix clauses and that the unit can be taken as a predication ‘about’ the topic. In (24), the ‘empathy’ predicate allows the speaker to give both the embedded and matrix clauses the same point of view, which talks ‘about’ John. This overrides the preference of taking the subject’s point of view as in (22). In (25), the cause-and-effect relationship expressed in the embedded and matrix clauses, that is, ‘The instructor would suffer, if he teaches that kind of student’, creates coherence in the sentence as a whole. This connects the extracted topic phrase to the entire sentence and makes it possible to talk ‘about’ the object of the lower clause, *souiu gakusei*. Example (26), as argued for by both Hasegawa and Haig, is a case that allows the interpretation of the whole sentence being ‘about’ the topic phrase since the predicate deals with ‘the major characteristic’ of the topic. What is common to these explanations is that the particular sentence in each case has a certain kind of coherence as a whole. Nevertheless, it remains unclear why this coherence enhances the interpretation based on the ‘aboutness’ relation, and no principle relating coherence and aboutness is proposed.

Shimojo (2002, p.79) modifies Haig’s explanation of topicalization based on ‘aboutness’.

He argues that since the ‘aboutness’ condition licenses topicalization not only for the topic of the lower clause but also of the higher clause, the sentence should make sense even if the lower clause is not overtly expressed as in (27). The original example in (28) is from Kuno (1973, p.239); in the context of Saito (1985), it is discussed above as example (12) in Section 2.2.1.

(27) *Ano sinsi<sub>i</sub> wa yoofuku<sub>j</sub> ga yogoreteiru*  
 that gentleman TOP clothes NOM dirty  
 ‘That gentleman, the clothes (which (he) is wearing) are dirty.’

(28) *Sono sinsi<sub>i</sub> wa [e<sub>i</sub> e<sub>j</sub> kiteiru] yoofuku<sub>j</sub> ga yogoreteiru*  
 that gentleman TOP wearing clothes NOM dirty  
 ‘The gentleman, the clothes which (he) is wearing are dirty.’

Shimojo claims that the grammaticality of examples such as (27) depends on how easily a semantic link between the higher clause and the topicalized NP is inferred. He argues that this property, that is, the ‘inferability’ relation between the topic and the rest of the sentence, defines the ‘aboutness’ relation. However, how and when the relationship between the topic and the rest of the sentence becomes ‘inferable’ is not obvious in his account.

Thus, previous studies on *wa* discuss the relationship between the topic and the rest of the sentence. They have attempted to reveal its syntactic structure when they are syntactically connected. In addition, they have claimed that another kind of relationship, an ‘aboutness’

relation, exists in some cases in which the sentence does not have a syntactic connection. Studies have attempted to clarify the meaning of ‘aboutness’, but the explanation of what defines an ‘aboutness’ relation is not well developed, and it is not yet clear why the relation allows a wide variety of connections between the topic and the rest of the sentence in topicalized sentences.

There is, however, one further study that does address the meaning of ‘aboutness’, although in a somewhat different context. In her study of Japanese noun-modifying constructions, i.e. gapless relative clauses, Matsumoto (1997, p.23) makes note of ‘aboutness’ relations and argues that her account of the noun-modifying construction in which the head noun is not syntactically linked to the modifying clause gives insight into what the ‘aboutness’ condition actually is. In particular, she argues that the key concept to understand the notion of ‘aboutness’ is the concept of a frame that connects the head noun and the modifying clause in such constructions. In examples (29) to (31) (Matsumoto 1997, pp.71-72), there are no syntactic gaps in the modifying clauses from which the head nouns might be extracted. Instead, all of the head nouns in these constructions are instantiations of particular roles defined by the frames that the predicates in the modifying clauses evoke.<sup>7</sup>

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<sup>7</sup> The noun-modifying construction of example (7) in Chapter 1, repeated below, is also one such construction, although Matsumoto (1997) does not give an explanation for this particular example.

[[*toire ni ike-nai*] *komaasyaru*]  
bathroom to go can-not commercial

(29) [[*atama ga yoku-naru hon*]  
head NOM good-become book  
'the book (by reading which) ( ) head gets better'

(30) [[*nuimono o suru te mo yasume-nai*]  
sewing ACC do hand also rest-not  
'( ) does not rest ( ) hand that is sewing'

(31) [[*hon'yaku-sita kane*]  
translated money  
'the money (which resulted after) ( ) translated (something)'

The concept of frame-evoked-by-a-predicate, as exemplified in Matsumoto's analysis, is one way of connecting nouns otherwise not obviously related. A given frame evokes a set of participants and establishes particular relationships between those participants. As it turns out, the frame-based roles play a significant role in our understanding of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, as well. This will be discussed in Chapter 3.

As Matsumoto, Kuno, and other researchers claim, the 'aboutness' relation needs to be investigated from a semantic and/or pragmatic perspective. One goal of the current study is to offer an alternative understanding of the 'aboutness relation' informed through an experimental investigation of the comprehension of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. This study will also explain why some examples such as (20) discussed in Section 2.2.2 (Kuno (1973)) seem to be

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'commercials (because of which) ( ) cannot go to the bathroom'

‘ungrammatical’ if the sentence is interpreted without providing any context of use.

### 2.3. Analyses of the ‘NP<sub>1</sub> wa NP<sub>2</sub> da’ construction

As discussed in Chapter 1, NP<sub>1</sub> wa NP<sub>2</sub> da sentences can be categorized into two types:

Type I and Type II as shown in examples (32) and (33) (repeated from (1) and (2) in Chapter 1).

Type I

(32) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

Type II

(33) *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP

The two NPs, NP<sub>1</sub> and NP<sub>2</sub> are syntactically connected in Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences while they are not syntactically connected in Type I. Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences can be interpreted without any context, but the meaning of Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences usually depends on the context since the relation between the NP<sub>1</sub> and the NP<sub>2</sub> is not obvious. In Japanese linguistics, Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences have long been a focus, and their different characteristics from Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences are emphasized. The current study examines both types of NP<sub>1</sub> wa NP<sub>2</sub> da sentences for a thorough understanding of the nature of NP<sub>1</sub> wa NP<sub>2</sub> da sentences. The two types of NP<sub>1</sub> wa NP<sub>2</sub> da sentences are presented with particular contexts in Chapters 4 and 5.

The main concern of the previous studies about Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is to explain their structure syntactically or on other levels of linguistic structure, or to examine their use in particular contexts to understand how they occur. Specifically, they are studied from four different perspectives: (i) transformational grammar which presumes an underlying syntactic structure, (ii) approaches that seek some kinds of logical connection between the two NPs, (iii) a pragmatic approach that examines the target construction in particular contexts attempting to find the contextual factors on which the occurrence of the target construction depends, and (iv) a perspective which focuses on the underlying logical form of this construction. In addition, there are studies on the corresponding English construction based on metonymical explanations and on pragmatic analyses.

The first two approaches, transformational grammar and logical connections, analyze NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences without any consideration of context; the discussion below makes clear that these studies have reached few generalizable conclusions. Likewise, it is shown that the metonymical explanation has been criticized for its basic assumption that this construction is a kind of metonymy. Pragmatic approaches to the Japanese and English constructions, on the other hand, attempt to examine the contextual factors required to understand the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* construction, but their approaches are generally too specific, and the proffered explanations apply only to limited cases. Finally, there is a discussion of the underlying logical form of the

construction, which claims that it contains unexpressed variables recovered in particular contexts.

It is shown that assuming such unexpressed elements helps to specify the contextual factors that a hearer must depend on to understand each example of the target construction appropriately in each context.

### 2.3.1. Transformational analysis

Transformational grammarians assume that the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* construction contains syntactic ellipsis and attempt to demonstrate how the surface structure is achieved by showing the transformational derivation from the complete underlying structure. There are two main analyses claiming different underlying structures. One is suggested by Okutsu (1978) and others (Inoue 1969, Kuno 1978, Muraki 1974, for example). They claim that *da* in the target construction, NP<sub>1</sub> *wa* NP<sub>2</sub> *da*, functions as a proverb to replace a predicate that is unexpressed in the surface structure. Example (35a) is a possible underlying structure of example (34) which is derived through the transformation in (35a-c). The predicate *taberu* is replaced with *da* in (35b), and then Accusative Case is dropped in (35c).

(34) *Boku wa unagi da*  
I TOP eel COP

(35)  
a. *Boku wa unagi o taberu*  
I TOP eel ACC eat  
'I eat an eel'

b. *Boku wa unagi o da*  
I TOP eel ACC COP

c. *Boku wa unagi da*  
I TOP eel COP

In contrast, Kitahara (1984, p.149) and others (Saeki 1989, Chen 1997, for example) propose a derivation from a cleft construction as shown in (36a-e). In this transformation, the target construction is transformed into a cleft construction first. Then, from the cleft construction, the predicate and Genitive Case are dropped, and finally the nominalizer is dropped.

(36)

a. *Boku wa unagi ga tabetai*  
I TOP eel NOM want-to-eat  
'I want to eat an eel'

b. *Boku ga tabetai no wa unagi da*  
I NOM want-to-eat NOMI TOP eel COP  
'What I want to eat is an eel'

c. *Boku no no wa unagi da*  
I GEN NOMI TOP eel COP

d. *Boku no wa unagi da*  
I NOMI TOP eel COP

e. *Boku wa unagi da*  
I TOP eel COP

These two analyses are criticized for their assumption that there is a unifying syntactic structure underlying each sentence of this construction (Seto 1984, Takamoto 1996, Nishiyama

2001, 2003, for example). It is reasonable to assume that attempts to determine this underlying structure must fail since the construction is not always dependent on a case or argument relation, as discussed in previous sections. Additionally, the same sentence uttered in the same context can have a variety of interpretations; by hypothesis it cannot also have a single underlying structure.

### 2.3.2. Logical connection between NP<sub>1</sub> *wa* and NP<sub>2</sub> *da*

Ikegami (1981, p.37) considers NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences to be syntactically and conceptually non-elliptic. He assumes some kind of logical connection between the two NPs which is established by *da* in NP<sub>2</sub> *da*. He claims that *da* is considered to be *de aru*, in which *de* expresses a proximal relation between the two NPs and *aru* means existence, and that *de* can be expressed by ‘with’ and *aru* by ‘am (be)’ in English. According to this analysis, example (34) in the previous section, repeated here as (37), has the structure in (38).

(37) *Boku wa unagi da*  
I TOP eel COP

(38) I AM WITH ‘(an) eel’

Ikegami argues that a sentence such as (37) only indicates the existence of a particular relation between two NPs, *boku* ‘I’ and *unagi* ‘eel’, and that the exact relation expressed by WITH in this structure depends on each context. While it seems plausible to assume some link

between the two NPs in this construction, the argument is not specific enough to analyze the specific interpretation of the sentence in various contexts.

### **2.3.3. Metonymical approaches**

Fauconnier (1985) and Nunberg (1977, 1979, 1995) consider the English construction in (39) to be an example of extended metonymy, that is, a reference to a referent which is not denoted by the NP. Fauconnier provides a theory of mental space that explains the pragmatic operation to specify this kind of NP reference. A pragmatic link called a ‘connector’ establishes a link between two objects, trigger and target. The ‘ham sandwich’ in the first clause in example (39) from Fauconnier (1985, p.144) is explained as a result of the pragmatic linking of a customer of a restaurant (trigger) to an order by the customer (target).

(39) I’m the ham sandwich; the quiche is my friend.

Fauconnier’s theory of mental space is based on Nunberg’s analysis of ‘meaning transfer’. According to Nunberg (1995, p. 129 on footnote 13), nominal transfer is applied to the first clause in (40), in which the reference of ‘ham sandwich’ is transferred from ‘a ham sandwich’ to ‘the orderer of that ham sandwich’. Their analyses are similar to Ikegami in that they do not explain how and in what context their operations are evoked.

(40) I am the ham sandwich and I'd like it right now.

Sakahara (1990, 1996) applies the theory of mental space to explain the semantic structure of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. He claims that the NP<sub>1</sub> in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence expresses a contextual 'parameter' which specifies the value of the NP<sub>2</sub> according to a function called a 'role'. In NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, this 'role' is omitted since it is recoverable from the context.

Nishiyama (2001, 2003) denies the metonymical explanation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. He indicates three main phenomena which do not correspond to this construction. The first is related to the use of pronouns. In example (41a), Platon has a metonymical interpretation such as 'his books'. In a metonymical relation between two objects, that is, the trigger and the target in Fauconnier's terms, a pronoun which is used to refer to the referent of the NP in metonymical relation usually agrees with the target and not with the trigger as in (41b-c) (Nishiyama 2003, p.331).

(41)

a. *Puraton wa kouka da*  
Platon TOP expensive COP  
'Platon is expensive'

b. *Sore wa kouka da*  
it TOP expensive COP  
'It is expensive'

?c. *Kare wa kouka da*

he TOP expensive COP  
'He is expensive'

However, in the target construction, the pronouns do not agree with the target but the trigger, as shown in (42b). Nishiyama (2003, pp.332-333) indicates that if a metonymical relation is presumed between Hanako and her order in (42b-c), the pronoun would agree with its target, that is, the order of Hanako, and not with its trigger Hanako herself. But this is not the case.

(42)

a. A: *Hanako-san ga okurete kuru sou da ga, sakini tyuumonsite oite ageyou.*  
Hanako-Ms. NOM be late come I-hear COP but beforehand order (for her) give

*Hanako-san wa nan da rou, tendon kana.*

Hanako-Ms. TOP what COP I-wonder tendon I-wonder

'I heard Hanako will be late, but why don't we order for her? I wonder if she wants tendon.'

b. B: *Hanako-san, aa, kanozyo wa unagi da yo*

Hanako-Ms. ah she TOP eel COP FP

'Hanako? Ah, she wants an eel.'

c. B': *?Hanako-san, aa sore wa unagi da yo*

Hanako-Ms. ah it TOP eel COP FP

'Hanako? Ah, it wants an eel.'

In addition, Nishiyama (2003, pp.333-334) discusses the agreement of the numerical classifier in metonymy, which behaves similarly to pronouns. Numerical classifiers agree not with the trigger, Platon, but with the target, his books, in the metonymical relation between Platon and his books as shown in (43a). However, the numerical classifier agrees with the trigger,

*gakusei*, in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as in (44b).

(43)

- a. *Puraton wa zenbu urikire-ta*  
Platon TOPall sell-out-PAST  
'Platon were all sold out.'
- b. ?*Puraton wa zen'in urikireta*  
Platon TOP all-Class sell-out-PAST  
'Platon were all(Class) sold out.'

(44)

- a. ?*Gakusei wa zenbu unagi da*  
student TOP all eel COP
- b. *Gakusei wa zen'in unagi da*  
student TOP all-Class eel COP

Finally, Nishiyama (2003, pp.334-335) argues that the trigger in a metonymical relation cannot be replaced by co-referential expressions while the alleged trigger in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can be. When a metonymical relation is presupposed between *akasyatu* 'a red shirt' and a vice-principal in our school, the co-referential expression for *akasyatu* 'a red shirt', that is, *Youko ga kinou Takashimaya de katta syatu* 'the shirt which Youko bought in Takashimaya yesterday', cannot replace *akasyatu* as shown in (45a-c). In the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (46), however, the co-referential expression for *Hanako-san*, that is, *Tarou no imouto* 'Tarou's younger sister', can replace *Hanako-san*.

(45)

- a. *Wareware no gakkou no kyoutou wa waruzie ga hataraku*  
our GEN school GEN vice-principal TOP cunning NOM work  
'Our school principal is cunning.'
- b. *Aka syatu wa waruzie ga hataraku*  
red shirt TOP cunning NOM work  
'The red shirt is cunning.'
- b. *?Youko ga kinou Takashimaya de katta syatu wa waruzie ga hataraku*  
YoukoNOM yesterday Takashimaya in buy-PAST shirt TOP cunning NOM work  
'The shirt that Youko bought yesterday in Takashimaya is cunning.'

(46)

- a. *Hanako-san wa unagi da*  
Hanako-Ms. TOP eel COP
- b. *Tarou no imouto wa unagi da*  
Tarou GEN younger sister TOP eel COP

Thus, it should be concluded that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are not a result of the pragmatic operation of establishing a metonymical relation between the referent and the NP.

#### 2.3.4. Pragmatic analyses: Focus and contextual saliency

Ward (2004) and Obana (2001) both attempt to search for contextual factors which license the occurrence of the target construction. Ward (2004, pp.279-280) analyzes the corresponding English construction which he calls 'deferred equatives' as in (47). He claims that this construction results from the 'pragmatic mapping' operation between sets of discourse entities.

- (47) (customer to server holding tray full of dinner orders at a Thai restaurant)  
I'm the pad thai.

Ward argues that this construction contains an ‘open proposition’ that has two variables for the underspecified elements and that the foci are selected from the sets of entities and replaced with the variables as in (48b).

(48)

- a. I'm the pad thai.
- b. OP: X MAPS ONTO Y (where X is a member of the set {customer} and Y is a member of the set {orders}).
- c. FOCI: I, the pad thai

According to Ward, the contextual ‘saliency’ of this kind of open proposition with two variables determines the felicity of this construction. Example (49) is infelicitous because this kind of open proposition is not contextually salient. Ward argues that this context licenses the open proposition with one variable, ‘I had X for lunch’, as in (50).

(49) A: How was your meal?  
B: Good. #I was the pad thai.

(50) A: How was your meal?  
B: Good. I had the pad thai.

In addition, Ward (2004, p.278) argues that example (51a) is not a result of the pragmatic mapping but of a reference transfer as in (51b) because the context does not license a salient

mapping between the set of {lunch order} and the set of {people I know}, for example.

(51)

- a. The ham sandwich is my brother-in-law.
- b. The ham sandwich orderer is my brother-in-law

What is not clarified by Ward is the kind of context in which the open proposition with two variables is salient. Example (51) could be analyzed as the result of the mapping between the set of {meal} and the set of {people who eat}. It is not explained why the open proposition with two variables is not salient in this context although it is salient in other contexts.

It can also be said that this construction is highly situation-dependent in English compared with Japanese where the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* construction is widely used. Ward introduces a Japanese native speaker's comment that says example (51a) is not felicitous in Japanese, either. However, the corresponding Japanese construction does seem possible in a context in which there are a set of people whom the speaker identifies by kinship terms and a set of meal orders, for example.

Although Ward does not explain in what contexts the corresponding English construction can be used, that is, when the open proposition with two variables are required, the examples discussed by Ward seem to be used in a context which presupposes a question that contains two variables such as 'Who does what?' The use of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, however, are not limited to this case.

Obana (2001) claims that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are basically an NP utterance in which the only core constituent is NP<sub>2</sub>. The NP<sub>2</sub> expresses the ‘focus’ in the context, which is defined as new information. According to Obana, the topic NP (NP<sub>1</sub>) is explicit only when there are two foci in the context. The focus functions either to fill a gap created by a wh-question or to add further information in line with the topic introduced by the preceding sentence in the context as shown in (52) and (53) (from Obana (2001, pp.739-740)).

(52)

- a: *Kimi-tachi, itsu kara kyuuka toru no?*  
 you-pl. when from holiday take Q  
 ‘When do you people start (your) holiday?’
- b: *Watasi wa juuni-gatsu yok-ka kara desu*  
 I TOP 12-month 4-day from COP(formal)  
 ‘As for me, from December 4th.’
- c: *Boku, itsu-ka kara*  
 I 5-day from  
 ‘As for me, from the 5th.’
- d: *Eetto, futsu-ka kara desu*  
 well 2-day from COP(formal)  
 ‘From the 2nd.’

(53)

- a: *Boku wa suugaku ga kiraida*  
 I TOP math NOM do not like  
 ‘I do not like mathematics.’
- b: *Boku wa kagaku*  
 I TOP chemistry  
 ‘Chemistry for me.’
- c: *Watasi wa eigo ne*

I TOP English FP  
'English for me.'

In example (52), sentences (52b-d) contain the NPs which fill the gap created by (52a), that is, the time when the speakers start their holidays. The use of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as an answer to a wh-question like this example is considered to be the most understandable because the hearer of the sentence, that is, the one who asks the wh-question, has already designated how the sentence should be interpreted.

In (53), the topic of a particular school subject which the speaker does not like is provided by (53a), while (53b-c) express additional information about themselves. Obana argues that the topic provided in the context categorizes the 'focus' elements that should be expressed in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences according to general or cultural knowledge. In the case of example (53), the speakers of b and c have to choose their 'focus' elements from the subcategories of school subjects.

Obana also argues that the extra-linguistic presupposition provides enough constraint for the interpretation of the target construction. The extra-linguistic presupposition is related to the roles of the speaker and the hearer in each context, such as shopkeeper and customer or student and teacher. Example (54) is a conversation at a table in a restaurant with a waiter/waitress waiting to take their order. Obana (2001, p.731) claims that this situation constrains the

interpretation of (54a-d).

(54)

a: *Boku wa unagi da*  
I TOP eel COP  
'I (want) an eel.'

b: *Watashi oyakodon ne*  
I oyakodon FP  
'As for me, surely oyakodon'

c: *Ja, boku katsudon!*  
then I katsudon  
'OK, then, I (will have) katsudon'

d: *Tendon!*  
tendon  
'Tendon (for me)'

Obana's claims about 'focus' and Ward's 'saliency' of a particular kind of open proposition basically seem the same. Both claim that the NP which has a particular function in the context, expressing 'focus' or 'saliency', can be the NP<sub>2</sub> in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. They also argue that these functions are determined by specific situations or provided by specific types of linguistic context.

While these examples seem to work, the given explanation does not clarify when and how all NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can be used. In particular, Obana's claim about a presupposed 'topic' is too general. There are some possible 'topics' provided by the speaker in (53a) other than 'the

school subject that the speaker dislikes’, and adding ‘new information’ in line with these topics without using NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can also happen. For example, (55a-c) can all be possible responses to (53a).

(55)

- a. *Watasi wa tokui yo*  
I TOP good at FP  
‘I am good at (mathematics).’
  
- b. *Bunkeina-n’ da ne*  
arts NOMI COP FP  
‘(You must have) an arts background.’
  
- c. *Suugaku wa muzukasii yo ne*  
Math TOP difficult FP FP  
‘Math is difficult, isn’t it?’

Examples (55a-c) contribute to add ‘new information’ in line with the likely topics provided by the speaker of (53a): ‘likes and dislikes about math’, ‘the speaker himself’, and ‘mathematics’ respectively, and yet the sentences of the form NP<sub>1</sub> *wa* NP<sub>2</sub> *da* are not used. The speakers of (53b) and (53c) chose not to talk about these topics, but they talked about ‘the school subject that they dislike’ using the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. There must be the contextual factors other than a presupposed ‘topic’ that would or would not elicit the use of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Further investigation must be in order.

Moreover, Obana’s account is difficult to generalize to other cases of NP<sub>1</sub> *wa* NP<sub>2</sub> *da*

sentences, and NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can occur even in contexts in which the constraints by the specific linguistic presuppositions or the situational roles claimed by Obana are not assumed. For example, (56) more or less makes sense although the linguistic or non-linguistic constraints claimed by Obana are not presupposed in the context.

- (56) a: *Tanaka-san to Suzuki-san wa kon'ya wa Hamamatu ni tomaru-tte*  
 Tanaka-Mr./Ms. and Suzuki-Mr./Ms. TOP tonight TOP Hamamatu in stay COMP  
 ‘(I heard) that Tanaka and Suzuki will stay in Hamamatsu tonight
- b: *Zyaa Tanaka-san wa unagi da na*  
 then Tanaka-Mr./Ms. TOP eel COP FP  
 ‘Then Tanaka will eat an eel.’

In (56a), the speaker tells that Tanaka will stay in Hamamatsu, an area famous for eels. It is possible that this information about a particular place, Hamamatsu, or the event of staying in Hamamatsu reminds the listener of possible activities in which Tanaka may be engaged there. If the listener assumes the fact that Tanaka likes eels, they may infer that Tanaka will eat an eel in Hamamatsu, since he is staying in a place which is famous for eels. This may lead to a particular interpretation of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (56b). In this context, the particular kinds of linguistic presupposition and situational roles proposed by Obana are not presented. Rather, the contextual information about Tanaka’s stay in Hamamatsu and the assumption about Tanaka’s

food preference somehow allow the listener to infer the particular interpretation of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. More detailed analyses of the relationship between the context and the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence will be needed to understand what makes such an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence interpretable.

Obana's approach to this construction seems to contain a problem caused by her attempt to examine the contextual factors that determine the uses of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences merely from the observations of their uses in different kinds of discourse without examining their fundamental function as a topicalized construction. As discussed earlier in this section, Obana claims that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are basically an NP sentence in which the NP<sub>2</sub> is the core constituent and the topic NP (NP<sub>1</sub>) is optional. However, as discussed in Chapter 1, NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are a specific kind of topicalization and contain the property as they are even if the topic NP (NP<sub>1</sub>) is elided for contextual reasons. As discussed in Section 2.1, the topic marker *wa* has the fundamental pragmatic function conveying the speaker's judgment about a given item, and this happens by attributing the property described by the predicate no matter what structure it has. NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are used not just to fill a gap created by a linguistic or non-linguistic presupposition but to make a statement to show the speaker's judgment about a given item, that is, the topic NP (NP<sub>1</sub>) marked by *wa*. The predicate of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is expressed by a single NP (NP<sub>2</sub>). One question is always how and when this single NP (NP<sub>2</sub>) can describe a

property of the topic NP (NP<sub>1</sub>) in the context.

### 2.3.5. Underlying logical form

Nishiyama (2001, 2003) also claims that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are a specific kind of topicalized sentence with the characteristic that the predicate, NP<sub>2</sub> (*da*), expresses a property that is attributed to the topic NP (NP<sub>1</sub>). However, because NP<sub>2</sub> alone is not understandable as a property of the topic NP (NP<sub>1</sub>), it is necessary to assume an unexpressed element in an underlying logical form. (57) demonstrates Nishiyama's (2003, p.338) logical form of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in which  $\emptyset$  shows a variable that is recovered from the context.

(57) *Boku wa*     $\emptyset$  (*no*)    *wa*    *unagi da*  
I    TOP            (NOMI) TOP    eel    COP

If we interpret example (58) as in (59), the unexpressed element in (58) is 'favorite food'. The unexpressed element in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence specifies what the NP<sub>2</sub> refers to.

(58) *Tanaka-san*    *wa*    *unagi da*  
Tanaka-Mr./Ms. TOP eel    COP

(59) 'As for Tanaka, his favorite food is an eel.'

It can be said that the unexpressed element of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence takes necessary

information from the context to specify the nature of the property of NP<sub>1</sub>. This pragmatic process, as Nishiyama (2003, p. 338) also mentions, is called ‘saturation’, discussed by Recanati (1998, 2001, 2004). ‘Saturation’ is a pragmatic process operating when the interpretation of the sentence is context-dependent. Saturation completes the meaning of the sentence by assigning semantic values taken from the context to the unarticulated constituents of the sentence. Other examples which require the process of saturation discussed by Recanati are genitives, pronouns, nominal compounds, or definite null instantiation (such as the unexpressed argument of the verb ‘hear’ in the sentence ‘I heard’). They all require that their propositions are fully completed from the context, but how this pragmatic process of ‘saturation’ operates in each context has remained unclear. Similarly, in the process of the interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, a proposition that is made of the two NPs (NP<sub>1</sub> and NP<sub>2</sub>) must be created and completed from the context. The questions to be asked are how the proposition is created and what specific kind of information from the context is necessary.

Although it is believed that assuming the unexpressed element in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences enables a single NP (NP<sub>2</sub>) to express any property of the topic NP (NP<sub>1</sub>), as Nishiyama argues, it is not obvious that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences actually have an underlying logical form such as described in (57). The current study aims to examine the interpretative process of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences by investigating the possible contextual factors that specify the unexpressed element in

each context. By doing so, the study attempts to clarify exactly what the unexpressed element in  $NP_1$  *wa*  $NP_2$  *da* sentences in each context is. This will help define the ‘aboutness’ relation that connects the  $NP_1$  and the  $NP_2$ .

## CHAPTER 3

### CONCEPTUAL STRUCTURE

As discussed at the end of Chapter 2, specifying the unexpressed element in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is essential for the interpretation of such sentences, since the unexpressed element can help to clarify the nature of the relation between the NP<sub>1</sub> and the NP<sub>2</sub>. Recall the two types of examples given in the introduction: Type I and Type II as in (1) and (2), repeated from (1) and (2) in Chapter 1.

Type I

- (1) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

Type II

- (2) *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP

It can be said that unexpressed elements are included in both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The difference between Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences probably arises from the clarity and amount of information that the unexpressed element conveys.<sup>8</sup> In the Type II example (2), ‘lawyer’ refers to Tanuma’s occupation, and the sentence means ‘As for Tanuma, (his occupation) is a lawyer.’ The unexpressed element in this example, the ‘occupation’, is often

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<sup>8</sup> Sato (1992) and Takamoto (1996) also argue for the basic similarity of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

obvious in Type II cases. As discussed in Chapter 1, Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences have a corresponding non-topicalized construction in which the NP<sub>1</sub> and the NP<sub>2</sub> are syntactically connected as a subject and a complement. For example, (3) is a non-topicalized construction of (2).

(3) *Tanuma-san ga bengosi da*  
Tanaka-Mr./Ms. NOM lawyer COP

The syntactic connection between the two NPs lets the hearer assume a particular conceptual connection between the topic NP, that is, the NP<sub>1</sub>, and the NP<sub>2</sub>, and therefore indicates that NP<sub>2</sub> describes a property of NP<sub>1</sub>.

On the other hand, the unexpressed element is not obvious in the Type I cases. In example (1), ‘miso-soup’ can express a number of different properties of the topic NP, Miyata, and the unexpressed element will vary according to what the speaker intends to mean. Therefore, the hearer must find the unexpressed element which connects the NP<sub>1</sub> and the NP<sub>2</sub>. In this chapter, Sections 3.1 and 3.2 discuss two possible ways of specifying the unexpressed element in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence: semantic connection and connection within a frame. As discussed in Chapter 2, it is said that the relation between the NP<sub>1</sub> and the NP<sub>2</sub> in Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences depends on ‘aboutness’, but no principled analysis on how the ‘aboutness’ relation is

established has yet been clearly articulated. The discussion of this chapter leads us to some possible factors which might help define how the ‘aboutness’ relation is established.

When a sentence is interpreted in a context, it is also necessary to relate the sentence to the context. The final section of this chapter discusses ways of connecting one sentence to other sentences in a given context.

### **3.1. Semantic Connection**

Understanding the meaning of a sentence always involves making semantic connections between concepts. Such connections can be made by the establishment of thematic relations or by the building of other conceptual links. Though this kind of connection is reinforced by syntactic relations in many cases, there are some conceptual connections which are not necessarily realized by the syntactically articulated constituents. It can be assumed that the interpretation of  $NP_1$  *wa*  $NP_2$  *da* sentences entails the semantic connections of concepts with or without corresponding syntactic links.

In what follows, the first semantic connection to be discussed is the one observed in English noun-noun compounds, a construction consisting of two nouns such as ‘steel arms’ or ‘robin snake’. It is assumed that the interpretation of  $NP_1$  *wa*  $NP_2$  *da* sentences must employ a similar interpretative process since both constructions contain two NPs, often in an opaque relation, and yet the NPs need to be connected. These studies are discussed in Section 3.1.1.

Semanticists have studied the semantic structure of words as a part of the linguistic competence of an ideal speaker and discussed specifically the functions of a verb as a key element which connects other concepts in understanding a sentence. These semantic studies illustrate the fundamental linguistic knowledge that the readers or listeners of any sentence, including NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, would have. Moreover, the functions of a verb are key to the understanding of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences because a verb is able to designate how the two NPs are related. These studies are reviewed in Sections 3.1.2 and 3.1.3. Finally, some previous studies of Japanese topicalized sentence focus on kinds of semantic connections distinct from thematic relations. These are introduced in Section 3.1.4.

### **3.1.1. Connecting two concepts: English noun-noun compounds**

English noun-noun compounds provide no explicit information about how the two nouns should be related, and their interpretations have been studied to examine the process by which two concepts are combined. Wisniewski (1996, 1997) argues that there are three ways of interpretation: property construction, hybridization, and relation linking. Property construction occurs when one or more properties of the modifier noun can be attributed to the head noun. In interpreting *steel arms*, for instance, a property of the modifier noun *steel* is attributed to the head noun *arms*, and the interpretation is composed of an adjective created based on the property of the modifier noun and the unchanged head noun, such as ‘strong arms’ for *steel arms*.

Hybridization of noun-noun compounds is a combination of the two properties of each constituent noun. *Rat mouse* is interpreted as ‘a cross between a rat and a mouse’ in the interpretation by hybridization. In relation linking, a thematic relation is created by adding a verb which can connect two concepts referred to by the nouns. *Robin snake*, for example, can be interpreted as ‘a snake that eats robins’. This is enabled by the verb *eat* that assigns thematic roles to the two nouns *robin* and *snake*.

Experimental studies have been conducted to examine the effect of the semantic nature of the relation between the two nouns and the three interpretation strategies (Wisniewski 1996, Goldvarg and Glucksberg 1998). Results show that readers prefer to interpret with ‘relational linking’ when the two nouns are not semantically similar (Wisniewski 1996) or do not have a metaphorical relation (Goldvarg and Glucksberg 1998). With these results, it is reasonable to assume that readers make use of a linking device from outside of the sentence when they can not find an obvious matching relation between the two nouns. It can be predicted that the readers of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences tend to engage in a similar interpretative process when they see two NPs with no obvious relation within the sentence.

Wisniewski (1997, pp.171-175) also attempts to explain the interpretative processes of relation linking and property construction. He claims that property construction is conducted through the processes of comparing two concepts referred to by two nouns, finding the

commonalities and differences of the two concepts, and constructing a new property for the head noun by integrating one property of the modified noun to the concept of the head noun. For example, to interpret *zebra horse*, people find similarities between a zebra and a horse such as their shapes or components and also find the important difference of having or not having stripes. Then they determine where the distinct property of having stripes in the modified noun, zebra, can be incorporated to the head noun, a horse, and construct a new property for the head noun by incorporating the stripes alongside the body and the neck of a horse just like the stripes that run in a zebra. This interpretative process may also be employed when NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences have to be interpreted alone without context. Wisniewski argues that relational linking makes use of the readers' knowledge structure of each concept. This knowledge structure, which is referred to by several different terms including 'frame' or 'schema', represents people's basic knowledge about the world. In this knowledge structure, each concept consists of elements called 'slots' which are interconnected to each other. Wisniewski claims that the interpretation of a noun-noun compound by relation linking involves a slot-filling process. Fillmore (1977, 1982) has made a similar claim with regard to the frame structure of a verb. This issue will be reviewed with other studies on the notion of frame, schema, and script in Section 3.2.

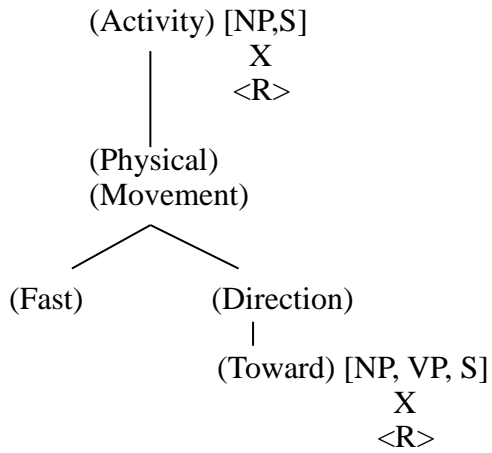
Thus, the studies on English noun-noun compounds illustrate the use of semantic connection in connecting concepts. Specifically, there are two kinds of semantic connections:

one in which two concepts alone create a particular relation and are therefore connected in some way within the sentence and the other in which the connection needs a linking device, a verb in the cases discussed here, from outside of the sentence. It can be said that both of these semantic connections are also applied to connect the NP<sub>1</sub> and the NP<sub>2</sub> in understanding and interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

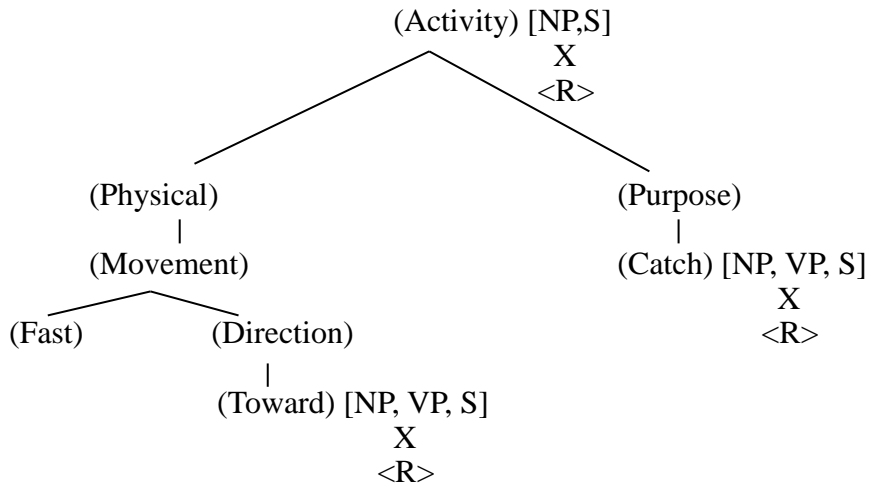
### **3.1.2. Compositional Structure of Concepts: Katz**

Semanticists have long studied the linguistic competence needed to understand a sentence. One of the first approaches was developed by Katz (1972, 1977, and 2004). Based on the idea that complex concepts are made up of simpler ideas, Katz describes the compositional structure of a concept and claims that the semantic interpretation of a sentence can be attained through the compositional structure of each concept. Each constituent of a sentence is decomposed into concepts, and each concept is further broken down into parts referred to as morphemes. The meaning of a concept also has a compositional structure consisting of a combination of multiple semantic components called ‘semantic markers’ that represent its meaning. These semantic markers can exemplify not only the differences between similar concepts but also exactly where those differences arise. For example, meaning components of the verbs ‘follow’ and ‘chase’ are illustrated in the semantic trees in (4) and (5) below (Katz (2004, pp. 156-157).

(4) The semantic markers that represent the sense of the verb 'follow'



(5) The semantic markers that represent the sense of the verb 'chase'



The semantic trees in (4) and (5) illustrates that both 'follow' and 'chase' share a majority of their meaning components and both verbs basically describe an activity that accompanies a movement toward one direction. In fact, 'follow' is in some sense a subset set of 'chase'. That

being said, they differ in that only 'chase' is an activity conducted with the purpose of catching an object. Under Katz's proposal, the semantic structures of the concepts represent the semantic knowledge which tells the speaker that 'follow' and 'chase' are semantically similar but nevertheless different.

The semantic structure also contains a set of grammatical rules as well as information about selection restriction for each component. This enables the meaning of a sentence to be constructed from the meaning of the individual concepts. In the case of verbs, the grammatical markers in square brackets indicate the arguments that the verbs take. The grammatical markers [NP, S] and [NP, VP, S] in (4) and (5) for 'follow' and 'chase', respectively, indicate that both verbs take a subject and an object, but only 'chase' includes a purpose. The sign <R> under each argument indicates that there is a selection restriction which designates the semantic properties of that argument. Specifically, Katz (1972, p.106) argues that the selection restrictions for the predicate 'chase' require that the variable categorized as the subject contains the semantic marker, 'Human' or 'Animal', while the selection restrictions for the direct object contains the semantic marker, 'Object'. These selection restrictions allow us to distinguish normal sentences from 'anomalous' ones, as found in examples (6) and (7). Katz (1972, pp.106-107) claims that (6) is anomalous because it violates the selection restriction for the subject, and (7) for the object. Example (8) (Katz 1972, p.10) is not anomalous because the selection restriction for the object of

‘chase’ does not require the semantic marker ‘Physical’ but just ‘Object’. It is assumed that a reader’s semantic knowledge would make (6) and (7) difficult to understand because of their ‘anomalous’ meanings.

(6) The stick chased the dog.

(7) The dog chased an itch.

(8) The dog chased the cat’s reflection.

This grammatical and semantic information about the compositional structure of each concept indicates the possible connection of concepts and, specifically in the case of a verb, the possible connection with its argument nouns. As we will see below, in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, it can be the case that a verb can be an unexpressed element and as such place restrictions on the syntactic and semantic relation between two NPs, NP<sub>1</sub> and NP<sub>2</sub>.

### **3.1.3. Conceptual Structure and Thematic Relation: Jackendoff (1983, 1987)**

#### **3.1.3.1. Conceptual Structure**

Jackendoff (1983, 1987, for example) also develops a compositional structure of meaning. He proposes a model of grammar with three autonomous levels of structure: phonological, syntactic, and semantic/conceptual, which are linked to each other by correspondence rules.

Jackendoff claims that this model is able to explain how human thought is reflected in the grammar. Therefore, the model deals with nonlinguistic information, such as sensory input and the input by the movement of objects, along with linguistic information at the semantic/conceptual level. He also claims that the model provides innate formation rules which can be applied to understand concepts in situations that people have never encountered before. This is enabled by the fundamental assumption of this model, that is, that meanings are mentally represented.

The mental representation of a concept includes a vocabulary of conceptual categories, and the combination of these conceptual categories allows the speaker to express complex concepts. Conceptual categories are, for example, [THING], for object, or [PLACE] and [ACTION], for spatial and temporal concepts. These conceptual categories make it possible for a speaker to be aware of an 'individual thing' in the world, since a given 'thing' can be projected from the corresponding mental representation that the speaker has. For example, Jackendoff (1983, pp. 48-49) claims that 'that' in (9) can be projected from the conceptual category, [THING], while the complete sentence reflects the conceptual categorization of a purchase. Similarly, the speakers of (10) and (11) can recognize the referents of 'here' and 'there' and 'do that' since they have the mental representations with the conceptual categories [PLACE] and [ACTION] from which 'here' and 'there' and 'do that', respectively, are projected.

(9) I bought that yesterday.

(10) Your coat is here [*pointing*] and your hat is there [*pointing*].

(11) Can you do that [*pointing*]?

Examples of other conceptual categories proposed by Jackendoff are [EVENT], [STATE], [DIRECTION], [MANNER], [PATH], [PROPERTY], or [AMOUNT]. Combining these categories into more complex expressions with the formation rules makes it possible to express combinations of multiple concepts, including those as complex as a sentence.

Example (12), taken from Jackendoff (1987, p.386), demonstrates the conceptual representation of the verb 'drink' illustrated with the relevant conceptual categories and some formation rules.

(12) 
$$\left[ \begin{array}{l} \text{drink} \\ [-N, +V] \\ \hline (\text{NP}_j) \\ \text{[Event CAUSE ([Thing } i, \text{ [Event GO ([Thing LIQUID]}_j,} \\ \text{[Path TO ([Place IN ([Thing MOUTH OF ([Thing } i)])])])}] \end{array} \right]$$

Example (12) shows that the verb ‘drink’ describes an event that causes a thing which is liquid to go into one’s mouth. The mental representation of the verb ‘drink’ illustrated in (12) is a known element for the speaker of a language, and it comes into play in any situation where the ‘drink’ concept is interpreted.

### 3.1.3.2. Selection restriction

As Katz claims, Jackendoff also argues that the selection restriction placed on the arguments of a verb compose a part of the verb’s meaning, and as such are not just part of a contextual condition. Jackendoff (1987, p.386) proposes a principle called ‘argument fusion’ that applies when a verb (or a preposition) takes arguments.

Argument Fusion :

Into each indexed constituent in the reading of the verb or preposition, fuse the reading of the syntactic constituent in the sentence that satisfies the co-indexed position in the verb’s subcategorization feature. Into the position indexed *i* in the reading of the verb, fuse the reading of the subject.

In the conceptual structure of ‘drink’ in (12) above, the selection restriction on the direct object is expressed by the semantic marker LIQUID and the index *j*. Jackendoff (1987, p. 386) explains that this two-way indication shows the optional transitivity of the verb ‘drink’. When ‘drink’ takes a particular direct object, ‘wine’, as in (13), the reading of ‘wine’ is combined with the constituent [<sub>Thing</sub> LIQUID]<sub>*j*</sub>, and the redundant marker LIQUID is deleted. When ‘drink’ takes

a pronoun, 'it', as a direct object as in (14), the readings of 'it' and 'drink' merge and generate a reading 'contextually specific liquid'. The reading of the pronoun generates the meaning 'contextually specific', and the reading of the verb generates the meaning 'liquid', which is designated by the semantic marker. The verb 'drink' can also be used without a syntactically articulated direct object as in (15). Even without a direct object, the verb describes the situation that 'Harry drank some object which was liquid'. This information about the object in (15) is provided by the verb's semantic feature LIQUID. In this way, it can be said that (15) has an 'implicit argument'.

(13) Harry drank the wine.

(14) Harry drank it.

(15) Harry drank.

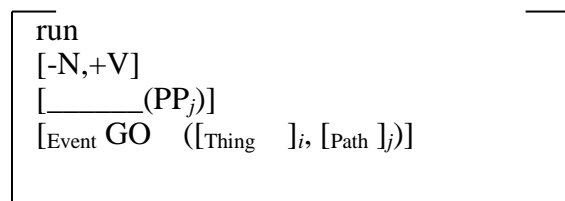
Thus, a verb contains information about the semantic type of its arguments whether those arguments are syntactically articulated or not. This is because the information about selection restrictions is part of the verb's meaning and is therefore integrated into the verb's conceptual structure.

### 3.1.3.3. Thematic relation and implied argument

As Chierchia (2000, p.477) and other semanticists indicate, thematic relations in a sentence do not always have to correspond to their syntactic representations. The verb ‘drink’ requires an agent and a theme but a direct object is syntactically optional as shown in (15) above. Similarly for the verb ‘eat’. ‘Swallow’ requires an agent but both a theme and a direct object are only optionally required. The action of ‘swallow’ can be carried out even without a specific mental representation for its object. On the other hand, ‘dine’ requires an agent and a theme since people dine on something, but it does not require or permit a direct object, so the theme is not syntactically specified.

The autonomy of the semantic/conceptual level in Jackendoff’s model makes it possible to describe the semantic structure of a concept which does not necessarily have a one-to-one corresponding articulated syntactic component. Jackendoff (1987, p.376) illustrates the differences between the intransitive verb ‘run’ and the intransitive use of ‘enter’. Their conceptual structures are given in (16) and (17) respectively.

(16)



(17)

$$\left[ \begin{array}{l} \text{enter} \\ [-N, +V] \\ \hline \text{[Event GO (NP}_j\text{)]} \\ \text{[Path TO ([Place IN ([Thing ]}_j\text{)])]} \end{array} \right]$$

Example (16) shows that ‘run’ has a semantic component  $[\text{Path } ]_j$ . When ‘run’ does not have a PP as in ‘John ran’, it still includes reference to an unspecified trajectory that John traversed, not just the movement by John, because the semantic category of PATH is included in the conceptual structure of ‘run’. This unspecified trajectory is specified when it takes a PP as in ‘John ran into the room’ by the conceptual structure of ‘into’ as shown in (18) (Jackendoff 1987, p.377).

(18)

$$\left[ \begin{array}{l} \text{into} \\ [-N, -V] \\ \hline \text{[Path TO (NP}_j\text{)]} \\ \text{[Path TO ([Place IN ([Thing ]}_j\text{)])]} \end{array} \right]$$

The verb ‘enter’, as illustrated in (17), has a conceptual structure in which these functions of PATH and PLACE are incorporated. Even if ‘enter’ is used without PP as in ‘John entered’, it implies a place into which John entered, so a reader would understand ‘John entered’ as ‘John

went into something' and not as 'John traversed some path.'

These examples show that there are semantic components whose senses form a part of the meaning of a word even when they are not syntactically specified. Though Jackendoff does not provide an example of an intransitive verb that requires a theme while prohibiting a direct object (an example would be a verb such as 'dine'), the theme must be represented in its conceptual structure if it is described in Jackendoff's model. Turning again to the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, and based on these observations, it seems reasonable to assume that when an intransitive verb which contains a semantic theme fills the slot of the unexpressed element in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, that theme may influence a reader's understanding of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence itself.

#### **3.1.4. Particular conceptual connections in Japanese topicalized sentence: Kitagawa (1982)**

We turn now from a general discussion of conceptual structure to work that is focused on Japanese. As introduced in Chapter 1, Japanese topicalized sentences can be divided into two kinds according to the relation between the topic and the rest of the sentence. In one kind the relation between the topic and the predicate is syntactic in that the topic argument is a syntactic argument of the predicate. In the other kind, the relation is not syntactic; in such cases the relation is characterized in terms of 'aboutness'. However, the specific nature of the 'aboutness' relation is not clear. Kitagawa (1982)'s work on topicalization, which discusses particular kinds

of semantic and/or pragmatic relations, can be interpreted as trying to give some content to the notion of ‘aboutness’.

Kitagawa (1982, pp.185-187) presents three kinds of connections between the topic NP and the NP in the predicate: a subset/superset relation, belongingness, and a strong sense of identification in terms of real world knowledge between the referents involved. Example (19) has a subset/superset relation between the topic NP *sakana* ‘fish’ and the NP in the predicate *tai* ‘red snapper’

- (19) (subset/superset)  
*Sakana wa tai ga ii*  
fish TOP red snapper NOM good  
‘As for fish, red snapper is the best.’

Example (20) has a relation of belongingness between the topic NP *bunmeikoku* ‘civilized countries’ and the NP *dansei* ‘men’, which constitutes a member of the topic NP.

- (20) (belongingness)  
*Bunmeikoku wa dansei no heikin zyumyoo ga nagai*  
civilized nation TOP man GEN average life span NOM long  
‘As for civilized countries, their male population’s average life span is long.’

Example (21) reflects a connection based on real world knowledge. Absent an assumption about the relation between the two NPs, *Tarou* and *Hanako*, the sentence seems less

understandable than the examples in (19) and (20). It becomes more understandable if the identities of the topic NP *Tarou* and the NP in the rest of the sentence *Hanako* are closely related to each other in terms of world knowledge, such as, husband and wife, father and daughter, etc.

(21) (close identities)

*Tarou wa Hanako ga iede sita*  
Tarou TOP Hanako NOM leave-home did  
'As for Tarou, Hanako ran away from home.'

As these examples show, assuming this kind of conceptual relations between the topic NP and the predicate seems to be essential when interpreting such sentences, and the sentences are much less understandable if the reader cannot assume a particular conceptual relation for each sentence.

NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences sometimes have this type of conceptual relation, too, and the interpretation of such sentences is somewhat conventionalized. One example is (22). The conventionalized interpretation is something like 'as for NP<sub>1</sub>, NP<sub>2</sub> is important, necessary, the best, etc'. The interpretations are inferable when this particular conceptual relation between the NP<sub>1</sub> and the NP<sub>2</sub> can be assumed.

(22) *Haru wa akebono*

spring TOP dawn  
'As for spring, dawn (is the best time of day)'

Other examples of particular kinds of conceptual relation are observed in (23) and (24).

The NP<sub>2</sub> in (23) describes the activity in which the referent of the NP<sub>1</sub> is engaged, and the NP<sub>2</sub> in (24) shows the location of the referent of the NP<sub>1</sub>. These conceptual relations between the NP<sub>1</sub> and the NP<sub>2</sub> are often observed in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, and the interpretations are rather conventionalized as well.

(23) *Otousan wa sigoto da*  
father TOP work COP  
'Father is at work.'

(24) *Sono hon wa daidokoro da*  
that book TOP kitchen COP  
'That book is in the kitchen.'

Another example of the particular kind of conceptual relation possible in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is a metaphorically identical connection as in example (25). The NP<sub>2</sub> *misosiru* somehow expresses an identity of the NP<sub>1</sub> metaphorically.

(25) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP  
'Miyata is a miso-soup (metaphorically).'

As examples of this kind of conceptual connection, all of the examples from (22) to (25) can be understood basically without context if the readers can assume a particular conceptual relation

between the NP<sub>1</sub> and the NP<sub>2</sub>. This way of interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is similar to interpreting English noun-noun compounds by property construction as discussed in Section 3.1.1.

### **3.2. Frame: the way to connect concepts to the concepts outside of the sentence**

#### **3.2.1. Frame of a concept**

Understanding a sentence in a context requires not only an understanding of the combinations of concepts but also an understanding of an event as a whole. When understanding an event, various kinds of linguistic and nonlinguistic knowledge about the world are required. Facts about people and objects as well as time and place, and preceding discourse are all included as part of this knowledge. Each speaker establishes this knowledge structure about the world through his/her own experience. With this knowledge structure, it is possible to understand ‘what is going on’ in the speech situation where a sentence is generated. In the literature, this knowledge structure is given different labels, but in this study, we will call it a ‘frame’ since this is probably the most commonly used term.

A frame can be associated with people, objects, or situations. Everything from a single word to an exchange of discourse may evoke a particular frame. The reader of a sentence makes use of the frames activated by each concept in the sentence while continuously fitting them into a frame evoked in a larger extended context when it is available. The notion of frame has been

discussed in different fields of study such as artificial intelligence, linguistics, and anthropology, although with different emphases in each area. Some of these are reviewed here.

#### **3.2.1.1. Data-structure of stereotyped situation: Minsky (1975)**

Minsky (1975, p.212) defines a frame as “a data-structure for representing a stereotyped situation,” and explains how people use this system when they deal with an everyday situation. He describes a frame as a network of nodes and relations with somewhat fixed notions at the top level and the slots to be filled by specific instances at the lowest level. When people encounter a new situation, they select a frame from their memories and try to match the details in the situation to each slot of the selected frame. If they find the selected frame does not fit well enough to the situation, they replace it with another frame. If they cannot find a better frame easily, they adapt the closest one possible and then store it in their memories for future use.

The slots of a frame are often filled preliminarily with default values. People usually have certain expectations when they first perceive a situation. For example, they automatically expect certain objects or a certain room appearance when they are put in a situation like ‘being in a living room’; they vaguely have a particular image of a ball when they hear the sentence, ‘John kicked a ball.’ Consequently, people generally have to make only small changes when they encounter an actual situation. The default values are formed based on one’s experiences, but the associations are relatively weak so that they can be easily replaced with specific values that

better fit a particular situation.

### **3.2.1.2. Script for event sequence: Schank and Abelson (1977)**

Following Minsky (1975), Schank and Abelson (1977) also consider frame to be a data-structure of stereotypical situations. They focus specifically on a sequence of events in an everyday situation and claim that there is “a structure that describes an appropriate sequence of events in a particular context” (Schank and Abelson: 1977, p.422). This is called a script.

A script helps people handle well-known and everyday situations. It comprises a sequence of events in which particular participants take certain actions in a fixed order. For example, in a script that might be called ‘restaurant’, a customer enters a restaurant, sits at a table, orders food, eats food, pays the bill, and leaves. There are other participants who are also engaged in particular activities such as a waitress’s seating the customer, taking the order, bringing the food, etc. or a chef’s cooking the food. These actions are interconnected, and the result of one action enables the next to occur. The situation described by Schank and Abelson (1977, p.422) in (26) is easily understood with knowledge of the script ‘restaurant’.

(26) John went into the restaurant. He ordered a hamburger and a coke. He asked the waitress for the check and left.

Schank and Abelson argue that it is possible to use ‘the’ to introduce new references such as ‘the

waitress' and 'the check' in (26), even if they are not previously referred to, and that this shows that knowledge of the script already exists in the reader's mind. According to Schank and Abelson (1977, p.422), "the script itself has already implicitly introduced [these objects]."

With knowledge of the 'restaurant' script, it is also possible to understand the following situation in (27) presented by Schank and Abelson (1977, p. 422).

(27) John went to a restaurant. He ordered a hamburger. It was cold when the waitress brought it. He left her a very small tip.

This story contains a deviation from the ordinary restaurant script. Schank and Abelson claim that scripts also contain components to deal with possible deviations and associated behaviors. In this case, the waitress's bringing food in an inappropriate condition and the reaction of the customer toward this event is also stored as part of 'restaurant'. It should be noted, however, that a script is also formulated based on the experiences of particular people and that what are the stereotyped events and what are their deviations can vary according to their experiences. For example, the customer's reaction to the event in (27) would not be understood as an expected deviation if the reader does not have the cultural background of giving a tip in a restaurant.

A situation can often be interpreted by more than one script at a time as shown in the example by Schank and Abelson (1977, pp.422-423.) in (28).

(28) Harriet went to a birthday party. She put on a green paper hat. Just when they sat down to eat the cake, a piece of plaster fell from the ceiling onto the table. She was lucky, because the dust didn't get all over her hair.

The whole situation of this example can be understood as a birthday party script, but the falling of plaster, which is something outside the range of the usual birthday party script, occurs in this situation. Schank and Abelson explain that the birthday party script is still available in the description of this deviation through the indirect reference to the party hat that protect Harriet's hair from getting dusty and by the possibility that the normal party activities will resume once the problem of the falling plaster is solved. They also argue that there seems to be a kind of falling plaster script as well because the reference to the dust in Harriet's hair seems natural.

Schank and Abelson think that scripts can be made based on each person's routinized behavior motivated by a knowledge structure they call a 'plan'. A plan consists of the set of actions a person takes in order to realize a goal. The connection of the two sentences in (29) by Schank and Abelson (1977, p.429) is not obvious unless they are interpreted in the context of a 'plan'.

(29) Willa was hungry. She took out the Michelin Guide.

This example can be understood to mean that Willa had a plan to realize the goal of satisfying

her hunger. If a reader knows that the Michelin Guide lists restaurants, they would understand the action taken in the second sentence as an action toward realizing this goal, namely an action of looking for a restaurant. Without knowledge of this plan, however, a reader might come up with a strange interpretation such as ‘Willa will eat the Michelin Guide’ by a straightforward inference: ‘Willa is hungry. She took out an X to eat X.’ Again, there might also be cultural or individual differences. Taking out the Michelin Guide is a normal procedure for certain individuals when dealing with a situation of being hungry, and this routinized action can become a script for them. Obviously, however, this is not the case with everyone.

These examples by Schank and Abelson reveal two aspects of a frame. One is the script-opening possibility of locatives as shown in the examples of ‘restaurant’ in (26) and (27). Though Schank and Abelson do not limit their examples of script to locatives, designating a particular place is an easy device for evoking common stories that are normally attributed to that place. A frame also opens the possibility of the co-occurrence of multiple scripts, especially in the kind of extended context found in (28) and which will be discussed in Section 3.2.2.

To summarize, views on frame or script as a data-structure generally involve the following two features. First, there are ‘default’ cases in both an individual frame and in a sequence of events. Second, what is treated as the ‘default’ in particular frames or scripts may differ according to the speaker and hearer’s individual experiences as well as their linguistic and

cultural backgrounds.

### **3.2.1.3. Frame of verb: Fillmore (1977, 1982)**

Fillmore (1977, 1982) develops a notion of frame from his linguistic studies on Case grammar. He indicates that a particular set of English verbs can evoke the same general scene that includes many of the same elements. For example, in a 'commercial event', there is a person who is interested in exchanging money for goods (the buyer), a person who is interested in exchanging goods for money (the seller), the goods that the buyer will acquire, and the money that the seller will acquire. The verbs 'buy' and 'sell' both describe this commercial event with the focus on the action of the buyer in the former and on the action of the seller in the latter. Other verbs such as 'pay', 'spend', 'cost', or 'charge' also describe the commercial event with specific focuses on other elements of the scene. These verbs are not just a group of semantically associated words. Rather, they all illustrate a commercial event from different viewpoints based on the common background knowledge and motivation related to the event. Thus, the meaning of these verbs cannot be understood without this knowledge of the whole structure, and if one of these verbs or other words that represents an element of this commercial event appears in a text, all the other elements of the event are automatically made available. Fillmore (1977, p.127) calls this knowledge structure 'frame' and defines it as "the specific lexico-grammatical provisions in a given language for naming and describing the categories and relations found in schemata." For

Fillmore 'schema' refers to "frameworks that are linked together in the categorization of action, institution, and objects." In this sense, it can be said that a frame is a notion that includes the semantic structures of concepts discussed by semanticists and reviewed in Sections 3.1.2 and 3.1.3. That is, the semantic components in these conceptual structures and the thematic roles that are assigned all part of the frame.

Frame for Fillmore is therefore not just a data-structure to understand a particular situation. It is a system of interconnected concepts which enables the users of a language to choose appropriate language to describe the situation. A single word can evoke a frame, and this automatically makes other words accessible and understood within the frame. Specifically, Fillmore's examples indicate that a single predicate can introduce an event, which facilitates a reader's understanding of the whole situation. Fillmore (1982, p.117) claims that "the frame structures the word-meanings, and that the word 'evokes' the frame."<sup>9</sup>

### **3.2.2. Frame in an extended context**

#### **3.2.2.1. Structure of prior knowledge: Bartlett (1932)**

In an extended context, particular frames are constantly activated and employed by the

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<sup>9</sup> Though Fillmore (1977, 1982) does not argue this specifically, Fillmore and Atkins (1992, p.78) make a distinction between the 'core' roles and the 'secondary' roles in a frame. In a commercial event, for example, 'buyer', 'seller', 'goods', and 'money' are the examples of the former while 'cost', 'tender', and 'change' the latter.

participants. Bartlett (1932), one of the earliest experimental studies on the notion of frame, demonstrates specifically how prior knowledge of the participants of his experiments influences how frames are established and used in an extended context through the perception and reproduction of a story.<sup>10</sup>

In Bartlett's experiments, participants studied a folk tale and were asked to re-tell the story repeatedly after certain intervals of time. Since it described a supernatural event in Native American culture, the story was unfamiliar to the participants who had a modern Western cultural background. With respect to the results, it turned out that the participants in this experiment, through their successive re-tellings, transformed the story. More interestingly, they all changed the story in a more or less similar way.

Renkema (1993) explains that in Bartlett's experiments, the participant's prior knowledge influences the retention of the story in two ways. First, participants used their prior knowledge to process the new information of the story, but the prior knowledge itself distorted the perception of new facts. Many of Bartlett's participants perceived the folk tale as a story in foreign culture and claimed that it was not an English tale. Some even called it a 'dream'. It is assumed that the participants tried to label the story as being of a certain type based on the frames available to them from their own cultural experiences. At the same time, the frames themselves led to

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<sup>10</sup> Bartlett and some other psychologists use the term 'schema' rather than 'frame'.

modifications of the story, and when retelling it, participants changed several parts of the story. For example, they omitted unfamiliar terms, proper names, and supernatural elements. These were the elements that they thought unusual and unimportant for retelling the story. They also replaced unfamiliar terms with more familiar ones. 'Seal hunting' and 'canoe' became 'fishing' and 'boat' respectively. Furthermore, the participants attempted to clarify the connections of each incident in the story by adding conjunctions or giving additional and explanatory information. An example is the use of the explanatory phrase 'probably to cook his breakfast' in one participant's reproduction introduced by Bartlett (1932, p.86, parentheses and italics his): "...when he got back the young man lit a fire (*probably to cook his breakfast*).” Another example is the addition of the conjunction 'as' to confirm the connection between two incidents, which is not described in the original story, as in: 'Let us go home, *as* the man of Egulack is wounded' (Bartlett (1932, p.86, italics his)). Thus, the participants rationalized the actions of the characters so that the whole story made more sense from their individual perspectives.

Bartlett's experiments indicate that people use prior knowledge of frames to adapt new information and better understand unfamiliar situations. In addition, people integrate new facts and new experiences into their current frame, and this mental activity continuously reformulates the frame itself. Bartlett (1932, p.201, italics his) claims that this structure of knowledge is "the organized mass results of past changes of position and posture"; and argues that people "are

actively *doing* something all the time.” That is, people are continuously organizing the knowledge they gain through their experiences.

### **3.2.2.2. Metacommunicative message about speech activity:**

#### **Anthropologists’ approach to frame**

The continuous activation of a frame in a large extended context, such as the one presented in Bartlett’s experiments, is also observed and discussed by anthropologists. Bateson (1972) describes peoples’ use of a particular frame as analogous to a picture frame through which people see a situation. He explains that animals including humans exchange signals to reveal their interpretations of each other’s behavior. For example, a playful nip by a monkey does not denote what the bite would denote but a message that ‘this is play’. These exchanged signals, or set of metacommunicative messages, which coincide with the on-going speech activities, are defined as a frame. A frame therefore includes any kind of linguistic realization: dialect or style switching, prosodic features, formulaic expressions, sequencing strategies, etc. These metacommunicative messages are particularly studied as a culturally determined notion by anthropologists such as Hymes (1974) or Frake (1977).

In summary, a frame is a dynamic structure including data about objects and events, which is constantly accumulating and being changed by individual experiences. A frame allows people to understand what is going on in a given situation and creates expectations of what should

happen next. In this sense, a frame influences all human communicative activities. It is therefore not unreasonable to assume that a frame affects the interpretation of a given sentence, including the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences that are the topic of this study. Everything from an individual word to multiple sentences or longer exchanges of discourse can evoke particular frames. In the case of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, it has been suggested that the sentence may include reference to unexpressed elements. For example, we might assume that a particular word in the previous sentences might evoke a particular frame which would help the reader fill in the unexpressed element and come up with a possible interpretation in the context. Specifically, based on the script studies by Schank and Abelson and on the notion of frame developed by Fillmore, it might be assumed that a particular place or a particular verb in the previous context will evoke a frame which leads the reader of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence to a particular interpretation. There is also the possibility that in an extended context, a frame associated with a particular situation may make the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence understandable for a particular group of readers who have prior knowledge of this frame and can interpret the sentence via metacommunicative messages.

### **3.3. Creating a connection between sentences**

When people interpret a sentence/utterance in a context, they typically presuppose that the immediate sentence/utterance is somehow related to the preceding context. This seems to be a fundamental assumption which is shared by all linguistic participants, and theories of human

communication such as the Conversational Principles developed by Grice (1975) or Relevance Theory developed by Sperber and Wilson (1986) address the rules or mechanisms that conversations seem to follow. Based on these assumptions, studies on how particular sentence/utterances are interpreted in connection with their preceding sentences/utterances have developed. This section will discuss two of such procedures: bridging implicatures and structures of expectation. Both procedures hypothesize specific ways in which one sentence may be connected to other sentences in the context.

### **3.3.1. Bridging implicature**

Clark and Haviland (Haviland and Clark 1974, Clark and Haviland 1977, Clark 1977) examine the way listeners interpret sentences with particular attention to the way they make references to antecedents which are not explicitly expressed in the context. They claim that listeners need to find what they call a ‘bridging implicature’ when they are not able to find the speaker’s intended referent.

Clark and Haviland (1977, pp.5-9) argue that as a fundamental principle, speakers obey the Maxims of Antecedence and Given-New Contract when they construct utterances.

#### **(30) Maxim of Antecedence**

Try to construct your utterances such that the listener has one and only direct antecedent for any given information and that it is the intended antecedent.

(31) Given-New Contract

Try to construct the given and the new information of each utterance in context (a) so that the listener is able to compute from memory the unique antecedent that was intended for the given information, and (b) so that he will not already have the new information attached to that antecedent.

According to Clark (1977, p. 246), a listener adds information to their memory in the following three steps:

(32)

Step 1: Identify the given and new information

Step 2: Search memory for a proposition matching the given information and call it the 'antecedent'

Step 3: Add the new information to memory by replacing the given information by its antecedent.

When a speaker appears to violate the maxim of antecedence and there is no direct antecedent in the listener's memory for the given information, the listener must somehow determine an antecedent by inference and place the identity of that antecedent into the given information. Consider Clark's (1977, p.247) example in (33). In (33b), the information 'X hit Max' is 'given' as indicated by the use of pronoun, 'him', but the listener does not find a proposition matching this given information in (33a). Therefore, the listener attempts to introduce an antecedent 'someone hit him' to information that is already in memory in the way that the listener thinks the speaker intended. In case of (33), a proposition such as (34) must

plausibly be added. This additional proposition is the ‘bridging implicature’. It works as a bridge to connect the two sentences in (33a) and (33b).

- (33) a. Max had a black eye.  
b. It was Maxine who hit him.

(34) Max had a black eye because someone hit him.

Haviland and Clark, as well as other psycholinguists, have been mainly concerned with the question of whether the existence of a link between the sentences in a pair such as (33), in which one represents the context sentence and the other the target sentence, affects the comprehension of the target sentence. For example, Haviland and Clark (1974, p. 516) examine the effect of the explicit mention of a referent of a definite noun phrase by comparing two kinds of sentence pairs with different context sentences. In their pairs, the antecedent of a definite noun phrase is mentioned in the context, as in (35), or not, as in (36). As a result, the latter pair requires a bridging inference in order to connect the definite noun phrase to the antecedent which is implied but not explicitly mentioned in the context sentence. The reading time of the target sentence was faster when the referent was explicitly mentioned in the preceding sentence than when the referent was implied in the preceding sentence. Haviland and Clark conclude that hearers take a longer time to interpret the target sentence in (36) because drawing the bridging implicature, ‘an

alligator was included in the lots of things that were given to Ed for his birthday', for example, takes time.

(35) Ed was given an alligator for his birthday.  
The alligator was his favorite present.

(36) Ed was given lots of things for his birthday.  
The alligator was his favorite present.

Other studies focus on the effect of particular kinds of relation between sentences, such as a causal relation, on the interpretation of the target sentence. Keenan et al. (1984) and Myers et al. (1987), for example, analyze the reading time of a target sentence in four different sentence pairs, categorized in terms of the levels of causal relatedness between the sentences. Each sentence pair includes the same target sentence following a context sentence which expresses a possible cause for the outcome in the target sentence. The context sentences vary in the degree of causal relatedness for the target sentence as in examples (37a-d) from Keenan et al. (1984, p.117). The difference in causal relatedness was independently confirmed through a norming study and the subjects' own ratings on a 5-point scale.

(37)

a. Level 1

Joey's big brother punched him again and again.

The next day his body was covered with bruises.

b. Level 2

Racing down the hill, Joey fell off his bike.

The next day his body was covered with bruises.

c. Level 3

Joey's crazy mother became furiously angry with him.

The next day his body was covered with bruises.

d. Level 4

Joey went to a neighbor's house to play.

The next day his body was covered with bruises.

Keenan et al. explains that the context sentence of their Level 1 pair as in (37a) shows a cause that is highly probable while a cause in Level 4 as in (37d) is improbable though not implausible.

As Keenan et al. predicts, the reading time of the target sentence is affected by the relatedness of the context sentence. The reading time of the target sentence in Level 1 is significantly shorter than the time in Level 2, and the time in Level 3 is also significantly shorter than the time in Level 4. The reading times of the target sentences in Levels 2 and 3 did not differ significantly. These results reveal that the existence of an accessible bridging implicature affects the interpretation of the target sentence since the target sentences in Level 1 were read in shortest time while those in Level 4 took the longest.

Although it is not discussed in Keenan et al., these results also suggest that there are

hierarchical differences in the effect of accessible bridging implicatures since they claim that both Level 2 and Level 3 were read in shorter time than Level 4 though they both took longer time than Level 1. It might be assumed that the context sentences in Levels 2 and 3 invited particular bridging implicatures, such as (37b') and (37c') respectively, which facilitated the interpretation of the target sentences.

- (37)    b' Joey bumped his body on the ground when he fell off his bike.  
         c' Joey's mother hit him when she became furiously angry with him.

It might also be assumed that even (37d) invited some kind of bridging implicature in order to be understood by the reader. For example, it is possible that Joey had a big fight with someone while playing in his neighbor's house and this might have caused the bruises of his body. Although this implicature may seem less accessible or much more circumspect than those found in (37b') or (37c'), as it is not so clearly a direct cause for the outcome in (37d), as noted by Keenan et al., (37d) is interpretable. A bridging implicature, however indirect, must be available.

In cases such as (37d) in which the sentence pairs do not show a clear-cut relation, there may be more than one possible way of bridging. In the framework of Relevance Theory, Wilson

(1992) and Matsui (2000) demonstrate how a reader chooses one interpretation of a sentence from multiple possible interpretations based on their judgment of the accessibility of particular contextual assumptions. For example, example (38) by Wilson (1992, p.169) indicates that the reader's assumptions about the character or the role of the referent in the sentence can affect the accessibility of a contextual assumption to interpret the sentence.

(38) I ran from the classroom into the playground.  
The children were making too much noise.

Wilson (1992, p.169) illustrates two potential bridging assumptions available as in (39a) and (39b), which yield the interpretations in (40a) and (40b) respectively.

(39)  
a. There were children in the classroom.  
b. There were children in the playground.

(40)  
a. The children in the classroom were making too much noise.  
b. The children in the playground were making too much noise.

Wilson claims that if the reader has any assumptions about the character or the role of the speaker of (38), it would affect these interpretations. If the reader assumes that the speaker of (38) is a teacher, for instance, she would interpret (38) as a teacher running into the playground

to stop the noise of the children there based on the contextual assumption of (39b), rather than a teacher running away from the children making too much noise in the classroom. A particular contextual assumption, about the role of the speaker in example (38) for instance, can enable the readers to choose one interpretation from multiple choices.

Thus, the bridging implicature facilitates the understanding of a sentence by linking it to a previous sentence. Looking back at the conceptual connection based on semantic (thematic) relations or frames discussed in Sections 3.1 and 3.2, it can be said that there should be a particular bridging implicature that functions to form a proposition by connecting the pieces of information evoked by such conceptual connections.

### **3.3.2. Structure of expectation: Ross (1975)**

Ross (1975) also examines the interpretation of sentence pairs in which an obvious relation of the two sentences does not seem to be assumed from the surface structure. He attempts to provide a semantic structure for the missing information, which can be assumed to connect the two sentences, by exemplifying how covert pieces of information are connected to the verb in the sentences as covert arguments which are not required by the verb. He refers to these pieces of missing information as a 'structure of expectation'.

In Ross (1975, p.4), participants were asked to 'explain the situation' of sentence pairs such as in (41a-b). Results show that many participants shared the same kind of explanation by

filling in semantically identical pieces of missing information. The most frequent response for the explanation of the situation for (41) is the one in (42). Ross explains how these pieces of missing information enable semantic and discursive connections between the two sentences.

(41) a: Arthur threw the ball into the woods.  
b: Barbara was very angry.

(42) It was Barbara's ball.

What Ross refers to as the 'structure of expectation' works as a bridging implicature to connect (41b) to the previous context (41a). Ross attempts to explain how (42) facilitates the understanding (41a-b). Example (43) illustrates Ross's description of the deductive process of (41) with the bridging implicature of (42).

- (43) 1. Barbara was very angry *because* Arthur threw the ball into the woods.  
(Sentence (41a) becomes an INSTRUMENT or some event that produces the anger in (41b).)
2. This means that Arthur's throwing the ball is a meaningful act for Barbara which even makes her angry.
3. One way to connect the event of Arthur's throwing the ball to Barbara's anger is to connect the ball to her anger. A possible assumption would be that 'Barbara owned the ball and this object, 'ball', is the SOURCE of the event of (41a) 'Arthur threw the ball'.
4. This would elicit next assumption that 'Barbara lost the ball and this event is produced by the event (41a), that is, Arthur's throwing the ball'. In other words, (41a) becomes an INSTRUMENT of the event, 'Barbara lost the ball'.
5. These pieces of missing information or 'the structures of expectation' would lead the

readers to the interpretation, 'Barbara's anger caused by Arthur's throwing the ball comes from the fact that Barbara lost the ball which she had owned, and this was caused by Arthur's behavior of throwing her ball'.

Ross claims that common patterns of inference or 'structure of expectation' were observed for each sentence pair in his study. This is probably because the inference needed is made through a deductive process of recovering unexpressed pieces of information. Ross suggests that the process is based on thematic relations between the covert and overt pieces of information and demonstrates that those thematic relations are deduced using knowledge of the world or a frame, that is, something that the reader 'expects' to happen in each situation. It is not unreasonable to assume that this deductive process based on knowledge of both language and frame enables a reader to establish a relation between two sentences in which the relationship is not otherwise obvious.

### **3.4. Conclusion**

This chapter has reviewed the literature on how concepts are constructed and connected. The expectation is that these same ideas can be employed in understanding how NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are interpreted. The simplest connections are made between concepts within a sentence without adding other concepts from outside of the sentence. As with some English noun-noun compounds, two nouns are connected by attributing the property of one noun to the other and constructing a new property. This kind of conceptual connection can be made by the readers of

Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, i.e. those where the two NPs refer to a semantically identical referent, by attributing the property expressed by NP<sub>2</sub> to the NP<sub>1</sub>. It may also be employed even when they read Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, i.e. those where the two NPs are not obviously identical, if the sentence is presented alone without any context. In such cases, a reader may attempt to find additional information to create a (possibly obscure or unlikely) conceptual connection between the NP<sub>1</sub> and the NP<sub>2</sub> to understand the sentence.

In contrast, when NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are presented in a context, it is often possible to make a connection between the two NPs by adding concepts from the context. Based on previous studies of semantic structure and the structure of a frame, a particular verb would be a likely component to connect the two NPs by enabling particular grammatical or semantic relations between them. This way of connecting two NPs with a particular verb is also observed in some English noun-noun compounds.

Finally, a frame evoked by a particular place or other contextual element can help establish a particular relation between the two NPs in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. This may happen when the two NPs can be associated with particular roles associated with an event that may take place in the given frame.

The current chapter has also discussed how readers interpret a sentence in relation to other sentences in the context. Assuming fundamental principles of conversation, it can be expected

that readers will look for bridging implicatures that connect the sentences in order to reach an understanding of the discourse. This kind of implicature is also stored as ‘structure of expectation’ in the reader’s knowledge of the frame, which facilitates the deductive process of understanding a single sentence or a whole discourse. All of the syntactic, semantic, and pragmatic information shared by the participants of communication reviewed in the literature in this chapter will be discussed with the findings of this study in Chapter 7.

## CHAPTER 4

### UNDERSTANDING AND INTERPRETING

#### TYPE I NP<sub>1</sub> WA NP<sub>2</sub> DA SENTENCE IN DIFFERENT CONTEXTS

This chapter and the next present the results of experimental studies on NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in a set of controlled contexts. The aim of these studies is to investigate the effects of context on the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. As introduced in Chapter 1, there are two types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. In the Type I version, NP<sub>1</sub> and NP<sub>2</sub> do not refer (in any obvious way) to a semantically identical referent. As such, this type of sentence does not show an obvious relation between the two NPs, and the sentence needs a specific context to clarify the relation between the two NPs in order to be interpreted. As discussed in Chapter 2 and 3, the relation between the two NPs in the target sentence can be specified if there is any connection between the target sentence and the preceding context. This might include syntactic, semantic, or frame information provided by the preceding context, all of which can be used to understand and interpret the target sentence. Analyses for how the context can enable the reader to understand a specific Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence are discussed in Section 4.1.

A Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is one in which the two NPs are most likely to be taken to refer to an identical referent. On this interpretation, the sentence is self-contained and

therefore usually understood as an identity sentence without context. Though this interpretation is straightforward when the sentence is read without context, it can be hindered if the sentence is put into a context that may elicit a ‘non-identity’ interpretation. Chapter 5 discusses this possibility in detail and presents the methodology and results for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

The interpretations for both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence can be affected when they are put into an extended context. In addition to various predicates and their arguments, such a context often includes a particular frame with various linguistic and nonlinguistic cues, i.e. locations, temporal references, etc., that designate how all of the sentences produced in the context should be interpreted. The effect of broader contexts will be discussed in Chapter 6.

In the following sections, Section 4.1 reviews the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and discusses the possible contextual factors that influence their interpretations (based on the discussions in Chapters 2 and 3). Sections 4.2 and 4.3 present the methodology and experimental results for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

#### **4.1. Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (NP<sub>1</sub> ≠ NP<sub>2</sub>)**

An example of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is found in (1). The NP<sub>1</sub>, *Miyata-san* ‘Mr./Ms. Miyata’ refers to a specific person named Miyata, and the NP<sub>2</sub> *misosiru* ‘miso-soup’ refers to miso-soup.

(1) *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

Because the sentence itself does not provide a view on what property of the NP<sub>1</sub> (*Miyata-san*) that the NP<sub>2</sub> (*misosiru*) describes, the meaning of the sentence is vague, with any number of possible interpretations. In order to understand this type of sentence, a reader's job is to find an appropriate connection between the two NPs.

Previous studies of topicalization reveal two kinds of relations that the topic marker *wa* establishes between the topic NP and the predicate. As discussed in the framework of generative transformational grammar and the theory of Government and Binding as introduced in Sections 2.1 and 2.2, the topic NP and the predicate can be connected by a syntactic relation. The topic NP and the predicate can also be connected by a relation called 'aboutness' introduced and discussed by Kuno (1973) and other researchers as discussed in Section 2.3. These previous studies suggest the possibility that Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as in (1) will be more understandable if a syntactic relation or a relation based on 'aboutness' can be established between the NP<sub>1</sub> and the NP<sub>2</sub>. As previous studies of English noun-noun compounds discussed by Wisniewski (1996, 1997) in Section 3.1.1 suggest, a relation to connect the two NPs can be established either by making a conceptual link within the sentence or by adding a concept from outside of the sentence. In the latter case specifically, adding a particular verb to a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence may help create a connection between the two NPs. When a particular verb is introduced into the

context, the semantic structure of the verb conveys grammatical and semantic information such as selectional restrictions and the possible thematic relations that the verb entails. Recall the discussion of Katz (1972, 1977, and 2004) and Jackendoff (1983, 1987) found in Sections 3.1.2 and 3.1.3. Moreover, as Fillmore (1977, 1982) argues, and as reviewed in Section 3.2.1.3, a single verb can activate a particular frame which introduces an event. Thus, grammatical and semantic information as well as information about a particular event will be activated when a particular verb is introduced to interpret a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, and this will help the reader find the way to connect the two NPs in the sentence. Finally, previous studies on frame and script discussed in Section 3.2 illustrate how structured knowledge about the world may affect language use. In particular, an overt locative can activate the frame and script associated with a particular place, and it is believed that if a locative is presented in the context of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, knowledge about a particular place will be activated and help to understand the referents of NP<sub>1</sub> and NP<sub>2</sub> by associating them with the particular roles played in the possible events that may take place in that place. In such cases, the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence can be understood as referring to one such event that may take place in the particular place. All of this information, associated with a particular verb and an overt locative, will be employed by the readers of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence to understand and interpret the sentence if it is presented in the previous context sentence since it is believed that readers have

knowledge of what Ross calls a ‘structure of expectation’ to connect a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence to the context by developing bridging inferences, as discussed in Section 3.4.

Thus, based on the previous studies of this construction introduced in Chapter 2 and on the discussion of conceptual structure in Chapter 3, it is predicted that establishing a syntactic or a semantic relation with an appropriate verb in the preceding context can facilitate the understanding of this type of sentence because such a verb might enable an appropriate connection between the two NPs. Likewise, if a sentence such as (1) is preceded by a context sentence such as in (2), this might help a reader to make a bridging assumption such as found in (3). Through this (unexpressed) bridging assumption, sentence (1) can be interpreted as in (4).

(2) Context sentence: *Sakurai-san wa okawari-sita*  
Sakurai-Mr./Ms. TOP another helping-did  
‘Sakurai had another helping.’

(3) Bridging assumption: “Miyata (also) had another helping (of something).”

(4) NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence: *Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP  
‘Miyata had another bowl of miso-soup.’

The context sentence in (2) provides various kinds of contextual information, although most importantly it actually contains the verb *okawari-suru* ‘to have another helping’. A reader of (1) and (2) might easily recognize that the verb *okawari-suru* ‘to have another helping’ in (2)

can take both the NP<sub>1</sub>, *Miyata*, and the NP<sub>2</sub>, *misosiru*, as its arguments based on their knowledge of the basic syntactic and semantic components of the verb, as argued by Katz (1972, 2004) and Jackendoff (1987). In addition, and as discussed by Jackendoff (1987), this knowledge of the linguistic properties of the verb includes the information that it allows implicit arguments. Thus, a reader of (2) would know that *okawari-suru* in (2) is the kind of verb that may take a direct object even if the verb itself does not have an explicit direct object within the sentence. This knowledge enables a reader to use the verb to create a particular syntactic and semantic relation between the target and context sentences. Moreover, the verb itself activates a particular frame, as argued by Fillmore (1977, 1982) and discussed in Section 3.2.1.3. Thus the frame of an event wherein ‘someone has another helping of something’ is likely to be activated when a reader sees the context in (2), and this frame would allow them to interpret example (1) as a description of an event that may take place in that particular frame. Thus, information of syntax and semantics, thematic meaning, and event frame comes into play in (2) because of the verb *okawari-suru*. All of this information helps the readers evoke the bridging assumption in (3), which should then lead to the context-appropriate interpretation in (4).

The interpretative process of the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence shown in examples (1) to (4) actually leads to an interpretation of (1) that is completely parallel to the context in (2). We might say that the interpretation contains a recovery of a syntactic ellipsis of the verb found in

the context sentence, and therefore, the predicted interpretative process suggests a possible source of the ‘underlying structural elements’ presumed by Okutsu (1978) and other traditional Japanese linguists who claim that Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are derived via a transformational operation (see the discussion in Section 2.3.1). Though the current study does not address whether a transformational operation is implicit in this construction or not, the study does aim to present a potential source of possibly elided elements, and to offer a possible deductive process by which those elements are used to interpret the sentence.

In the example described in (1) through (4), the retrieved predicate *okawari-suru* ‘to have another helping’ is taken from the context and used directly to interpret the meaning of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (1). The syntax and semantics of the relevant predicate is constant. A second kind of context sentence for a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is found in (5). This sentence contains an intransitive verb (*syokuzi-suru* ‘to dine’) which does not take a direct object as an argument (in contrast to *okawari-suru* ‘to have another helping’).

(5) Context sentence *Sakata-san wa syokuzi-sita*  
 Sakata-Mr./Ms. TOP dined  
 ‘Sakata dined (on something).’

(6) Bridging assumption: “Hosino (also) dined.”

(7) NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence: *Hosino-san wa sandoitti da*  
 Hosino-Mr./Ms. TOP sandwich COP

‘Hosino ate a sandwich.’

As discussed by Chierchia (2000) and reviewed in Section 3.1.3.3, some intransitive verbs require a theme even if they do not require nor permit a direct object; *syokuzi-suru* ‘to dine’ in (5) is such a verb. It is predicted that linguistic knowledge of the verb *syokuzi-suru* as well as knowledge of the frame of a ‘dining’ situation evoked by the verb is enough to remind a reader of the verb’s implicit theme, and thereby elicit the particular bridging assumption in (6). Under this assumption, the NP<sub>2</sub> is understood as an implicit theme of the intransitive verb *syokuzi-suru*, which should lead the reader to reach the interpretation in (7). In this example, the link between the context sentence and the NP<sub>2</sub> of the target sentence is less direct. While the NP<sub>2</sub> of the target sentence may be an actual direct object of *okawari-suru* in (2), it is only an implicit theme of *syokuzi-suru* in (4).

Finally, the inclusion of a particular place expressed by a locative in the context sentence establishes a frame that can be expected to facilitate an interpretation of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence such as (1). The context in (8) contains a locative and an intransitive verb. In (8), a particular frame is activated by the locative *kissaten de* ‘in a cafe’ while the verb itself does not clearly evoke any particular frame. In a context such as (8), the locative should function to remind the reader of events that may take place in the place expressed by the locative. Such events should include ordering and eating, although events such as talking with friends or using

the restroom might also be included. If the two NPs in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence that follows (8) can be associated with the thematic roles played in any of these possible events, the reader should be able to map the two NPs in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence to that event. In the context of (8), the locative should evoke the frame of a cafe. In this ‘dining’ situation, the two NPs in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence (7) can play the roles of an agent and a theme respectively. Though the action expressed by the intransitive verb in the context sentence (8), *kyuukei-suru* ‘to rest’, does not define an obvious semantic relation between the two NPs in sentence (7), inferences activated by the locative ‘cafe’ may allow a reader to make a bridging assumption as that in (9). An interpretation such as in (10) is therefore made available.

(8) Context sentence: *Sakata-san wa kissaten de kyuukei-sita*  
 Sakata-Mr./Ms. TOP cafe in rested  
 ‘Suzuki rested in a cafe.’

(9) Bridging assumption: “Hosino dined in the cafe.”

(10) NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence: *Hosino-san wa sandoitti da*  
 Hosino-Mr./Ms. TOP sandwich COP  
 ‘Hosino ate a sandwich.’

Note that we expect the same locative effect if the contextually supplied verb does not evoke any particular frame, regardless of whether it is intransitive or transitive. In contrast, we might expect the locative to have a strengthening effect when the evoked frame is consistent with the

contextually supplied verbs and those verbs are syntactically and/or semantically consistent with the nouns found in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, as in (2) and (5). We return to these predictions below.

## **4.2. Methodology: Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (NP<sub>1</sub> ≠ NP<sub>2</sub>)**

### **4.2.1. Materials**

The general hypothesis investigated in this thesis is that the understanding of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is linked to context. Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are more understandable when the meanings of the two nouns can be connected to the context. From the discussion in Section 4.1.1, it is predicted that a syntactic or semantic relation between the NPs in a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and the verb in the preceding context sentence will function to enable a specific interpretation of the sentence. It is also predicted that a locative phrase alone will enable a specific interpretation of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The frame evoked by the locative will bring to mind certain events, named by various transitive and intransitive verbs. To the degree that the NPs in a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence can be linked to the thematic roles associated with the names of those events, the locative will support a particular interpretation of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence.

In order to test the effects of the relationship between context and the interpretation of a particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, a set of controlled context sentences was created and

presented preceding a single Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. Thus, each experimental sentence pair consists of a context sentence and a target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The context sentences all contain a verb, and two structural variations were created: a sentence with and without a locative. In these cases, the frames evoked by the verbs and the locatives were internally consistent. The two structural variations are shown as the following.

Structural variation 1

Context sentence: NP *wa* V (PAST)

Target sentence: NP<sub>1</sub> *wa* NP<sub>2</sub> *da*

Structural variation 2

Context sentence: NP *wa* LOCATIVE *de* V (PAST)

Target sentence: NP<sub>1</sub> *wa* NP<sub>2</sub> *da*

These experimental sentence pairs were designed by inserting the same type of lexical items into the relevant NP positions. Specifically, the two topic NPs both refer to specific (although different) people, while the NP<sub>2</sub> is always a specific object. The verbs in the context sentences, whether transitive or intransitive, all express an action that includes reference to an implied (but unspecified) direct object or theme. The specific object expressed by NP<sub>2</sub> in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is a possible candidate for the direct object or the theme of the

transitive/intransitive verb given in the context sentence. Thus, the context sentence expresses the meaning, ‘a specific person took a specific action,’ and the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence allows an interpretation whereby the same kind of action is taken by a different person.

In the sentence pairs in which the context sentence contains a locative, the locative is selected so that it evokes a frame that is consistent with the action expressed by the verb.

Likewise, the locative and the NP<sub>2</sub> in the target sentence are also potentially consistent in the same way. Thus, the NP<sub>2</sub> can be a component of the frame activated by the locative.<sup>11</sup>

Additionally, and as will become clear below when specific examples are given, these experimental sentence pairs are considered to have coherence as a discourse and are connected by what Kehler (2004, p.243) calls a ‘parallel relation’ which leads the reader to assume that similar properties are attributed to the entities in both of the sentences. In other words, there is a straightforward bridging assumption that the action expressed by the context sentence is repeated by the NPs named in the target sentence. It should also be noted that the topic marker *wa* in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in the experimental sentence pair is given a contrastive reading

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<sup>11</sup> The semantic consistency of the locative and the NP<sub>2</sub> in the target sentence was confirmed through a norming study. The study asked fourteen native speakers of Japanese to rate how the two words, the locative and the NP<sub>2</sub> in each experimental sentence pair were related to each other on a scale of 1 to 5 in which 1 is defined as ‘not related at all’ and 5 as ‘very related’. Results of the norming study showed the close relations between the locative and the NP<sub>2</sub> for all sentence pairs with 4.8 average rating and either 4 or 5 rating for each sentence pair.

which makes the ‘parallel relation’ possible.<sup>12</sup>

In constructing the kind of example exemplified by Structural variation 1, two kinds of relations between the verb in the context sentence and the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence are examined. The first is a syntactic relation that can be established between a transitive verb in the context sentence and the NP<sub>2</sub> in the target sentence. In such a case, the reader may create a syntactic argument relation, treating the NP<sub>2</sub> as the direct object of the verb. For example:

- (11) Transitive verb in the context sentence: *tatuyomi-suru* ‘to browse’  
NP<sub>2</sub> in the target sentence: *manga* ‘comics’

The second is a semantic relation that can be established between an intransitive verb in the context sentence and the NP<sub>2</sub> in the target sentence. If the verb, although intransitive, has a thematic object, the reader may understand the target NP<sub>2</sub> as an overt manifestation of the implied theme. For example:

- (12) Intransitive verb in the context sentence: *dokusyo-suru* ‘to read (intransitive)’  
NP<sub>2</sub> in the target sentence: *ren'ai-syousei* ‘a love story’

The context sentences containing either a transitive or an intransitive verb were also presented with and without a locative to examine how a locative affects the syntactic or semantic

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<sup>12</sup> A thematic reading can be assumed for *wa* in the context sentence unless it is pronounced with emphasis.

relation established between these verbs and the NP<sub>2</sub> in the target sentence. When a locative is added to the context sentence, it provides information about a specific place in which the action takes place. Locatives establish a frame about a specific place, and in the tested sentences, frames were chosen in which all the items in the context and target sentences, the topic NP, the verb, NP<sub>1</sub>, and NP<sub>2</sub>, are possible components. For example:

- (13) Transitive verb with a locative in the context sentence:  
*hon'ya de tatiyomi-suru* 'to browse in a bookstore'  
NP<sub>2</sub> in the target sentence: *manga* 'comics'
- (14) Intransitive verb with a locative in the context sentence:  
*tosyokan de dokusyo-suru* 'to read (intransitive) in the library'  
NP<sub>2</sub> in the target sentence: *ren'ai-syousestu* 'a love story'

The examples given in (11) through (14) are collected and summarized in (15) and (16).

The contexts in (15) include a transitive verb, thereby defining a possible syntactic relationship between the context and the target NP<sub>2</sub>. (15b) contains a locative while (15a) does not. In contrast, the contexts in (16) include an intransitive verb with an implicit, i.e. thematic, object, thereby defining a possible semantic relationship between the context and the target NP<sub>2</sub>. (16b) contains a locative while (16a) does not.<sup>13</sup>

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<sup>13</sup> In example (15) (and also in (17) below), the context sentences (which all include transitive verbs) are presented without articulated direct objects. This is to avoid the possible effect of

(15) Syntactic with or without locative

a. Context sentence (with transitive verb):

*Nakamura-san wa tatiyomi-si-ta*  
Nakamura-Mr./Ms. TOP browsed  
'Nakamura browsed.'

Target sentence:

*Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP  
'Kikuti (browsed) comics.'

b. Context sentence (with transitive verb and locative):

*Nakamura-san wa hon'ya de tatiyomi-si-ta*  
Nakamura-Mr./Ms. TOP bookstore in browsed transitive  
'Nakamura browsed in a bookstore.'

Target sentence:

*Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP  
'Kikuti (browsed) comics.'

(16) Semantic with or without locative

a. Context sentence (with intransitive verb):

*Tanaka-san wa dokusyo-si-ta*  
Tanaka-Mr./Ms. TOP read (intransitive)  
'Tanaka read (in the library).'

Target sentence:

*Suzuki-san wa ren'aisyusetu da*  
Suzuki-Mr./Ms. TOP love story COP  
'Suzuki (read) a love story.'

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semantic association between a direct object NP in the context sentence and NP<sub>2</sub> in the target sentence. In order to make such context sentences sound natural even without an explicit direct object, care was taken to use transitive verbs that do not necessarily require an articulated direct object. These are listed in the main text in Table 4-1. In fact, some Japanese verbs are not clear in their transitivity, and Japanese dictionaries often do not define them uniformly. The verbs used in the experiments of this study sound natural with and without a direct object marked. For a detailed discussion of the transitivity of Japanese verbs, see, for example, Kunihiro (1989).

- b. Context sentence (with intransitive verb and locative):

*Tanaka-san wa tosyokan de dokusyo-si-ta*  
Tanaka-Mr./Ms. TOP library in read (intransitive)  
'Tanaka read in the library.'

Target sentence:

*Suzuki-san wa ren'aisyousei da*  
Suzuki-Mr./Ms. TOP love story COP  
'Suzuki (read) a love story.'

In addition to the possible contrasts illustrated in (15) and (16), the understandability and interpretation of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in the sentence pairs in (15) and (16) are compared with examples where the context verbs do not trigger any particular frame effects. Compare (15) and (16) to (17) and (18). While the context verb in (17a) is transitive, it would not normally take the target NP<sub>2</sub> as a direct object. In the sentence pairs with intransitive verbs, the intransitive verbs of the counterpart pairs do not select for an implicit theme as seen in (18a). It is therefore expected that the sentence pairs in (17a) and (18a) will be more difficult to understand or will be evaluated as less grammatical than the pairs in (15a) and (16a). In contrast, the context sentences in (17b) and (18b) include a locative that can be expected to provide a frame consistent with a number of different actions, including those that might be appropriate for the NPs in the target sentence. Thus, a mediating effect by a locative can be expected based on the relation between the target NPs and the frame activated by the locative. This effect should occur in spite of the lack of an appropriate syntactic or thematic relationship between the context verb and the target

NPs. Examples (17) and (18) demonstrate the counterparts of examples (15) and (16)

respectively (with and without syntactic and semantic relations, with and without locatives).

(17) Non-syntactic with or without locative

a. Context sentence (with transitive verb):

*Nakamura-san wa tetudat-ta*  
Nakamura-Mr./Ms. TOP helped (transitive)  
'Nakamura helped.'

Target sentence:

*Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP  
'Kikuti (?) comics.'

b. Context sentence (with transitive verb and locative):

*Nakamura-san wa hon'ya de tetudat-ta*  
Nakamura-Mr./Ms. TOP bookstore in helped (transitive)  
'Nakamura helped in a bookstore.'

Target sentence:

*Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP  
'Kikuti (browsed/ read/ bought etc./ ?) comics.'

(18) Non-semantic with or without locative

a. Context sentence (with intransitive verb):

*Tanaka-san wa suwat-ta*  
Tanaka-Mr./Ms. TOP sat (intransitive)  
'Tanaka sat.'

Target sentence:

*Suzuki-san wa ren'aisyousestu da*  
Suzuki-Mr./Ms. TOP love story COP  
'Suzuki (?) a love story.'

b. Context sentence (with intransitive verb and locative):

*Tanaka-san wa tosyokan de suwat-ta*  
Tanaka-Mr./Ms. TOP library in sat (intransitive)  
'Tanaka sat in the library.'

Target sentence:

*Suzuki-san wa ren'aisyousestu da*

Suzuki-Mr./Ms. TOP love story COP

‘Suzuki (read/ borrowed/ looked for etc./ ?) a love story.’

With respect to the verbs used in the experiment, ten transitive verbs were selected to create ten context sentences for the syntactic condition; each of these context verbs might take the target sentence NP<sub>2</sub> as its direct object. Another ten transitive verbs were selected to make non-syntactic pairs for the same target sentences; although each of these ten context verbs was transitive, none would normally select the target NP<sub>2</sub> as its direct object. The twenty context sentences were then matched with locatives, producing a total of forty context sentences, ten in both the syntactic and non-syntactic conditions, each with and without a locative. The combination of the two different transitive verbs and the presence or absence of a locative created four different context sentences for each target sentence. In other words, each target sentence could be evaluated in four different contextual environments: syntactic, non-syntactic, syntactic with locative, and non-syntactic with locative.

Similarly, ten intransitive verbs were selected to create ten context sentences for the semantic condition. In the semantic condition, each verb, while intransitive, selects for an implicitly realized theme argument. The verbs selected were compatible with the target NP<sub>2</sub> as theme. As with the transitive verbs, a separate set of ten intransitive verbs was selected to create

ten context sentences that were not compatible with the target NP<sub>2</sub> as theme. Again, all twenty sentences were paired with possible locatives. The combination of the two kinds of intransitive verbs and the presence or absence of a locative resulted in forty different context sentences, four for each target sentence. In other words, and as above, each target sentence could be evaluated in four different contextual environments: semantic, non-semantic, semantic with locative, non-semantic with locative.

The target sentences in the syntactic and non-syntactic conditions do not correspond to the target sentences in semantic and non-semantic conditions due to the need to find appropriate locatives. The complete set of transitive verbs and locatives for the syntactic and non-syntactic conditions are listed in Table 4-1. The complete set of intransitive verbs and locatives for the semantic and non-semantic conditions are listed in Table 4-2.

Table 4-1. Transitive verbs and locatives for syntactic/non-syntactic condition and corresponding NP<sub>2</sub>s

Transitive verb 1: Syntactic relation	Transitive verb 2: Non-syntactic relation	NP <sub>2</sub>	Locative
<i>saibai-si-ta</i> (cultivated)	<i>sokutei-si-ta</i> (measured)	<i>tomato</i> (tomato)	<i>hatake</i> (farm)
<i>tatuyomi-si-ta</i> (stood reading)	<i>tetudat-ta</i> (helped)	<i>manga</i> (comic)	<i>hon'ya</i> (bookstore)
<i>ensou-si-ta</i> (played an instrument)	<i>ansyou-si-ta</i> (recited)	<i>baiorin</i> (violin)	<i>houlu</i> (hall)
<i>tyuumon-si-ta</i> (ordered)	<i>benkyou-si-ta</i> (studied)	<i>aisucrimu</i> (ice cream)	<i>syokudou</i> (diner)
<i>utat-ta</i> (sang)	<i>seisan-si-ta</i> (paid)	<i>enka</i> (Japanese ballad)	<i>karaoke-bokkusu</i> (karaoke-box)
<i>kansatu-si-ta</i> (observed)	<i>syuuri-si-ta</i> (repaired)	<i>otamazyakusi</i> (tadpole)	<i>ike</i> (pond)
<i>okawari-si-ta</i> (had another helping)	<i>tyuui-si-ta</i> (warned)	<i>misosiru</i> (miso soup)	<i>syokutaku</i> (table)
<i>souzyuu-si-ta</i> (operated)	<i>kakunin-si-ta</i> (confirmed)	<i>kureen-sya</i> (crane truck)	<i>kouzigenba</i> (construction site)
<i>sityaku-si-ta</i> (tried)	<i>situmon-si-ta</i> (asked a question)	<i>uwagi</i> (jacket)	<i>butikku</i> (boutique)
<i>kougi-si-ta</i> (lectured)	<i>tuuyaku-si-ta</i> (interpreted)	<i>seibutugaku</i> (biology)	<i>daigaku</i> (university)

Table 4-2. Intransitive verbs and locatives for semantic/non-semantic condition and corresponding NP<sub>2</sub>s<sup>14</sup>

Intransitive verb 1: Semantic relation	Intransitive verb 2: Non-semantic relation	NP <sub>2</sub>	Locative
<i>dokusyo-si-ta</i> (read a book)	<i>suwat-ta</i> (sat)	<i>ren'ai-syousestu</i> (love story)	<i>tosyokan</i> (library)
<i>insyu-si-ta</i> (drank alcohol)	<i>zatudan-si-ta</i> (chatted)	<i>biiru</i> (beer)	<i>izakaya</i> (pub)
<i>kaimono-si-ta</i> (did one's shopping)	<i>arukimawat-ta</i> (walked around)	<i>tokei</i> (watch/clock)	<i>depaato</i> (department store)
<i>zyugyou-si-ta</i> (gave a class)	<i>unadui-ta</i> (nodded)	<i>keizaigaku</i> (economics)	<i>kyousitu</i> (classroom)
<i>syokuzi-si-ta</i> (dined)	<i>kyuukei-si-ta</i> (rested)	<i>sandoitti</i> (sandwich)	<i>kissaten</i> (cafe)
<i>kituen-si-ta</i> (smoked)	<i>sinkokyuu-si-ta</i> (took a deep breath)	<i>Mildseven</i> (Mildseven)	<i>beranda</i> (veranda)
<i>amimono-si-ta</i> (knitted)	<i>osyaberi-si-ta</i> (talked)	<i>mafuraa</i> (scalf)	<i>amimono-kyousitu</i> (knitting class)
<i>tyuusya-si-ta</i> (parked)	<i>furikaet-ta</i> (turned around)	<i>sbootu-kaa</i> (sports car)	<i>rozyou</i> (street)
<i>eiga-kansyou-si-ta</i> (watched a movie)	<i>gyouretu-si-ta</i> (waited in line)	<i>Star Wars</i> (Star Wars)	<i>eigakan</i> (movie theater)
<i>suizi-si-ta</i> (cooked)	<i>hatarai-ta</i> (worked)	<i>tempura</i> (tempura)	<i>daidokoro</i> (kitchen)

The last line of Table 4-2, for example, corresponds to the sentences in (19). (19a-d) list the four possible context sentence for the target sentence in (19e). (19a-b) represent the semantic

<sup>14</sup> The intransitive verbs for the context sentences for the semantic condition are all Sino-Japanese intransitive verbs in which the second Chinese character visualizes a theme in some way, such as ‘書’ *syo* (which expresses written materials) in ‘読書する’ *dokusyo-suru* (meaning ‘read’ (intransitive)), in a somewhat different wording from modern Japanese though. In this sense, they all represent a theme although they do not actually license an overt direct object, as in Chierchia (2000)’s discussion. Intransitive verbs for the non-semantic condition do not have such implied themes.

condition with and without a locative while (19c-d) represent the non-semantic condition with and without a locative. In another way of looking at things, (19b and d) both have locatives while (19a and c) do not. The complete set of experimental sentence pairs can be found in Appendices B-1 and B-2.

(19) a. Context sentence: semantic condition without locative:

*Nishimoto-san*      *wa*      *suizi-si-ta*  
Nishimoto-Mr./Ms. TOP cooked (intransitive)  
'Nishimoto cooked.'

b. Context sentence: semantic condition with locative:

*Nishimoto-san*      *wa*      *daidokoro de suizi-si-ta*  
Nishimoto-Mr./Ms. TOP kitchen in cooked (intransitive)  
'Nishimoto cooked in the kitchen.'

c. Context sentence: non-semantic condition without locative:

*Nishimoto-san*      *wa*      *hatarai-ta*  
Nishimoto-Mr./Ms. TOP worked (intransitive)  
'Nishimoto worked.'

d. Context sentence: non-semantic condition with locative

*Nishimoto-san*      *wa*      *daidokoro de hatarai-ta*  
Nishimoto-Mr./Ms. TOP kitchen in worked (intransitive)  
'Nishimoto worked in the kitchen.'

e. Target sentence

*Tomita-san*      *wa*      *tempura da*  
Tomita-Mr./Ms. TOP tempura COP  
'Tomita ( ) tempura.'

To sum up, the experimental materials represent eight possible relationships between a context sentence and a target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence: (i) syntactic, (ii) non-syntactic, (iii) syntactic with locative, (iv) non-syntactic with locative, (v) semantic, (vi) non-semantic, (vii) semantic with locative, and (viii) non-semantic with locative. In the syntactic and non-syntactic cases, the context verb is transitive, but the target NP<sub>2</sub> may or may not be an appropriate direct object. In the semantic and non-semantic cases, the context verb is intransitive; while it does not license an explicit direct object, it does license a theme object in semantic condition, and the target NP<sub>2</sub> may be an appropriate theme object. In the non-semantic condition, the intransitive verb does not implicate a particular theme.

In addition to the sentence pairs for the syntactic/non-syntactic and semantic/non-semantic conditions, the test materials contained 27 filler sentence pairs; the same set of 27 filler pairs was used for all eight test conditions. Since the target sentence of this study, NP<sub>1</sub> *wa* NP<sub>2</sub> *da*, has a distinct and easy to remember structure, the filler pairs were designed to increase the variety of sentence types in order to distract the test subjects from the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. All filler sentence pairs consisted of one context and one target sentence. They vary in the structure of the target sentence, the expected understandability of the target sentence, and the pragmatic style determined by the use of topic *wa*, Nominative Case *ga*, or the style in which neither topic *wa* nor Nominative Case *ga* is used. The structure of the filler target sentences included two

variations: those that have the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* structure (paralleling the experimental sentence pairs) and those that do not. Filler sentence pairs also varied by whether the context and target sentences were related by a syntactic or semantic condition or not related by any obvious condition. About half of all the filler sentence pairs included a non-*wa* form, that is, the Nominative Case marker *ga* or the style in which neither topic *wa* nor Nominative Case *ga* is used, in both the context and target sentences. The complete set of filler sentence pairs and their mean understandability ratings are provided in Appendix B-3. Importantly, there was agreement on the ratings of the various filler sentence pairs, and each filler was consistently judged to be not understandable, understandable, or in between. The filler sentence pairs and the experimental sentence pairs were randomized.

Thus, the experimental materials represent the eight possible relationships between a context sentence and a target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence described above. In what follows these are referred to as: (i) syntactic, (ii) non-syntactic, (iii) syntactic with locative, (iv) non-syntactic with locative, (v) semantic, (vi) non-semantic, (vii) semantic with locative, and (viii) non-semantic with locative. As we will see, each actual test consisted of 37 sentence pairs of which 10 pairs were experimental sentence pairs representing one of the eight conditions and 27 were filler sentence pairs. Each test also included 9 overt and 6 covert practice sentence pairs, which are found in Appendix B-4. Since one participant read only the sentence pairs for one of the eight

conditions, (e.g. ten sentences, all in the syntactic condition), the statistical analyses discussed below were done with a between-subject design.

#### **4.2.2. Two kinds of test: Understandability Test and Interpretation Test**

The main question being addressed in this dissertation is the effect of context on the understanding of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In the previous section, we described eight kinds of possible context sentences, each of which is related to an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in a particular way. These relationships may be syntactic or just thematic in nature. They may also be mediated by a locative expression.

Using these various context and target sentence pairs, two kinds of tests were conducted to examine the effect of the context. The first, the Understandability Test, measured each participant's self-enumerated understandability of a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence when it is presented as what follows a preceding context sentence. The expectation is that the understandability of the target sentence would vary with the context. In the second, the Interpretation Test, participants were simply asked to write down their interpretations of a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence when it is presented as what follows a preceding context sentence. The expectation is that the degree to which participants agreed on the meaning of a sentence would vary with context. The methodology for each test is described here.

### 4.2.3. Introduction to the two tests

Participants in the Understandability Test were asked to judge each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence on a scale of 1 to 5 after reading a corresponding context sentence. The scale was designed to evaluate the understandability of each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in each of four contexts. A score of “1” was defined as まったくわからない, that is translated as ‘I do not understand the sentence at all’ while a score of “5” was defined as とてもよくわかる, ‘I understand the sentence very well’. The Interpretation Test was a paper and pencil test in which participants were asked to write down their actual interpretations of each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence when they were read in each of four contexts. The context and target sentences were the same for both tests. Conducting two different tests with the same testing material makes it possible to observe whether and how the judgment with regards to the understandability of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is attributed to their actual interpretation and vice versa. The goal of this study is to understand the effects of context on the understanding and interpretation of each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence by examining how the understandability and interpretation of each sentence in specifically controlled contexts are interconnected.

When the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is syntactically or semantically connected to the context sentence, it is predicted that its understandability will be rated higher than when it is not connected. When the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is connected to the context sentence by a

locative frame, it is predicted that its understandability will be rated higher in all of the syntactic/non-syntactic and semantic/non-semantic conditions. In particular, it is predicted that a locative frame will have a mediating effect when the target sentence is not otherwise connected to the context sentence, i.e. the locative frame will help the understandability of the target sentence in the absence of a syntactic or semantic connection between the target and context sentences. In addition, it is predicted that when understandability is ranked higher, participants will also tend to agree about what the sentence means, while their interpretations will have more variety when the understandability is ranked lower. In other words, the expectation is that a sentence will be easier to understand when its meaning is obvious. In such cases, participants should agree on that 'obvious' meaning. In contrast, a sentence is more difficult to understand when its meaning is not obvious. In such cases, participants will have to work harder to develop their own interpretation, and there should be less agreement in the resulting interpretations.

#### **4.2.4. Participants**

One hundred and twelve native speakers of Japanese from a range of age groups participated in the Understandability Test of Type I  $NP_1$  *wa*  $NP_2$  *da* sentences. There were two groups of participants. One group consisted of 92 undergraduate and graduate students from four different universities in the Tokyo area. The mean age of this group was 23 (range 18-60). The other group of participants consisted of 20 native speakers of Japanese who were living in New

York at the time of testing. They were studying as graduate students, working full or part time, or living as housewives. The mean age of this group was 30 (range 23-41), and the average length of stay in the US was 11 years (range 0;2-25 years).<sup>15</sup>

A different set of two groups of participants took the Interpretation Test of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. One group consisted of 32 Japanese residents who work full or part time or are housewives. The mean age of the members of this group was 40 (range 39-45). The second group of participants was 40 undergraduate students at a university in the Tokyo area with a mean age of 18;5 (range 18-19). These two groups of people participated in different rounds of the Interpretation Test conducted separately from the Understandability Test. This is explained in detail in the next section. All participants of both the Understandability and Interpretation Tests filled out a language background questionnaire and were told that the experiment was to examine how native speakers of Japanese understand Japanese sentences. The language background questionnaire is found in Appendix C.

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<sup>15</sup> There were no significant differences in the results of the Understandability Test of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences between these two groups of participants. In other words, the differences in the living area, the experiences of using English or Japanese on a daily basis, and English speaking ability did not seem to affect the judgment of the understandability of the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

## 4.2.5. Procedures

### 4.2.5.1. Understandability Test

The task for this test was self-paced and conducted on an individual basis on a single computer. The test was created using Paradigm beta version 4 (written by Bruno Tagliaferri, 2007). Each participant was randomly assigned to pairs of context and target sentences in one of eight conditions: syntactic, non-syntactic, semantic, non-semantic, each with and without a locative. Participants read a total of 52 sentence pairs. These included 15 practice pairs and 37 test pairs. Each test began with 9 overt and 6 covert practice sentence pairs that were not included in the final score. The test itself consisted of 37 randomized sentence pairs that included 10 experimental pairs (from one of the eight conditions) and 27 filler pairs. They were asked to judge the understandability of the target sentence in each sentence pair when it is interpreted as following the context sentence. They ranked this understandability on a scale of 1 to 5. “1” was defined as ‘I do not understand the sentence at all’ (まったくわからない) while “5” was defined as ‘I understand the sentence very well’ (とてもよくわかる).

At the beginning of the Understandability Test, instructions for the test were provided on the computer screen, and they were studied together with the experimenter. A written version of the same instructions was also provided to participants (a copy is found in Appendix D).

Participants then proceeded to an overt practice session with 9 sentence pairs. After confirming

that each participant had no questions and had performed as expected, the testing session began.

Each sentence pair was presented in a series of frames. In the first frame, a context sentence was presented. Participants pressed a space bar to go on to the second frame. In the second frame, the target sentence appeared with the scale of 1 to 5 under the sentence. Point 1 on the scale had the description, ‘do not understand at all’ (まったくわからない), while the point 5, ‘understand very well’ (とてもよくわかる). Participants answered by pressing one of the five keys in the center row of the keyboard of the computer. These keys were especially marked with a sticker that showed the numbers from 1 to 5. As participants made their choice and pressed the appropriate key, the frame on the screen was replaced with an instruction frame which prompted them to press the space bar to go on to the next sentence pair.

The Understandability Test described above was actually the second of two tests given to each participant in the session. The first test was a self-paced Reading Time Test, which consisted of 37 sentence pairs (10 experimental sentence pairs from one of eight syntactic/semantic conditions and 27 filler sentence pairs) with 9 overt and 6 covert practice pairs. All of the sentence pairs, including the practice pairs, seen by a given participant in their two tests differed. In addition, the conditions tested in the two tests, i.e. syntactic, semantic, with a locative, etc., were also different, so each participant was asked to evaluate one condition in the Reading Time Test and a second condition in the Understandability Test. In between the two tests,

participants were asked to complete a questionnaire that asked basic information about their language background. Additionally, participants were told that they could take a short break at any time at the end of each test or after the overt practice sessions of both tests. Both the Reading Time Test and Understandability Test took approximately 15 to 20 minutes each, and the whole session usually lasted from 35 to 45 minutes. Participants in Japan were compensated 1,000 yen at the end of the session. Participants from New York were compensated 10 dollars at the end of the session. The results of the Reading Time Test are not included in the current study since they were inconsistent due to variability between participants.

#### **4.2.5.2. Interpretation Test**

##### **4.2.5.2a. Syntactic/Semantic conditions with/without locative**

8 of the 10 experimental sentence pairs used in the Understandability Test, four each in the syntactic and semantic conditions, were selected to create four counter-balanced sets.<sup>16</sup> Each version of the material included either (i) 2 sentence pairs for all four syntactic conditions (syntactic/non-syntactic with/without a locative) or (ii) 2 sentence pairs for all four semantic conditions (semantic/non-semantic with/without locative). Since the structures of the target and

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<sup>16</sup> Eight sentence pairs from both the syntactic and semantic conditions were selected first by excluding the sentence pairs that included proper nouns in order to assure no confusion for the participants. Then the sentence pairs that had the largest standard deviation in the rating in the Understandability Test were excluded from the Interpretation Test.

context sentences are the same for all test conditions, the test material included a large number of filler sentence pairs to distract the participants' attention from the particular structures of the experimental context and target sentences. 24 of the 27 filler sentence pairs which were incorporated into the test material of the Understandability Test were included as well in the Interpretation Test. Thus, each version of the Interpretation Test included 8 test sentence pairs (2 sentence pairs for either the four syntactic or the four semantic conditions) and 24 filler sentence pairs as schematized below. The test items of all versions were randomized.

(i) Syntactic conditions (4 versions)

- 2 syntactic
- 2 non-syntactic
- 2 syntactic with locative
- 2 non-syntactic with locative
- 24 fillers

(ii) Semantic conditions (4 versions)

- 2 semantic
- 2 non-semantic
- 2 semantic with locative
- 2 non-semantic with locative
- 24 fillers

Materials for the Interpretation Test were distributed individually to the 32 participants described in Section 4.2.4. 16 participants were assigned one version from the syntactic conditions, while another 16 participants were assigned one version from the semantic conditions.

The test was given as a paper and pencil test, and each version of the questionnaire was filled-out by four participants. Written instructions were provided on the first page of the questionnaire. Participants were asked to write down their interpretations of each target sentence when they read it as what follows the preceding context sentence, and as part of the instructions they were given one example of a possible interpretation of a sentence interpreted as following a preceding context sentence. The instructions reminded participants that the test was being used to learn how Japanese native speakers interpret various sentences and that, as such, there was no right or wrong answer. It was also mentioned that participants were not allowed to go back to their answers to previous questions and change them after reading other sentence pairs. This was done in order to avoid generating a dependency on any particular kind of reading strategy for the experimental sentence pairs. Each sentence pair was printed on a separate page of the questionnaire so that participants could not read and compare one sentence pair to another while writing their interpretation of the pair immediately in front of them. The instructions for the Interpretation Test are given in Appendix E.

#### **4.2.5.2b. Sentences with non-semantic relation without context sentence**

This test was conducted as a follow-up test based on the results of the original Interpretation Test of these sentences with context sentences. In this version of the Interpretation Test, participants were asked to interpret Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the four semantic

conditions without any preceding context. This test was taken by the 40 undergraduate students described in Section 4.2.4. Testing followed the same procedure as the Interpretation Test described in Section 4.2.5.2a. However, the follow up test asked for the interpretations of 8 target sentences in the semantic and non-semantic conditions all presented without context sentences. This follow up test did not contain filler sentences.

### **4.3. Results of the sentences of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence (NP<sub>1</sub>≠NP<sub>2</sub>)**

#### **4.3.1. Understandability Test**

The Understandability Test examined the degree to which participants judged a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence to be easy or difficult to understand. Participants judged the understandability on a scale from a low of 1 to a high of 5. Each test sentence was presented following a context sentence. The hypothesis is that information provided in the context sentence would affect the understandability of the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, making it easier or harder to understand. The context sentences varied in how they could be linked to the target sentence. In the syntactic condition, the target NP<sub>2</sub> was a possible direct object of the (transitive) verb found in the context sentence. In the non-syntactic condition, the context verb was still transitive, but the target NP<sub>2</sub> was not a possible direct object of that verb. In the semantic condition, the target NP<sub>2</sub> was a possible thematic object of the (intransitive) verb found in the context sentence. In the non-semantic condition, the (intransitive) context verb did not select for

a thematic object, so the target NP<sub>2</sub> was not a possible thematic object of that verb. All four of these cases were also judged following contexts that included locative expressions. The results of the four syntactic/non-syntactic and semantic/non-semantic conditions without locative will be described first to compare their effects. The focus will be on any difference in understandability linked to a possible syntactic and/or semantic link between the context and target sentences. Then, the results of these four conditions with locative will be presented. The focus will be on any difference in understandability linked to the presence or absence of an overt locative in the context sentence. Finally, all the results of both syntactic and semantic conditions, with and without locative, will be discussed together to see if there are any differences in the strength of the effects.

#### **4.3.1.1. Syntactic relation**

As is discussed in section 4.2.3, it is predicted that the target sentences will be judged to be more understandable when they have a syntactic relation with the context sentence. The particular syntactic relation tested here is that between the NP<sub>2</sub> in the target sentence and the object position of the transitive verb in the context sentence. It is predicted that when the target NP<sub>2</sub> can be interpreted as the direct object of the transitive verb the target sentence will be ranked as more understandable than when this interpretation is not possible. Thus, the understandability rating for the target sentence that has a syntactic relation with the context sentence was compared

with the rating for a target sentence which does not have such a relationship.

Results confirmed the prediction. The mean rating of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the syntactic condition (Mean = 3.06, SD = .62 (subject-based), SD=.46 (item-based)) was higher than the mean rating for the non-syntactic condition (Mean = 1.55, SD = .38(subject-based), SD = .56(item-based)). A t-test revealed that this difference was statistically reliable (t(22) = 7.256, p < .0001; t(9) = 9.218, p < .0001)). When the transitive verb in the context sentence had a syntactic connection with the target NP<sub>2</sub>, that is, when the NP<sub>2</sub> could be interpreted as the direct object of the context verb, the target sentence was significantly more understandable than when the target NP<sub>2</sub> was not syntactically connected to the context transitive verb.

#### **4.3.1.2. Semantic relation**

The semantic relation between the target and the context sentences depends on the thematic relationship between the NP<sub>2</sub> in the target sentence and the intransitive verb in the context sentence. This relationship is considered purely semantic since there is no syntactic connection between the target NP<sub>2</sub> and the verb, which is intransitive. It is predicted that when the intransitive verb in the context sentence can take the NP<sub>2</sub> in the target sentence as its theme, the context and target sentences can be connected semantically, and the understandability of the target sentence will be ranked higher than when the sentences cannot be expected to have a semantic relation.

Results confirmed this prediction, as well. The mean rating of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the semantic condition (Mean = 3.03, SD = .91(subject-based), SD = .35(item-based)) was higher than that for the non-semantic condition (Mean = 1.81, SD = .58(subject-based), SD = .41(item-based)). A t-test revealed that the difference was statistically reliable ( $t(30) = 4.511, p < .0001$ ;  $t(9) = 8.253, p < .0001$ ). When the intransitive verb in the context sentence licensed a semantic connection with the NP<sub>2</sub> in the target sentence, i.e. the target NP<sub>2</sub> was a possible theme of the context verb, the sentence was more understandable than when no such connection was possible, i.e. the target NP<sub>2</sub> was not a possible theme of the context verb.

Results for all of the syntactic/non-syntactic and semantic/non-semantic conditions suggest an effect of a syntactic or a semantic connection between the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and the context via the particular verb in the context sentence. The results convincingly support the hypothesis that readers of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences make use of their syntactic or semantic knowledge as discussed in Chapter 3 in developing an understanding of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in particular contexts.

That being said, one unexpected result is that the mean rating scores on the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the syntactic and semantic conditions were lower than what was expected. In general, they were not judged as ‘very understandable’, and both had a mean score of around 3 on a scale of 1 to 5. This means that developing an understanding of particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da*

sentences by applying the syntactic or semantic knowledge of a context verb was not a particularly easy task for the readers. The existence of a syntactic or semantic connection with the verb in the preceding context sentence may therefore provide partial but by no means complete information for understanding Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The reason for this phenomenon will be examined in Chapter 7 in which all the contextual effects will be compared and discussed.

#### **4.3.1.3. Frame relation by locative**

The understandability ratings of sentences in the syntactic/non-syntactic and semantic/non-semantic conditions, all without a locative (as described above), were compared to sentences in all four conditions with a locative. Adding an overt locative provides the reader with information about the place where the action described in the context sentence takes place. As discussed in Section 4.2.3, it is predicted that the additional information provided by an overt locative will improve the ratings for all four test conditions, that is, for the syntactic and non-syntactic as well as the semantic and non-semantic conditions. Specifically, in the syntactic and semantic conditions, the syntactic or semantic connection between the target and the context sentences should be reinforced by looking at the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence through the frame activated by the locative; all entities expressed by the NPs in both the context and target sentences as well as their actions will be understood as components of the frame. The same

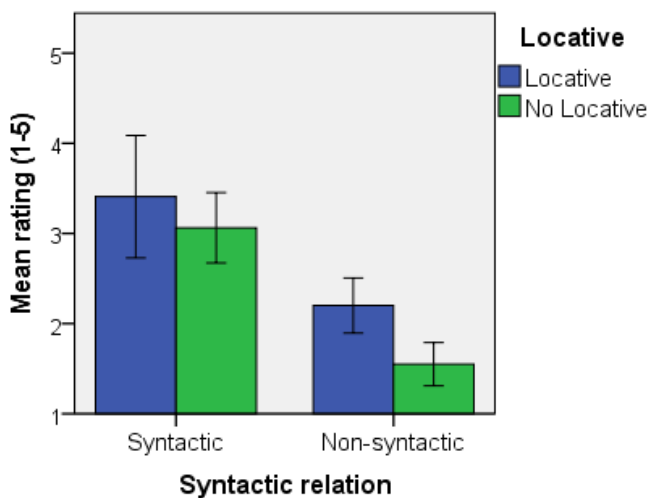
relationship is expected to obtain in the non-syntactic and non-semantic conditions, as well. As a result, an overt locative is predicted to have a mediating effect. Though the verb in the context sentence and the specific object described by the NP<sub>2</sub> in the target sentence lack a syntactic or semantic relation in the non-syntactic and non-semantic conditions, both the action described by the verb and the object by the NP<sub>2</sub> should be understood as components of the particular frame defined by the locative. While there is no syntactic or semantic link between the context verb and the target NP<sub>2</sub>, it is expected that the overt frame will enable the reader to understand the target sentence as one of the actions that can take place in the particular place expressed by the locative in the context sentence.

Results of the syntactic and non-syntactic conditions with and without locative are presented first in 4.3.1.3a. This is followed by a parallel discussion of the results of the semantic and non-semantic conditions with and without locative in 4.3.1.3b. Following this, the understandability rating results for all eight conditions are discussed together in 4.3.1.4.

#### **4.3.1.3a. Frame relation by locative in syntactic conditions**

Figure 1 shows the mean understandability ratings for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the syntactic and non-syntactic conditions with and without locative. In both the syntactic and non-syntactic conditions, the overt locative improved the understandability ratings. Means and standard deviations are provided in Table A-1 and A-2 in Appendix A.

Figure 4-1. Mean understandability ratings of the sentences for syntactic/non-syntactic and with/without locative



Subject-based rating scores on the sentences were submitted to a factorial univariate ANOVA with relation (syntactic, non-syntactic) and locative (presence or absence) as between-subjects factors. Because Levene's test showed that the error variance of the dependent variable was not equal across groups, a one-way Welch test ANOVA was conducted with post-hoc test using Dunnett C procedures. Results of a one-way Welch test ANOVA indicated the significant difference in the rating across conditions ( $F(3, 23.48)=23.098, p<.001$ ). Results of post-hoc tests using Dunnett C showed that the sentences with a syntactic relation, whether with or without locative, were rated higher than the sentences in the non-syntactic conditions with or without locative. There was no significant difference between syntactic and syntactic with a locative. In the non-syntactic conditions, however, the sentences with a locative were rated significantly higher than those without locative.

For analyzing item-based rating scores, a repeated measures ANOVA was performed. Results indicated a significant effect for both syntactic relation ( $F(1,9) = 70.406$ , Partial Eta Squared = .887,  $p < .001$ ) and locative ( $F(1,9) = 20.855$ , Partial Eta Squared = .699,  $p = .001$ ). There was also a significant effect for the interaction ( $F(1,9) = 5.843$ , Partial Eta Squared = .394,  $p = .039$ ). The interaction effect was not exactly what was expected since the locative was expected to improve the ratings in both the syntactic and non-syntactic conditions. It was therefore predicted that there would still be a difference between the syntactic and non-syntactic conditions even when the locative was added. A t-test that compared the mean rating scores of the sentences with syntactic relation without locative and sentences with a non-syntactic relation but with a locative indicates that there was a significant difference between the ratings of these sentences ( $t(9) = -4.039$ ,  $p = .003$ ). This result means that the locative significantly improved the ratings on both the syntactic and non-syntactic sentences, but the effect was not strong enough that it changed the basic syntactic versus non-syntactic relationship.

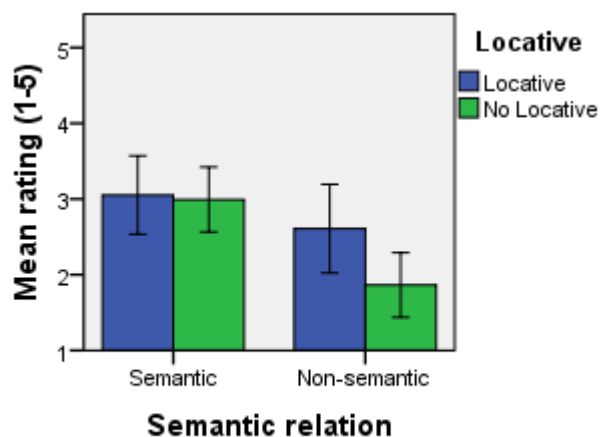
These results demonstrate the strength of the effect of the syntactic/non-syntactic relation and the function of a locative in understanding Type I  $NP_1$  *wa*  $NP_2$  *da* sentences when they have or do not have a syntactic relation with the context sentence. In these contexts, the syntactic/non-syntactic relation affected the understanding of  $NP_1$  *wa*  $NP_2$  *da* sentences. In particular, the  $NP_1$  *wa*  $NP_2$  *da* sentences with a syntactic relation with the context sentence were

significantly more understandable than the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences without such a relation. The locative affected these ratings and made the difference in understandability of the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with syntactically related and non-syntactically related context sentences smaller, but the effect was not strong enough to override the effect of the absence of a syntactic relation. Target sentences syntactically unrelated to their context sentence were always rated significantly lower than sentences with a syntactic relation to their context, whether or not the context sentence included a locative.

#### **4.3.1.3b. Frame relation by locative in semantic conditions**

Figure 2 below demonstrates the mean ratings of the understandability of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the semantic and non-semantic conditions with and without a locative. As is the case between syntactic/non-syntactic conditions based on the result of the one-way Welch test ANOVA, the locative improved the mean rating only for the sentences in the non-semantic condition. Means and standard deviations are provided in Table A-3 and A-4 in Appendix A.

Figure 4-2. Mean understandability ratings for semantic/non-semantic and with/without locative



A factorial univariate ANOVA with relation (semantic, non-semantic) and locative (presence or absence) as between-subjects factors was conducted for the subject-based rating scores. A repeated measure ANOVA was conducted for analyzing the item-based rating scores. Results of both analyses indicated significant effects of semantic relation ( $F(1,60)=19.049$ , Partial Eta Squared =.241,  $p<.0001$ ) ( $F(1,9) = 72.605$ , Partial Eta Squared =.890,  $p<.001$ ) and locative ( $F(1,60)= 4.486$ , Partial Eta Squared =.070,  $p=.038$ ) ( $F(1,9)= 30.405$ , Partial Eta Squared =.772,  $p<.001$ ). The interaction between semantic relation and locative was marginal in the subject-based analysis ( $F(1,60)=3.585$ , Partial Eta Squared =.056,  $p=.063$ ) but significant in the item-based analysis ( $F(1,9) = 14.497$ , Partial Eta Squared =.617,  $p=.004$ ). These results suggest the stronger mediating effect of a locative on the understandability of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-semantic condition when compared to the syntactic and non-syntactic

conditions.

Two kinds of analyses were conducted to examine the degree of the effect of the locative on understanding NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the semantic and non-semantic conditions. The first was a Tukey HSD post-hoc test of multiple comparisons based on subject-based analysis; this indicated a mediating effect of the locative on the non-semantic condition. Specifically, sentences with a non-semantic relation without locative were rated significantly lower than all three of the other conditions: non-semantic with locative ( $p=.03$ ), semantic ( $p=.0002$ ), and semantic with locative ( $p<.0001$ ). There were no other significant pairwise comparisons between conditions. This means that when a locative was added to a context sentence in the non-semantic condition, the understandability of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence improved and showed no significant differences from the semantic or even from the semantic with locative conditions.

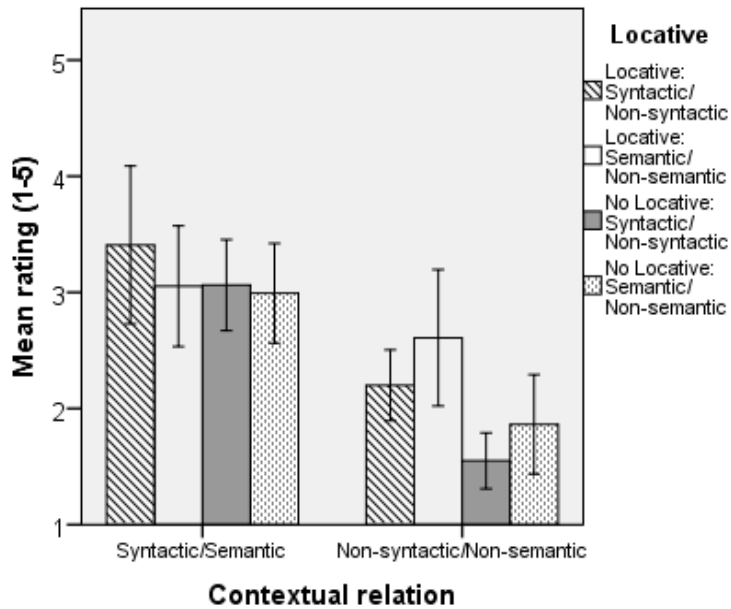
However, a t-test which compared the rating scores of sentences with a semantic relation without a locative and sentences with a non-semantic relation but with a locative indicated that there was a significant difference between the ratings of these sentences ( $t(9)= 4.638$ ,  $p=.001$ ), and that the sentences with a semantic relation but without a locative were rated significantly higher than the ones without a semantic relation but with locative. This result means that even if a locative is added to a sentence with a non-semantic relation, it does not increase its understandability rating as high as the rating of a sentence with a semantic relation (with or

without locative). This result is not consistent with the result of the Tukey HSD post-hoc procedure on the subject-based analysis. That analysis indicated the stronger effect of locative when added to sentences without a semantic relation, but the result of the t-test seems more reliable. The item analysis has more power because of the within design for items. In either case, the locative has an effect when it is added to an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence with a non-semantic relation context sentence. The locative improved the ratings which became very close to the ratings for sentences with semantic relations. On the other hand, a locative does not affect the rating when it is added to a sentence with a semantic relation; the ratings on sentences with both a semantic relation and a locative did not significantly differ from such sentences without a locative.

#### **4.3.1.4. Comparison of syntactic and semantic relations with/without locative**

This section discusses the effects of all eight conditions created by the combination of syntactic/non-syntactic or semantic/non-semantic, with/without a locative to examine the hierarchy of these effects on the understandability of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Figure 4-3 below illustrates the mean ratings of the target sentences for all eight conditions.

Figure 4-3. Mean understandability ratings of sentences for syntactic/non-syntactic and semantic/non-semantic, with/without locative



Since the experimental items for the syntactic/non-syntactic and semantic/non-semantic conditions consist of completely different sets, two separate analyses of factorial two-way ANOVAs were conducted instead of collapsing the scores of the different conditions based on different experimental items. One analysis focused on the differences in rating among the syntactic and semantic relations, with and without locative. The mean ratings of sentences with syntactic and semantic relations, with and without locative, were submitted to a factorial univariate ANOVA with the effect of syntactic vs. semantic relation and the presence or absence of a locative as between subject factors. Results are presented in Section 4.3.1.4a. They will allow us to decide if there is a hierarchy among the syntactic and semantic conditions. A second

analysis examined the differences in rating among the non-syntactic and non-semantic relations, with and without locative. This analysis will allow us to decide if there is a significant difference in the effect of locative when it is added to sentences with no syntactic or no semantic relation. Again, the effect of non-syntactic vs. non-semantic and the presence or absence of a locative are the between-subject factors of a factorial univariate ANOVA. Results are given in Section 4.3.1.4a-b and discussed in Section 4.3.1.5.

#### **4.3.1.4a. Syntactic/Semantic relations with/without locative**

Results of a factorial univariate ANOVA showed no significant differences in both main effects of syntactic vs. semantic relations and of locative. This means that if the target sentence has either a syntactic or semantic relation with the context sentence, the rating is not significantly different whether the relevant relation is syntactic or semantic and whether a locative is added or not.

#### **4.3.1.4b. Non-Syntactic/Non-Semantic relations with/without locative**

Results of factorial univariate ANOVA revealed a significant effect of the locative in the non-syntactic and non-semantic conditions ( $F(1,52)= 18.374$ , Partial Eta Squared =.261,  $p<.0001$ ) ( $F(1,36)=17.381$ , Partial Eta Squared =.326,  $p<.0001$ ). The effect of non-syntactic vs. non-semantic was not significant. The interaction effect between non-syntactic/non-semantic relations and locative was also not significant.

Post-hoc tests using Tukey HSD indicated that sentences in the non-semantic relation with locative were rated significantly higher than the sentences in the non-syntactic relation without locative ( $p = .0003$  (F1),  $p = .0009$  (F2)) and the non-semantic relation without locative ( $p = .0042$  (F1),  $p = .0172$  (F2)). Sentences in the non-syntactic relation with locative were rated significantly higher than sentences in the non-syntactic relation without locative only in the item-based analysis ( $p = .0603$  (F1),  $p = .0426$  (F2)). There was no significant difference between the ratings of sentences in the non-semantic condition with locative and sentences in the non-syntactic condition with locative. There was also no significant difference between the ratings of sentences in the non-syntactic condition with locative and sentences in the non-semantic condition but without locative.

#### **4.3.1.5. Conclusion**

The overall results indicate that when the target sentence has either a syntactic or a semantic relation with the context sentence, the understandability of the sentence is significantly greater compared to the ratings of sentences in the non-syntactic and non-semantic conditions, and whether it is syntactic or semantic does not make a significant difference. In addition, sentences that have a syntactic or semantic relation with the context sentence were always rated significantly higher than the sentences that have no such relation whether or not the sentence has a locative. On the other hand, sentences with no syntactic relation without locative or no

semantic relation without locative received the lowest rating, and there was no significant difference whether or not the relation was non-syntactic or non-semantic. These results show the strength of the effect of a syntactic or semantic relation with the context sentence when compared to the effect of a locative alone in understanding Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

When the context sentence in the non-syntactic or non-semantic condition included a locative, the rating of the target sentence improves. When comparing all non-syntactic and non-semantic conditions with or without locative, the target sentence in the non-semantic condition with a locative was rated significantly higher than sentences in the non-syntactic and non-semantic conditions without locative. The locative has a marginal effect for the non-syntactic condition, and sentences in the non-syntactic condition with locative were rated significantly higher than sentences in the non-syntactic condition without locative only in the item-based analysis. In addition, sentences in the non-syntactic condition with locative were not rated significantly higher than sentences in the non-semantic condition without locative.

Although the ratings of the sentences in the non-semantic condition with locative and non-syntactic condition with locative do not significantly differ from each other, the results of post-hoc tests indicate that a locative was more helpful when it was added to a context sentence with a non-semantic relation than with a non-syntactic relation. The issue of the degree of locative effect on sentences in the non-semantic conditions will be reexamined through an

analysis of the results of an interpretation test.

### 4.3.2. Interpretation Test

In the interpretation tests, participants were asked to give their interpretations of the various NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in each context. The test was a self-paced paper and pencil test so that the participants were given enough time to think about the meaning of each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in its experimental context. The nature of the Interpretation Test was different from what was asked in the Understandability Test in that the latter examined the participants' instant judgment on the understandability of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (although the Understandability Test was also self-paced). It is believed that the results of both these tests can help illustrate the deductive process used to understand NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

A specific purpose of the Interpretation Test is to examine the causes of the differences observed in the understandability ratings and to see whether any of those differences can be attributed to the actual interpretations of the sentences. Specifically, as described in section 4.3.1, the degree of the effect of locative was not consistent in the non-syntactic and the non-semantic conditions. Examining the interpretations of these sentences might enable us to further investigate the relationship among these factors.

As was mentioned in Section 4.2.5.2, two separate rounds of the interpretation test were conducted. The first round asked the interpretation of the target sentences in each of the four

syntactic conditions and each of the four semantic conditions. Results are presented in Sections 4.3.2.1 and 4.3.2.2. The second round was conducted as a follow-up to the first round to elucidate the effects of particular factors, and this will be discussed in Section 4.3.2.3.

As explained in Section 4.2.5.2, in the first round of the interpretation test, each experimental NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence paired with a single context was given an interpretation by four different participants. This resulted in a total of 32 interpretations, with four interpretations for each of eight target sentences in each contextual condition. These interpretations were categorized into six categories according to the participants' approaches to understanding their meanings as follows. First, the interpretations were roughly divided into two groups by whether or not the interpretations were created by adding a particular verb and using that verb to impose a thematic relationship between the two NPs, NP<sub>1</sub> and NP<sub>2</sub>. If the interpretation included this kind of thematic structuring, it was further divided into two categories by the source of the verb. If the interpretation included the verb in the context sentence, the interpretation was categorized as 'Context verb'. If the interpretation included a verb which was not the one in the context sentence, it was categorized into the category 'Other verb'.<sup>17</sup> This resulted in the categorization of similar interpretations created by adopting the same verb into different categories according to

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<sup>17</sup> The number of verbs in this 'Other verb' interpretation category was no more than two for all the experimental items of both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for all conditions.

whether or not the verb actually appears in the context sentence. For example, an interpretation, ‘Koike sang a Japanese ballad’ is categorized into the category ‘Context verb’ if the context sentence includes the verb ‘to sing’, but the same interpretation is categorized into the category ‘Other verb’ if the context sentence does not have this verb.

Interpretations that were not based on an assumed verb had several different characteristics, but they all involved a sentence-internal conceptual link between NP<sub>1</sub> and NP<sub>2</sub>. In some cases, the relationship between NP<sub>1</sub> and NP<sub>2</sub> was created metaphorically by attributing a property of the NP<sub>2</sub> to the NP<sub>1</sub> or by creating an inalienable relation between the two NPs. This category of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence interpretation was named ‘Metaphorical/Inalienable’. A fourth kind of interpretation was made by assuming that the NP<sub>2</sub> expresses a preference of the person referred to by NP<sub>1</sub>. This category was named ‘Preference’; sentences in this category had the meaning, ‘the person referred to by NP<sub>1</sub> likes the item expressed by NP<sub>2</sub>’. The remaining interpretations were all idiosyncratic, and no consistent characteristics could be discovered. These interpretations were named ‘No consistency’. Finally, there were responses that the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence was ‘Not understandable’. Thus, all responses were categorized into one of six interpretative categories as listed below.<sup>18</sup>

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<sup>18</sup> The categorization of the responses in the interpretation test was confirmed by three Japanese native speakers.

Interpretation categories observed in the responses of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences

1. Context verb
2. Other verb syntactically/semantically connected to NP<sub>2</sub>
3. Metaphorical/ Inalienable
4. Preference
5. No consistency
6. Not understandable

#### **4.3.2.1. Interpretations of the sentences that have syntactic relations**

Table 4-3 demonstrates the total frequencies of the interpretative categories that were observed in the interpretations of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the syntactic conditions. There are 32 interpretations for each of the four contextual conditions: syntactic/non-syntactic relation, with and without locative. The overall tendency shows a clear distinction between the interpretations of the target sentences in the syntactic conditions, with/without a locative, as compared to the non-syntactic conditions, with/without a locative. The interpretations in the syntactic conditions were more likely to adopt the verb from the context sentence, and the presence of an overt locative in the context sentence strengthened this tendency since there were no other categories of interpretation applied in this condition (except for the five responses that claimed ‘Not understandable’). Although the locative did not have a significant effect on the understandability of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with a syntactic relation (as revealed in the Understandability Test), the interpretations of sentences in the syntactic with locative condition

demonstrated more consistency than sentences in the syntactic without locative condition. On the other hand, interpretations of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-syntactic condition, with or without a locative, seemed much less consistent. The interpretations of these examples were more frequently categorized as ‘No consistency’ and ‘Not understandable’. In addition, the frequency of interpretations in which a verb was used, that is, the categories of ‘Context verb’ and ‘Other verb’, were lower than in either syntactic conditions (although the lower frequency of the ‘Context verb’ category is not unreasonable considering the absence of a syntactic relationship between the context and the target sentences).

Table 4-3. The frequency of the interpretations of the sentences in each syntactic condition according to category

Interpretative category	Syntactic	Syntactic Locative	Non-Syntactic	Non-Syntactic Locative
Context Verb	20 (63%)	27 (84%)	3 (9%)	2 (6%)
Other Verb	1 (3%)	0 (0%)	4 (13%)	14 (44%)
Metaphorical/ Inalienable	2 (6%)	0 (0%)	0 (0%)	0 (0%)
Preference	0 (0%)	0 (0%)	0 (0%)	0 (0%)
No consistency	2 (6%)	0 (0%)	9 (28%)	5 (16%)
Not understandable	7 (22%)	5 (16%)	16 (50%)	11 (34%)
Total	32 (100%)	32 (100%)	32 (100%)	32 (100%)

Though these frequencies show the overall differences in the interpretative categories used in interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for each condition, they do not demonstrate the degree to which each participant employed different interpretative strategies according to the different conditions. In other words, there is the possibility that a given participant did or did not use a particular interpretative category across all or most of the conditions. A specific analysis targeting this question is necessary to examine if there was a real preference in interpretative category according to the contextual condition.

In order to examine this question, McNemar's tests were conducted. This test assesses the difference between two correlated proportions based on the same sample of participants. In order to analyze the results of the Interpretation tests, McNemar's tests were used to evaluate the differences in the participants' uses of one interpretation category between two different conditions. As explained in Section 4.2.5.2, each participant read two sentence pairs of each condition. Therefore, the statistical tests comparing conditions are based on these participants' interpretations of the two sentences that they read for each condition. For example, to compare the proportions of 'Context verb' interpretations in the syntactic and non-syntactic conditions, the number of participants who had at least one 'Context verb' interpretation in the syntactic condition but no 'Context verb' interpretations in the non-syntactic condition is tallied and compared to the number of participants who showed the opposite pattern, i.e., no 'Context verb'

interpretations in the syntactic condition and at least one ‘Context verb’ interpretation in the non-syntactic condition. (Note that some participants may have ‘Context verb’ interpretations in both conditions or in neither condition. These participants are not informative with respect to differences between the conditions.) Here are some hypothetical data to illustrate how the comparison is made. The numbers in the cells are numbers of participants. Eight participants had a ‘Context verb’ interpretation in the non-syntactic condition. No participants showed the opposite pattern. These two counts are used to form a ratio of 8:0, and this is used to compute a probability that the outcome was a chance deviation from an even split. In this case, the probability that it is due to chance is  $p=.008$ . This statistical test is known as McNemar’s Test of Correlated Proportions.

	‘Context verb’ in Non-syntactic	No ‘Context verb’ in Non-syntactic
‘Context verb’ in Syntactic	3	8
No ‘Context verb’ in Syntactic	0	5

When applying McNemar’s tests, the categories ‘No consistency’ and ‘Not understandable’ were combined due to the small frequencies. The tests were applied to all possible comparisons of any two conditions in the use of a particular interpretative category, which amounted to comparisons of 15 pairs in total. These were all pairwise comparisons that remained after

excluding the cells with zero counts.

One significant difference was seen in the uses of 'Context verb' between syntactic with/without locative and non-syntactic with/without locative conditions (syntactic vs. non-syntactic (Odds =8:0,  $p = .008$ ), syntactic vs. non-syntactic with locative (Odds =12:0,  $p = .004$ ), syntactic with locative vs. non-syntactic (Odds =11:0,  $p <.001$ ), and syntactic with locative vs. non-syntactic with locative (Odds =9:0,  $p <.001$ )). This means that when the target sentence has a syntactic relation with the context sentence, participants were more likely to use the verb in the context sentence to make a syntactic connection to the NP<sub>2</sub> in the target sentence. On the other hand, when the target sentence does not have a syntactic relation with the context sentence, participants tended to come up with a verb which is not included in the context sentence but can still be syntactically connected to the NP<sub>2</sub> in the target sentence. This was observed in the significant difference in the uses of 'Other verb' between the syntactic vs. non-syntactic cases with locative (Odds =0:10,  $p =.001$ ).<sup>19</sup> The locative in the context sentence appears to enhance the possibility of this kind of interpretation since there was a marginal difference in the use of 'Other verb' in the non-syntactic and non-syntactic with locative

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<sup>19</sup> The uses of 'Other verb' between syntactic vs. non-syntactic without locative were not significantly different; this is surely due in part to the small number of frequencies in responses for both conditions.

conditions (Odds =2:9, p=.065).<sup>20</sup> Typical examples of the interpretations of ‘Context verb’ and ‘Other verb’ for sentences with the syntactic and non-syntactic with locative conditions, respectively, are shown below as examples (20) and (21).

(20) ‘Context verb’ for the syntactic condition

Context sentence: *Hosoda-san wa utat-ta*  
Hosoda-Mr./Ms. TOP sang  
‘Hosoda sang.’

Target sentence: *Koike-san wa enka da*  
Koike-Mr./Ms. TOP Japanese ballad COP

Interpretation: ‘Koike sang a Japanese ballad.’

(21) ‘Other verb’ for the non-syntactic condition with locative

Context sentence: *Hosoda-san wa karaoke de seisan-si-ta*  
Hosoda-Mr./Ms. TOP karaoke at evened up accounts  
‘Hosoda evened up accounts at a karaoke-box.’

Target sentence: *Koike-san wa enka da*  
Koike-Mr./Ms. TOP Japanese ballad COP

Interpretation: ‘At *karaoke*, Koike sang a Japanese ballad.’<sup>21</sup>

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<sup>20</sup> The marginal difference observed in the uses of ‘Other verb’ between the non-syntactic and non-syntactic with locative conditions in the two-tail test would be significant if a one-tail test was applied (p = .03). Results in the understandability test indicated that the locative had an effect of improving the understandability rating when it was added to a context sentence without a syntactic relation. The slight increase of the use of other verb for the non-syntactic with locative condition seems to be consistent with the result of understandability test. It can be said that locative led the participants to a more consistent way of interpreting the target sentence by adopting a verb.

<sup>21</sup> As explained at the beginning of Section 4.3.2, the same interpretation, ‘Koike sang a Japanese ballad’, in (20) and (21) are categorized into different interpretative categories: ‘Context verb’ for the interpretation in (20) and ‘Other verb’ for (21). This is due to the difference of the verb that appears in each context sentence.

As discussed, these differences in the uses of ‘Context verb’ and ‘Other verb’ between the syntactic and non-syntactic conditions are not unexpected since the interpretations can be attributed to the availability of the syntactically connected verb in the context sentence. What should be noted, however, is the consistent use of a particular verb for interpreting the target sentence in both the syntactic and non-syntactic conditions, whether the verb was transferred from the preceding context sentence or not, and that the transitive verb in the context sentence can function to help participants evoke a verb to connect the two NPs in the target sentence. This way of interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences by establishing a syntactic and thematic connection between the two NPs with an additional verb matches one of the interpretation strategies used in interpreting English noun-noun compounds as discussed in Chapter 3.

A second significant difference was observed in the uses of ‘No consistency/ Not understandable’ between the syntactic with/without locative and non-syntactic with/without locative conditions. When the target sentence does not have a syntactic relation with the context sentence, more participants tended to end up with an idiosyncratic or inconsistent interpretation or to claim “Not understandable” than when they read sentences with a syntactic relation to the context sentence. Moreover, the presence of an overt locative in the context sentence with a non-syntactic relation did not make a difference (syntactic vs. non-syntactic (Odds =0:9, p =.004),

syntactic vs. non-syntactic with locative (Odds =0:7,  $p = .016$ ), syntactic with locative vs. non-syntactic (Odds =0:13,  $p < .0002$ ), syntactic with locative vs. non-syntactic with locative (Odds =0:9,  $p = .004$ ). No significant differences were observed in the proportion of 'No consistency/Not understandable' between the syntactic vs. syntactic with locative conditions or between the non-syntactic vs. non-syntactic with locative conditions, either.

In summary, the results of the Interpretation Test are generally consistent with the results of the Understandability Test. When a target  $NP_1$  *wa*  $NP_2$  *da* sentence has a syntactic relation with the context sentence, the sentence is more understandable and is interpreted by making use of the syntactic connection between the verb in the context sentence and the  $NP_2$ . When a target  $NP_1$  *wa*  $NP_2$  *da* sentence does not have a syntactic relation with the context sentence, the sentence is regarded as less understandable on both the Understandability and the Interpretation Tests. An overt locative added to the context sentence of an  $NP_1$  *wa*  $NP_2$  *da* sentence without a syntactic relation improved the understandability rating and tended to encourage the use of a particular verb in interpreting the target sentence.

#### **4.3.2.2. Interpretations of the sentences that have semantic relations**

Table 4-4 illustrates the frequencies of the interpretative categories applied when interpreting  $NP_1$  *wa*  $NP_2$  *da* sentences in the four semantic conditions. The overall tendency is that a greater variety of interpretative categories was used in all four conditions when compared

to the frequencies of the interpretative categories observed in the syntactic conditions (shown in Table 4-3).

One difference from the frequencies in the syntactic conditions is in the application of the context verb in the non-semantic conditions. Unlike the interpretations in the non-syntactic conditions, there were no interpretations made by adopting a contextually provided intransitive verb which is not semantically (and syntactically) connected to the NP<sub>2</sub> in the target sentence. This is probably due to the semantic nature of the intransitive verbs included in the context sentences for the non-semantic with and without locative conditions. These verbs did not contain an implicit theme as shown in Table 4-2 in section 4.2.1. Nevertheless, the interpretations of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-semantic conditions with/without a locative are more frequently categorized into 'Other verb' than other interpretative categories. Overall, it can be said that the tendency of adopting a verb, from the context sentence or from another source, to interpret the target sentence, which was observed in the interpretations of the sentences in all syntactic/non-syntactic conditions, was also seen in the interpretations of the sentences in all semantic/non-semantic conditions. Using a verb to connect the two NPs and making a thematic relation of the whole construction can be said as a typical interpretation strategy when this type of construction is generated in a context.

Table 4-4. The frequency of the interpretations of the sentences for semantic conditions according to each category

Interpretative category	Semantic	Semantic Locative	Non-Semantic	Non-Semantic Locative
Context Verb	19 (59%)	23 (72%)	0 (0%)	0 (0%)
Other Verb	3 (9%)	0 (0%)	15 (47%)	23 (72%)
Metaphorical/ Inalienable	1 (3%)	2 (6%)	2 (6%)	1 (3%)
Preference	1 (3%)	0 (0%)	1 (3%)	2 (6%)
No consistency	2 (6%)	2 (6%)	6 (19%)	2 (6%)
Not understandable	6 (19%)	5 (16%)	8 (25%)	4 (13%)
Total	32 (100%)	32 (100%)	32 (100%)	32 (100%)

As was done with the syntactic and non-syntactic conditions, McNemar's tests were applied to compare all possible response pairs in the four semantic conditions. The 'Preference' and 'Metaphorical/Inalienable' categories and the 'No consistency' and 'Not understandable' categories, respectively, were combined due to the small number of responses. McNemar's tests compared sixteen pairs in total after excluding the cells with zero counts, and each comparison examined the uses of one interpretation category. As the overall frequencies in Table 4-4 describe, the interpretations of the sentences in all of the semantic and non-semantic conditions varied widely. There was no significant difference in the uses of 'Context verb' between the semantic and semantic with locative conditions, and the uses of the combined category of

‘Preference/Metaphorical/Inalienable’ did not significantly differ across any conditions.

Significant differences were observed only in the uses of the interpretative categories of ‘No consistency/Not understandable’ and of ‘Other verb’.

In the usage of the combined category of ‘No consistency/Not understandable’, marginal differences were observed if one-tail tests were applied between the semantic and non-semantic conditions (Odds =1:6,  $p=.0625$ ) and between semantic with locative and non-semantic conditions (Odds =1:6,  $p=.0625$ ). Applying a one-tail test can be assumed as reasonable since it was predicted that the interpretations of sentence without a semantic relation would be more difficult and therefore have more inconsistent or less understandable interpretations than the interpretation of sentences with a semantic relation. There was a significant difference in the uses of this category between the non-semantic and non-semantic with locative conditions (Odds =1:8,  $p=.04$ ). That is, readers tended to claim fewer interpretations of ‘No consistency/Not understandable’ when they read the sentences with a non-semantic relation with locative than the sentences with a non-semantic relation without locative. Moreover, the proportion of participants who used this interpretative category at least once for non-semantic with locative was statistically identical to the proportion of participants who used it for sentences with a semantic relation, with or without locative. These results show the effect of the locative in the uses of the ‘No consistency/Not understandable’ interpretation. When a locative is added to the context

sentence that lacks a semantic relation to the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da*, it helps decrease the number of participants who claimed ‘No consistency/Not understandable’ at least once for the sentences for this condition. These results may mean that the difficulty of interpreting a target sentence that lacks a semantic relation with its context sentence can be overridden by adding a locative to the context sentence. More generally, it can also be said that the effect of a semantic relation in influencing the specifics of the interpretation is not as strong as the effect of a syntactic relation. The differences between the semantic and non-semantic conditions in the ratio of the participants who used ‘No consistency/Not understandable’ at least once were marginal, while the differences between the syntactic and non-syntactic conditions were significant, as discussed in the previous section.

In the uses of the interpretative category ‘Other verb’, significant differences were observed between the semantic and non-semantic conditions (Odds =1:10,  $p = .011$ ) and between the semantic and non-semantic with locative conditions (Odds =1:12,  $p = .003$ ). When the target sentence was not semantically connected to the context sentence, readers were more likely to adopt a verb which was not included in the context sentence to interpret the target sentence. Examples (22), (23), and (24) below show the uses of ‘Other verb’ in the sentences for semantic, non-semantic, and non-semantic with locative conditions respectively.

(22) ‘Other verb’ for semantic condition

Context sentence: *Sasaki-san wa tyuusya-si-ta*  
Sasaki-Mr./Ms. TOP parked (intransitive)  
‘Sasaki parked (his/her car).’

Target sentence: *Nisino-san wa spootu-kaa da*  
Nisino-Mr./Ms. TOP sports car COP

Interpretation: ‘While Sasaki was parking his car, he saw Nisino driving his sports car.’

(23) ‘Other verb’ for non-semantic condition

Context sentence: *Mori-san wa osyaberi-si-ta*  
Mori-Mr./Ms. TOP talked (intransitive)  
‘Mori had a chat.’

Target sentence: *Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP

Interpretation: ‘While Mori was talking, Kagawa took off (his/her) scarf.’

(24) ‘Other verb’ for non-semantic with locative condition

Context sentence: *Asada-san wa depaato de arukimawat-ta*  
Asada-Mr./Ms. TOP department store in walked around  
‘Asada was walking around in a department store.’

Target sentence: *Katoo-san wa tokei da*  
Katoo-Mr./Ms. TOP watch COP

Interpretation: ‘While Asada was walking around in a department store, Katoo was looking for a watch to buy there.’<sup>22</sup>

There was no significant difference in the uses of ‘Other verb’ between the non-semantic and non-semantic with locative conditions, although the frequency counts of this interpretative

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<sup>22</sup> As shown in the interpretations (22), (23), and (24), some interpretations that used the interpretative category of ‘Other verb’ included the reference to the topic NP of the context sentence. It can be said that this is one way of creating a bridging assumption with the context sentence which facilitates the connection between the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and the context, especially when there was no syntactic or semantic relation between the transitive or intransitive verb of the context sentence and the NP<sub>2</sub> in the target sentence.

category for these conditions in Table 4.4 seems to demonstrate at least some degree of difference. This means that this interpretative category was used for both the non-semantic and non-semantic with locative conditions by most participants, and in fact, eleven out of sixteen participants gave at least one response employing this interpretation category for both of these conditions. This result differed from the proportion of the use of ‘Other verb’ between the non-syntactic and non-syntactic with locative conditions, which had a marginally significant difference as discussed in Section 4.3.2.1. A locative in the context sentence without a syntactic relation seemed to have the effect of eliciting a particular verb to interpret the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. However, this does not seem the case for the locative in the non-semantic condition.

This result in the uses of ‘Other verb’ in the non-semantic and non-semantic with locative conditions shows that participants used a verb to interpret the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence even when the preceding context sentence included neither a locative nor a verb that had a semantic connection with the NP<sub>2</sub>. The question is how they determine the verb based on the (semantically underdetermined) context found in the non-semantic without locative condition. It may be that information in the context sentence, e.g. the semantically unrelated intransitive verb, works as a stimulus to elicit a verb that can connect the two NPs in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. Another possibility is that the relationship between the two NPs in the target sentence itself somehow has an effect of eliciting a verb that connects them. In order to examine these

possibilities, a follow-up interpretation test was conducted.

#### **4.3.2.3. Interpretations of the sentences with no context**

This interpretation test asked for the interpretations of the same set of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences used in all semantic conditions. In this condition, the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were presented alone without any preceding context sentence to examine if the target sentence itself rather than any information given in the context evokes a specific interpretation of the sentence. If participants reading the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence without context still consistently arrive at an interpretation by adding a particular verb, we can conclude that the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence itself evokes that particular verb. A second kind of experimental item in this follow-up study had the structure of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence but with an overt locative as well. This item was added in order to examine the effect, if any, of the locative exclusively, independent of any other information that might be provided by a context sentence. The conditions and examples of the experimental items in this follow-up interpretation test are summarized below.

#### **Conditions and materials**

Condition 1: No context

The target sentences used in all the semantic conditions were presented with no context sentence.

The target sentences have the structure of NP<sub>1</sub> *wa* NP<sub>2</sub> *da*.

Example: *Tanaka-san wa ren'ai-syousei da*  
Tanaka-Mr./Ms. TOP a love story COP

Condition 2: No context with locative

The locatives included in the context sentences used in all the semantic conditions were added to the target sentences. The sentences have the structure NP<sub>1</sub> *wa* locative *de* (at/in) NP<sub>2</sub> *da*.

Example: *Tanaka-san wa tosyokan de ren'ai-syousei da*  
Tanaka-Mr./Ms. TOP library in a love story COP

These tests were conducted using the same procedure as the interpretation test for the syntactic and semantic conditions as explained in Section 4.2.5.2. Forty undergraduate students participated in the tests as mentioned in Section 4.2.2. The test materials were constructed from the same eight experimental items used in the interpretation tests for the various semantic conditions. Filler sentences were not included because the purpose of this follow-up test was to study the possibility of particular interpretations of these particular sentences. A group of twenty participants read all eight sentences in the no context condition, and another group of twenty read all eight sentences in the no context with locative condition. The instructions and the test materials for this follow-up interpretation test can be found in Appendices F and G.

The interpretations of the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for these two conditions showed the same variety of interpretations as sentences in the syntactic and semantic conditions except for the lack of the category 'Context verb' due to the lack of a context sentence. Table 4-5

describes the frequency of each interpretative category used to interpret the sentences in the two conditions. The frequencies of the interpretative categories used for the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-semantic and non-semantic with locative conditions, as discussed in the previous section, are also presented for comparison.

Table 4-5. The frequency of the interpretations of the sentences for no context and non-semantic conditions according to each category

Interpretative category	No Context	No Context Locative	Non-Semantic	Non-Semantic Locative
Context Verb	NA	NA	0 (0%)	0 (0%)
Other Verb	11 (7%)	142 (89%)	15 (47%)	23 (72%)
Metaphorical/ Inalienable	85 (53%)	5 (3%)	2 (6%)	1 (3%)
Preference	19 (12%)	3 (2%)	1 (3%)	2 (6%)
No consistency	17 (11%)	1 (1%)	6 (19%)	2 (6%)
Not understandable	28 (18%)	9 (6%)	8 (25%)	4 (13%)
Total	160 (100%)	160 (100%)	32 (100%)	32 (100%)

The frequencies of the interpretation categories in Table 4-5 show that the interpretations of the sentences in the no context condition have a different pattern of frequencies from the other three conditions. Interpretations in the no context condition varied from the ‘Metaphorical/Inalienable’ interpretation (the highest frequency interpretation) to the ‘Other verb’

interpretation (the lowest frequency interpretation). The uses of ‘No consistency’ and ‘Not understandable’ also showed relatively high frequencies in the no context condition. On the other hand, the interpretation categories observed in the no context with locative condition seem to pattern with the non-semantic with locative condition. In both of these conditions, the interpretative category ‘Other verb’ was the most frequent, while the other categories were relatively infrequent. Interpretations of sentences in the non-semantic (without locative) condition seem to come in between since the uses of both ‘Other verb’ and the combined uses of ‘No consistency’/ ‘Not understandable’ had high frequencies.

Since the interpretations of the sentences in the no context and no context with locative conditions, on the one hand, and the interpretations of the sentences in the other two non-semantic conditions, on the other, were collected from different groups of participants, and since the same participant gave responses to both of the latter two non-semantic conditions, a series of Fisher Exact tests were conducted separately to examine the differences in the frequency of any two conditions in the use of each interpretative category. Specifically, the tests compared the ratios of the number of participants who had at least one interpretation of each category to the number of participants who had no interpretation of the same category.<sup>23</sup>

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<sup>23</sup> The same comparison was conducted in terms of the number of items for the item-based analysis, but no significant differences were observed in the comparisons of any two conditions.

Results of the Fisher Exact tests illustrated the difference between the no context condition and the no context with locative condition in the pattern of all interpretative categories employed for these two conditions. In the interpretations for the no context condition, there were significantly fewer participants who gave at least one 'Other verb' interpretation ( $p < .0001$ ). On the other hand, there were significantly more participants who gave the interpretations based on the other three interpretative categories: 'Preference' ( $p = .002$ ), 'Metaphorical' ( $p < .0001$ ), and 'No consistency/Not understandable' ( $p = .0001$ ). As for the interpretative categories of 'Preference' and 'Metaphorical', there were no significant differences between the no context with locative and non-semantic, and between the no context with locative and non-semantic with locative. These results reflect the low frequency in the use of 'Other verb' and high frequencies in the uses of 'Preference', 'Metaphorical/Inalienable', and 'No consistency/Not understandable' in the interpretations of the sentences for no context condition without locative. In other words, sentences in the no context condition were interpreted with a greater variety of interpretative categories compared to the other three conditions. Examples (25), (26), (27), and (28), respectively, show the uses of 'Preference', 'Metaphorical', 'Inalienable', and 'Other verb' for sentences in the no context condition.

(25) ‘Preference’ for no context condition

Target sentence: *Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP

Interpretation: ‘Kagawa likes a scarf very much.’

(26) ‘Metaphorical’ for no context condition

Target sentence: *Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP

Interpretation: ‘Kagawa is a warm-hearted person like a scarf.’

(27) ‘Inalienable’ for no context condition

Target sentence: *Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP

Interpretation: ‘Kagawa always wears a scarf.’

(28) ‘Other verb’ for no context condition

Target sentence: *Katou-san wa tokei da*  
Katou-Mr./Ms. TOP watch COP

Interpretation: ‘Katou selected a watch.’

In contrast, sentences in the conditions of no context with locative, non-semantic, and non-semantic with locative received significantly more uses of the ‘Other verb’ category compared to sentences in the simple no context condition. As the discussion in the previous section showed, there was no significant difference between non-semantic and non-semantic with locative. In order to examine the hierarchy in the proportion of ‘Other verb’ among these

three conditions (no context with locative, non-semantic, and non-semantic with locative), Fisher Exact tests were conducted for multiple pairwise comparisons. Though there were no significant differences in the proportion of the use of 'Other verb' between no context with locative and non-semantic with locative nor between non-semantic and non-semantic with locative (based on the McNemar Test as discussed in the previous section), a greater number of participants claimed no use of 'Other verb' for sentences in the non-semantic condition when compared to the no context with locative condition in the subject-based analysis ( $p = .012$ ). This suggests the less frequent uses of 'Other verb' by participants when they read the sentences in the non-semantic condition without locative when compared to the other two conditions, both of which included a locative.

Another significant difference across the three conditions of no context with locative, non-semantic, and non-semantic with locative was found in the proportion of the usage of the combined category of 'No consistency/Not understandable'. As shown in the previous section, there was a significant difference between non-semantic and non-semantic with locative (Odds = 1:8,  $p = .04$ ). Results of Fisher Exact tests indicated that though there were no significant differences between no context with locative and non-semantic with locative, there was a significant difference between no context with locative and non-semantic, and larger proportion tended to claim use of 'No consistency/Not understandable' for the sentences in non-semantic

when compared to the no context with locative condition ( $p = .017$ ). These results mean that the frequency pattern in the interpretative category for the non-semantic condition differed from the other two conditions of no context with locative and non-semantic with locative in terms of the frequencies of the interpretative categories of ‘Other verb’ and ‘No consistency/Not understandable’.

In summary, it is the overt locative not the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence itself that had the effect of eliciting a particular verb for interpreting the target sentence when it is not semantically (and therefore syntactically) connected to the context sentence or when it is presented without context. An overt locative increased the number of interpretations using a semantically and syntactically appropriate verb which functions to connect the NP<sub>1</sub> and the NP<sub>2</sub> in the target sentence, and as a result the interpretations for the locative without context conditions ended up being much more consistent than the interpretations of sentences presented without a context and without a locative. In addition, the interpretations for the no context with locative condition had a pattern similar to the interpretations of the non-semantic with locative condition in terms of the frequencies of interpretation categories when compared to the interpretations of the non-semantic without locative condition. These results mean that an overt locative itself, whether or not it is presented with a context sentence, has an effect of eliciting a particular verb and thereby generating fewer inconsistent/Not understandable interpretations. It seems reasonable to

conclude that indicating a particular place via an overt locative lets the participants focus on the events that can take place at that location, which facilitates the interpretations with particular verbs. This can be attributed to the participants' knowledge of a particular frame activated by the locative. Even in the case of no context with locative, the relation between the two NPs, a specific person referred to by the NP<sub>1</sub> and a specific object by the NP<sub>2</sub>, and the particular place referred to by the locative, a potential frame seems to become more salient. This helps elicit an interpretation that reflects possible actions in the frame. Examples (29), (30), and (31) illustrate uses of 'Other verb' in the interpretations of sentences in the no context with locative condition. All express a common event that can occur in the place activated by the frame of locative (again, consider the discussion of Fillmore in Section 3.2.1.3.)

(29) 'Other verb' for no context condition with locative

Target sentence: *Ikeda-san wa izakaya de biiru da*  
Ikeda-Mr./Ms. TOP Japanese pub in beer COP

Interpretation: 'Ikeda ordered/drank a beer in the Japanese pub.'

(30) 'Other verb' for no context condition with locative

Target sentence: *Sirai-san wa kyousitu de keizaigaku da*  
Sirai-Mr./Ms. TOP classroom in economics COP

Interpretation: 'Sirai studied economics in the classroom.'

(31) ‘Other verb’ for no context condition with locative

Target sentence: *Tomita-san wa daidokoro de tempura da*  
Tomita-Mr./Ms. TOP kitchen in tempura COP

Interpretation: ‘Tomita made/deep-fried tempura in the kitchen.’

When an overt locative was not available, a preceding context with an intransitive verb also had a significant effect of encouraging specific interpretations based on a particular adopted verb or of reducing the number of inconsistent/Not understandable interpretations. The interpretations for the non-semantic condition differed significantly from the interpretations in the no context condition in terms of these interpretation categories. Even if the intransitive verb used in the context sentence does not semantically connect to the NP<sub>2</sub> in the target sentence, the context sentence can work to elicit a verb to connect the two NPs in the target sentence. It can be said that the verb in the context sentence let the participants focus on one verb which enables a search for another verb to apply to the NPs in the target sentence. This can be attributed to an effect of discourse coherence between the context and the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as discussed by Kehler (2004) and reviewed in Section 4.2.1. The target sentence is interpreted so that it has a ‘parallel relation’ with the context sentence. This ‘parallel relation’ with the context sentence may be enabled by the nature of the intransitive verb in the context sentence. The intransitive verb included in a context sentence in the non-semantic conditions does not select for

implicit themes and therefore not implicate a particular frame. It can be said that the relation with the context sentence in the non-semantic condition which has this kind of intransitive verb is more likely to lead the readers to evoke a different kind of event expressed by the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as what follows the event expressed by the context sentence.

#### **4.3.3. Effects on understanding and interpreting Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences:**

##### **Relationship of the results of Understandability Test and of Interpretation Test**

In the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, the effects of two kinds of relations between the target and the context sentences and the effect of a locative frame were examined in the Understandability and Interpretation Tests. In all of these conditions, it was found that syntactic and semantic relations as well as the presence of locatives had significant effects on understanding and interpreting the target sentence, although the strength and nature of each effect varied. This section will focus on the nature of each effect by examining the differences of each effect on the understanding and interpretation of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. In particular, the following two questions will be discussed by reviewing the results of two tests:

1. What are the differences between syntactic and semantic relations?
2. What is the relationship between a locative and syntactic or semantic relations?

The findings of the Understandability and Interpretation Tests for all the syntactic and

semantic conditions of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences suggest the relative strength of the syntactic relation when compared to the semantic relation. A syntactic relation between the target and context sentences was established between a transitive verb in the context sentence and the NP<sub>2</sub> in the target sentences. This relationship had a strong effect on both the understanding and the interpretation of a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, and there was a clear distinction between the syntactic vs. non-syntactic conditions. In the Understandability Test, discussed in Section 4.3.1.1, the difference between the understandability of sentences in the syntactic and non-syntactic conditions was significant. This result was reflected in the interpretations of the sentences. In the Interpretation Test described in Section 4.3.2.1, a difference between the syntactic and non-syntactic conditions was observed in the frequencies of the interpretation category ‘No consistency/Not understandable’; that is, in the absence of a syntactic relation between the target and context sentences, more participants claimed ‘No consistency/Not understandable’. Moreover, the frequencies of the use of the context verb in the Interpretation Test was lower in the non-syntactic condition than in the syntactic condition, and the number of participants who used the interpretation category ‘Context verb’ at least once for the non-syntactic condition was significantly lower than for the syntactic condition. This is presumably because the NP<sub>2</sub> in the target sentence had no obvious relation with the transitive verb in the context sentence for the non-syntactic condition. It would therefore be difficult to

apply this verb to fill the unexpressed element in Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and to connect the two NPs. These Interpretation Test results explain why the understandability of sentences in the non-syntactic condition was rated significantly lower than the understandability of sentences in the syntactic condition.

A semantic relation between the target and context sentences established between an intransitive verb in the context and the NP<sub>2</sub> in the target sentence also demonstrated a significant effect on the understanding of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as shown in Section 4.3.1.2. In the Interpretation Test, however, the difference between the semantic and non-semantic conditions was less obvious. As demonstrated in Section 4.3.2.2, the difference between the semantic and non-semantic conditions in the usage of the interpretation category ‘No consistency/Not understandable’ was not significant in a two-tail test and was marginal if a one-tail test was applied.

These findings indicate the relative strength of the syntactic relation when compared to the semantic relation on the understandability and interpretability of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. This can be attributed to differences in the nature of the connection established by a syntactic versus a semantic relation. A syntactic relation requires a connection in both the grammar and in the semantic meaning between sentences while a semantic relation does not entail a grammatical connection. Thus, the syntactic relation establishes a strong and inflexible

connection which is not subject to contextual interpretation and which therefore enables a clear interpretation of the sentences. In contrast, when a syntactic relation is not available, the relation between the context and the target sentences must be generated in spite of semantic inconsistency, as in the case of a non-semantic relation, but also in spite of the syntactic inconsistency in the relationship between the context and the target sentences. This inconsistency affected both the understanding and the interpretation of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, so that sentences in the non-syntactic condition were much less understandable and more difficult to interpret than sentences in the non-semantic condition.<sup>24</sup>

The different nature of the syntactic and semantic conditions affected how locatives worked in each condition. Locatives affected neither the understandability nor the interpretation of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences when they were added to sentences that had a syntactic or semantic relation, but they did affect both understandability and interpretation when they were added to sentences in the non-syntactic or non-semantic conditions. How and to what degree

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<sup>24</sup> Another possible factor that makes the sentences in non-syntactic relation less understandable and less interpretable can be a syntactic priming effect by the context sentence. As Bock (1986) and other researchers in psycholinguistics claim, people tend to make use of the syntactic structures that they have produced or comprehended before in language production. It is possible that this kind of cognitive process may have worked in understanding or interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. After reading the context sentence with a transitive verb, the readers might have been primed to look for a direct object in the target sentence. When this cognitive mechanism did not work in the non-syntactic condition in which the NP<sub>2</sub> in the target sentence cannot be the direct object of the transitive verb in the context sentence, it could have been more difficult to understand or interpret the target sentence.

locatives had an effect differed according to the two conditions. In the Understandability Test, locatives improved the mean ratings when they were added to sentences in both the non-syntactic and non-semantic conditions, but they improved the mean rating of sentences in the non-syntactic condition less, as shown in 4.3.1.4.b. In the Interpretation Test, locatives did not change the ratio of participants who claimed that the sentences were ‘not consistent / not understandable’ at least once even when they were added to the sentences in the non-syntactic condition while they changed the ratio significantly when they were added to sentences in the non-semantic condition. This means that the number of participants who claimed that the sentences were ‘not consistent / not understandable’ at least once was significantly less when they read sentences in the non-semantic relation with and without an additional locative. In short, locatives could not compensate for the grammatical violation generated in the non-syntactic context, while they were able to compensate for the semantic inconsistency in sentences in the non-semantic condition.

Turning to sentences in the ‘Other verb’ category, the locative’s effect of eliciting ‘Other verb’ when interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences was not so obvious in either the non-syntactic and non-semantic conditions. Still, locatives showed a marginally significant effect of eliciting the use of ‘Other verb’ when they were added to sentences in the non-syntactic condition as shown in Section 4.3.2.1. However, the interpretations of sentences in the non-semantic and

non-semantic with locative conditions did not significantly differ in the uses of ‘Other verb’ as shown in 4.3.2.2. This difference in the usage of ‘Other verb’ between the non-syntactic/non-syntactic with locative conditions and non-semantic/non-semantic with locative conditions was caused by the difference in the ratio of the number of participants who used this interpretation category for both the non-syntactic and non-syntactic with locative conditions compared to the number of the participants who used it for both the non-semantic and non-semantic with locative conditions. For the non-syntactic and non-syntactic with locative conditions, only two participants out of 16 gave the interpretation of ‘Other verb’ for both of these conditions while eleven out of 16 participants used this interpretation category for both the non-semantic and non-semantic with locative conditions. This suggests that a transitive verb which does not have a syntactic relation with the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence was not strong enough to elicit an appropriate verb to adapt it to the target sentence, while an intransitive verb with a non-semantic relation was. This was confirmed by the follow-up interpretation test described in Section 4.3.2.3, which examined the interpretations of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences used for non-semantic conditions in two other conditions, no context and no context with locative. The results of these four conditions showed that ‘Other verb’ was the most frequently employed interpretation category used for interpreting sentences in the non-semantic, non-semantic with locative, and no context with locative conditions. This result suggests that a

particular intransitive verb in the context sentence, even if it does not have a semantic (or syntactic) relation with the NP<sub>2</sub> in the target sentence, as well as an overt locative, whether it is found in the target or context sentence, had the effect of eliciting a particular verb which was able to connect the NP<sub>1</sub> and NP<sub>2</sub> when interpreting a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence.

All of these findings on understanding and interpreting Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences indicate that the nature of the syntactic/non-syntactic relation created by a transitive verb is different from the nature of the semantic/non-semantic relation created by an intransitive verb and a locative. A grammatical connection defined by a syntactic relation establishes a strong and inflexible connection between the context and target sentences. When the grammatical connection is absent, adding or applying other syntactic or semantic connections by adapting a verb or a frame, for example, did little to make such sentences understandable or interpretable. On the other hand, a relation between the context and target sentences based on the semantic meaning or frame allows readers to interpret the sentences by adding extra components, including a new verb. This is probably because such additional components do not cause grammatical violations. Rather, an unusual combination of components may generate a degree of semantic inconsistency, but this is more easily tolerated.

## CHAPTER 5

### UNDERSTANDING AND INTERPRETING

#### TYPE II NP<sub>1</sub> WA NP<sub>2</sub> DA SENTENCE IN DIFFERENT CONTEXTS

##### 5.1. Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences (NP<sub>1</sub>= NP<sub>2</sub>)

In Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences, the two NPs are usually interpreted as referring to a semantically identical referent. The sentence is self-contained and does not generally need a particular context to be understood. An example of a Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentence is found in (1) as repeated from example (2) in Chapter 1. It is naturally interpreted as an identity sentence and expresses the meaning ‘Tanuma is a lawyer.’

(1) *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP

However, given the actual range of possible interpretations for an NP<sub>1</sub> wa NP<sub>2</sub> da sentence, even this context-independent interpretation can be changed according to the preceding context sentence. If a Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentence is put into a context that hinders the identity interpretation, that interpretation may be much less accessible. With the right context, it may even no longer be available. A possible context that may hinder the identity interpretation of a Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentence is one that presents facts that contradict the implication of

identity between NP<sub>1</sub> and NP<sub>2</sub>. Likewise, a context that emphasizes the non-identical references of NP<sub>1</sub> and NP<sub>2</sub> will interfere with the identity interpretation. The purpose of this chapter's series of experiments on Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is to examine the possibility of a non-identity interpretation in different contexts to clarify how context affects the interpretation of a sentence of this type. It is believed that the examination of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences will shed light on the study of language in relation to context. The next section discusses more details on the experimental materials for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

## **5.2. Methodology: Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (NP<sub>1</sub> = NP<sub>2</sub>)**

### **5.2.1. Materials**

The Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* target sentence has the same overall structure as the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The difference between the two types is in the relation between the two NPs and their referents. The two NPs in a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence may refer to a semantically identical referent in which the NP<sub>1</sub> refers to a specific person, and the NP<sub>2</sub> expresses his/her occupation. Thus, the sentence describes a specific person by his/her occupation. It is self-contained and usually interpreted as an identity sentence as in example (1) above.

The purpose of the series of experiment on this Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is to examine the possibility of a non-identity interpretation of this Type of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence

in different contexts. Two possibilities of eliciting non-identity interpretations of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were examined. One is a contextual situation that contradicts the implication that NP<sub>1</sub> and NP<sub>2</sub> have a semantically identical referent. In this context, a preceding context sentence explains how the person referred to by the NP<sub>1</sub> is not engaged in the occupation referred to by the NP<sub>2</sub>. Example (2) is a sentence pair in which the context sentence expresses a situation that contradicts the identity interpretation available for the target sentence in (1).

(2) Contradictory

Context sentence: *Tanuma-san wa bengosi sikaku o hakudatu-sareta*  
 Tanuma-Mr./Ms.TOP lawyer license ACC was canceled  
 ‘Tanuma has had his license as a lawyer canceled.’

Target sentence: *Tanuma-san wa bengosi da*  
 Tanuma-Mr./Ms. TOP lawyer COP  
 ‘Tanuma is a lawyer.’

The context sentences for the contradictory condition were created so that they unambiguously express situations that contradict the identity meanings of the target sentences. Since the nature of the contradictory situation for each target sentence varies, the context sentences do not have a unified structure, but their relationship with the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, being contradictory, is semantically consistent.

The other kind of contextual situation that may hinder the identity interpretation of a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is the same kind of context as what we referred to as the syntactic condition in the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The syntactic condition examined the

effect of a possible syntactic relation between the context and the target sentences. The assumption was that the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence has an unexpressed element, i.e. a verb and that the sentence is understandable if this unexpressed element is recovered from the syntactic structure of the context sentence. Specifically, a syntactic or non-syntactic relation between a particular transitive verb in the context sentence and the NP<sub>2</sub> in the target sentence was the focus, and the significant effect of the syntactic relation in both the Understandability and Interpretation Tests was observed in the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, as discussed in Sections 4.2 and 4.3. Given the effect of a syntactic relation on Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, it can be predicted that the same kind of inferential process might apply to the understanding and interpretation of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences if the sentences are read in particular contexts that allow the readers to assume that the sentences have an unexpressed element, as in Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

Three kinds of conditions were created to examine the possibility of interpreting Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as non-identity sentences. In these conditions, the context sentences all have a transitive verb and a direct object, and they describe a specific action taken by a specific person. The transitive verb may also take the NP<sub>2</sub> in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as its direct object, so the context enables a syntactically parallel relationship between the target and the context sentences if the context transitive verb is transferred to the target sentence. One of the

three conditions was made only with this context sentence as in example (3). This condition is called ‘ellipsis’ since the target sentence may be regarded as containing an ellipsis of the verb in the context sentence.

(3) Ellipsis

Context sentence: *Isiyama-san wa kaikeisi o sagasite-iru*  
Isiyama-Mr./Ms. TOP accountant ACC looking for  
‘Isiyama is looking for an accountant.’

Target sentence: *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP  
‘Tanuma (is looking for?) a lawyer.’

Two variations of this kind of context are illustrated in (4) and (5). In these contexts, the possibility of a non-identity interpretation of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences based on the syntactically parallel relationship is exaggerated by presenting two preceding context sentences. In the condition illustrated in (4), the two preceding context sentences have the same structure as the context sentence in the ellipsis condition, and they express two different persons’ specific actions with the same transitive verb and different direct objects (of the same semantic type). This is called double-ellipsis, and it is expected that two context sentences describing the same action might enable the participants to focus on the event and read the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence from this perspective. The third condition, in (5), also includes a context sentence as in the ellipsis and double-ellipsis conditions. This sentence expresses one person’s specific action.

Preceding this sentence, however, is an additional statement about an action taken by two agents. This first sentence provides a frame which explains what is going on in the overall situation, that is, what activities the two agents are engaged in. The second context sentence, which has the same structure as the context sentences in the ellipsis and double-ellipsis conditions, describes the specific action of one of the two agents. The target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is then a statement about the other agent. It is expected that it will be read as consistent with the frame activated in the first context sentence which describes an action by this agent. A further important contextual clue given by these context sentences is the semantic relation between the quantifier noun *dareka* ‘someone’ in the first context sentence and the NP<sub>2</sub> in the target sentence. The second context sentence, which includes both a transitive verb and a direct object NP, indicates how the NP<sub>2</sub> in the target sentence can also be interpreted as a member of the set represented by the quantifier noun. This condition is called double-bridge because the frame presented by the first context sentence makes a bridging assumption that connects the target sentence to the context by designating how the target sentence should be interpreted.

#### (4) Double-ellipsis

Context sentence 1: *Hatayama-san wa zeirisi o sagasite-iru*  
 Hatayama-Mr./Ms. TOP tax accountant ACC looking for  
 ‘Hatayama is looking for a tax accountant.’

Context sentence 2: *Isiyama-san wa kaikeisi o sagasite-iru*  
 Isiyama-Mr./Ms. TOP accountant ACC looking for  
 ‘Isiyama is looking for an accountant.’

Target sentence: *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP  
'Tanuma (is looking for?) a lawyer.'

(5) Double-bridge

Context sentence 1: *Isiyama-san to Tanuma-san wa dareka o sagasite-iru*  
Isiyama-Mr./Ms. and Tanuma-Mr./Ms. TOP someone ACC looking for  
'Isiyama and Tanuma are looking for someone.'

Context sentence 2: *Isiyama-san wa kaikeisi o sagasite-iru*  
Isiyama-Mr./Ms. TOP accountant ACC looking for  
'Isiyama is looking for an accountant.'

Target sentence: *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP  
'Tanuma (is looking for?) a lawyer.'

In all three of these conditions, a syntactic and semantic relation between the context and the target sentences can be assumed based on the relationship between the transitive verb in the context and the NP<sub>2</sub> in the target sentence. Moreover, the context sentences in these conditions all have an overt direct object, so the semantic association between the direct object and the NP<sub>2</sub> will further encourage a non-identity interpretation since readers may expect the same semantic interpretation for the NP<sub>2</sub> as a direct object of the elided transitive verb in Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. In addition to this syntactic/semantic relationship, the double-bridge condition contains information about a particular situational frame which designates how the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is supposed to be interpreted. Thus, this condition is considered to be the strongest one for eliciting non-identity interpretations of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

In addition to these four contexts that may elicit non-identity interpretations, Type II NP<sub>1</sub>

*wa* NP<sub>2</sub> *da* sentences were also presented without any preceding context sentences as a control.

This is called the identity condition.

Thus, the following five conditions are examined in the study of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. All experimental sentences and the sentence pairs of the target and context sentences for the five conditions are provided in Appendix H.

#### Conditions for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences

1. Identity condition (no context)
2. Contradictory condition
3. Ellipsis condition
4. Double-ellipsis condition
5. Double-bridge condition

The test materials for this study of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence contain 36 fillers.

There are three sets of fillers: fillers that consist of a single target sentence, fillers that consist of a preceding context sentence and a target sentence, and fillers that consist of two preceding context sentences and a target sentence. These are used for the experimental sentences in the identity condition, in the contradictory and ellipsis conditions, and in the double-ellipsis and double-bridge conditions, respectively. As with the fillers used in the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, the fillers here vary in the expected understandability of the target sentences, and in the style established by the use of topic *wa* or nominative case marker *ga*. The filler

context sentences for this study of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences also include structural variation with negative sentences, sentences in the *te-iru* form, as well as sentences that end with a past form, to create counterparts of the experimental context sentences with these structures.

All filler sentences are presented in Appendix I.

### **5.2.2. Two kinds of test: Understandability Test and Interpretation Test**

As in the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, two kinds of tests, a self-enumerated Understandability judgment Test on a scale of 1 to 5 and a paper and pencil Interpretation Test, were conducted to examine the understandability and interpretation of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. It is predicted that a sentence in the identity condition is rated highest in the Understandability Test when it is presented with no context; in the “no-context” context, it is predicted that participants will consistently have an identity interpretation. When a Type II sentence is presented in the contradictory, ellipsis, double-ellipsis, or double-bridge conditions, it is predicted that the understandability ratings will be lower than that for the identity condition; moreover, it is predicted that the interpretations will vary. It is also predicted that a Type II target sentence in both the double-ellipsis and double-bridge conditions is more likely to be interpreted as a non-identity sentence and thus to be more understandable than sentences in the contradictory and ellipsis conditions.

### 5.2.3. Participants

Fifty native speakers of Japanese participated in the Understandability Test. They were either undergraduate or graduate students from one of two universities in the Tokyo area, or they were professionals. The mean age of this group was 28 (range 18-56). For the Interpretation Test, 194 undergraduates at a university in the Tokyo area with a mean age of 18;7 (range 18-19) participated. All participants filled out the language background questionnaire used in the study of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. All participants were told that the experiment was to examine how native speakers of Japanese understand Japanese sentences, as in the experiments on Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

### 5.2.4. Procedure

#### 5.2.4.1. Understandability Test

The procedure for the Understandability Test for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences was the same as for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The self-paced task was given on an individual basis on a computer, and the test was run using Paradigm beta version 4. Each participant was randomly assigned to one of 5 conditions and asked to judge the understandability of 46 randomized test items that consisted of 10 experimental items and 36 fillers. 9 overt and 6 covert practice items that included each context type were also created, and included at the beginning of the test (as seen in Appendices B-4 and J). The test took approximately 20 to 25 minutes.

Participants indicated their understandability judgment of the target sentence on a scale of 1 to 5 in which 1 represented まったくわからない ‘do not understand at all’ and 5 とてもよくわかる ‘understand very well’. The target sentence and the scale appeared in the first frame for the identity condition, in the second frame for the contradictory and ellipsis conditions (after reading the context sentence in the first frame), and in the third frame for the double-ellipsis and double-bridge conditions (after reading the two context sentences in the first and second frames).

#### **5.2.4.2. Interpretation Test**

For the Interpretation Test of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, creating counter-balanced versions of the test material to ask the interpretations of the sentences for all conditions was not considered appropriate. Instead, each participant gave their interpretation to only one test item for one of the 5 conditions without any filler items. Due to the extreme parallels found in the context sentences for three of the conditions, i.e. one context sentence was identical in the ellipsis, double-ellipsis, and double-bridge conditions; it was assumed that it would be impossible for participants to give interpretations for one condition without being distracted by the other two. Though the test will not tell how and whether a single participant might interpret the sentences differently according to the context, collecting responses by asking each participant to interpret only one item avoids the more serious problem of each response being influenced by other responses.

The test was distributed individually to 194 participants, which resulted in a total of 194 responses for all conditions. The same ten experimental items for each condition created for the Understandability Test was used for the Interpretation Test. Each experimental item, covering all five conditions, was evaluated either three or four times. Participants were provided with the same written instructions distributed for the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* Interpretation Test, and they were given an example of a possible interpretation of an example sentence or group of sentences. They were asked to write down their interpretation for each target sentence on a separate page (as shown in Appendix K).

### **5.3. Results of the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (NP<sub>1</sub> = NP<sub>2</sub>)**

#### **5.3.1. Understandability Test**

A Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is a self-contained sentence which can be understood perfectly without context. The aim of the Understandability Test of these sentences is to examine if the understandability of this sentence type can be affected by context. In the next section, the mean rating of the understandability of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences presented without context is compared to the understandability of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences presented with a single context sentence in both the contradictory and ellipsis conditions. Following, the mean ratings of the Understandability of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in all five conditions are presented to understand the overall effect of context on this type of target sentence. Finally, the

mean ratings of the three ellipsis conditions, i.e. ellipsis, double-ellipsis, and double-bridge, are examined to compare the effects of single and double context sentences, as these might all elicit a non-identity interpretation of the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

#### **5.3.1.1. Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences without context/with a single context sentence**

In Section 5.2.2, it is predicted that the understandability of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences will be rated highest when such sentences are presented without any context and that the ratings will be lowered when they are presented in a context that can elicit a non-identity interpretation. The results confirmed this prediction, and the understandability of the sentences in the identity condition (without context) were rated highest (Mean = 4.99, SD = .03 (subject-based), SD = .03 (item-based)). When the same sentences were read after a context that contradicts the identity relationship between the NP<sub>1</sub> and NP<sub>2</sub> in the target sentence, the mean rating was greatly lowered (Mean = 1.5, SD = .41 (subject-based), SD = .54 (item-based)). The understandability in the ellipsis condition, which may elicit a syntactically parallel understanding by making use of the syntactic relation between the transitive verb in the context and the NP<sub>2</sub> in the target sentence, came in between (Mean = 3.2, SD = .85 (subject-based), SD = .49 (item-based)).

Because there was practically no error variance in the rating of the no context condition (Mean = 4.99, SD = .03 (subject-based), SD = .03 (item-based)), Levene's test showed that the

error variance of the dependent variable was not equal across groups. Therefore, a one-way Welch test ANOVA was conducted for the subject-based rating scores, and repeated measures ANOVA was conducted for the item-based rating scores. Results revealed a significant difference in mean ratings of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences among these three conditions ( $F(2,12.09) = 356.059, p < .001, F(2,18) = 144.043, p < .001$ ). Post-hoc tests for all possible comparisons by Dunnett C procedures show the statistical differences for all pairs to hold at the level of  $p = .05$ . The various target sentences, which were judged an average of 4.99 on a scale of 1 to 5 when read without context, were rated as low as 1.5 when preceded by a context sentence that contradicted the identity meaning. The same target sentences were also rated lower when they were preceded by a context sentence that could be syntactically connected with the sentence through ellipsis, but this context was not as problematic as the contradictory context.

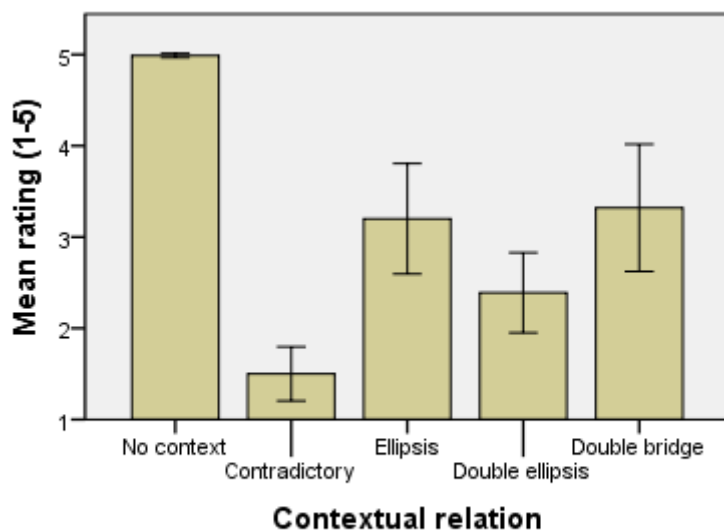
#### **5.3.1.2. Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in all five conditions**

Figure 4 represents the mean ratings of all five conditions for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Means and standard deviations of these conditions are provided in Table A-5 and A-6 in Appendix A. Because Levene's test showed that the error variance of the dependent variable was not equal across groups, a one-way Welch test ANOVA was conducted with post-hoc test using Dunnett C procedures for the subject-based analysis, and repeated measures ANOVA was conducted for the item-based analysis. Results of both analyses showed that the full model was

significant ( $F(4,18.1) = 214.949, p < .001, F(4,36) = 96.977, p < .001$ ). Post-hoc tests by Dunnett C indicate that the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were rated the highest when they were read without any context while the same sentences were rated the lowest when they were preceded by the contradictory context, all at the level of  $p < .05$ .

When a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence was syntactically connected to the preceding context sentence, it was typically rated higher than when it was preceded by a contradictory context. It was predicted that these sentences would be rated even higher when the non-identity reading was emphasized by a more emphatic, i.e. double, context, as discussed in Section 5.2.2. However, mean ratings of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the ellipsis (single context sentence), double-ellipsis, and double-bridge conditions did not show this tendency. In fact, the double-ellipsis condition had a lower mean rating (Mean = 2.39, SD = .61(subject-based); Mean = 2.40, SD = .38 (item-based)) than both the single ellipsis (Mean = 3.2, SD = .85 (subject-based), SD = .49 (item-based)) and double-bridge (Mean = 3.32, SD = .98 (subject-based), SD = .49 (item-based)) conditions. Mean ratings of the single ellipsis and double-bridge conditions did not seem to differ from each other. However, there were no significant differences in any of the pairs among these three ellipsis conditions: ellipsis, double-ellipsis, and double-bridge by post-hoc test using Dunnett C.

Figure 5. Mean understandability ratings of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences



### 5.3.1.3. Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in ellipsis conditions

In order to examine if there is a difference in the mean ratings of ellipsis, double-ellipsis, and double-bridge, a factorial univariate ANOVA in a subject-based analysis and repeated measures ANOVA in an item-based analysis were conducted. The full model was significant in mean ratings of the sentences for all three conditions ( $F(2,27) = 3.753, p < .036, F(2,18) = 23.812, p < .001$ ), and post-hoc tests for all possible comparison by LSD indicate that sentences in the double-ellipsis condition were rated significantly lower than sentences in the ellipsis ( $p=.037$ ) and double-bridge ( $p=.018$ ) conditions. The mean ratings of sentences in the ellipsis and double-bridge conditions did not differ significantly.

### 5.3.2. Interpretation Test: Interpretations of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences

As explained in Section 5.2.4.2, in the Interpretation Test of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, each participant was asked to give the interpretation of only one target sentence, so a total of 194 interpretations were collected from 194 participants. As noted earlier, each target sentence was interpreted three or four times. Turning to the results, to begin, the interpretations were separated into two general groups: interpretations that understood the sentence as an identity sentence or interpretations that understood the sentence as a non-identity sentence. In the former case, NP<sub>1</sub> and NP<sub>2</sub> in the target sentence were understood as referring to an identical referent ('Identity') while in the latter case, they were not. The interpretations that had a non-identity reading were further categorized into three groups. First, there were interpretations in which the participants interpreted the sentence by making a syntactic (ellipsis) connection with the verb of the context sentence and the NP<sub>2</sub> in the target sentence ('Context verb'). A second kind of interpretation was based on a metaphorical or inalienable connection between the two NPs in the target sentence ('Metaphorical/ Inalienable'). Moreover, there were interpretations in which participants understand the referents of the topic NP in the context sentence and the NP<sub>1</sub> in the target sentence as two different persons, both of which have the same name ('Two referents'). There were also some interpretations that fit into none of the above categories. These were all highly idiosyncratic, and it was not clear whether the participants

interpreted the sentence with an identity or a non-identity meaning, although the identity meaning generally seemed to be implied ('Not obvious'). Finally, there were participants who claimed not understandable for the sentences that were assigned to them ('Not understandable').<sup>25</sup>

The interpretation categories observed in the responses of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are summarized below.

1. Identity
2. Context verb
3. Metaphorical/ Inalienable
4. Two referents
5. Not obvious
6. Not understandable

Table 5 represents the frequency of each of the categories used to interpret the Type II identity sentences. The overall tendency clearly demonstrates a difference in the patterns associated with the identity and contradictory conditions when compared to the other conditions. Sentences in the identity (no context) condition were consistently interpreted as identity sentences, while sentences in the contradictory condition had the greatest variety of interpretation categories. Sentences in the other three conditions seem to fall in between with more variety of interpretation than sentences in the identity condition but less than sentences in the contradictory condition.

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<sup>25</sup> The categorization of the responses in the interpretation test of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences was also confirmed by three Japanese native speakers.

Table 5. The frequency of interpretation of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences according to each category

	Identity (No context)	Contradictory	Ellipsis	Double-ellipsis	Double-bridge
Identity	30 (97%)	17 (50%)	34 (74%)	25 (61%)	25 (60%)
Context verb	NA	0 (0%)	2 (4%)	6 (15%)	15 (36%)
Metaphorical/Inalienable	1 (3%)	6 (18%)	0 (0%)	0 (0%)	0 (0%)
Two referents	0 (0%)	2 (6%)	0 (0%)	0 (0%)	0 (0%)
Not obvious	0 (0%)	5 (15%)	6 (15%)	8 (20%)	2 (4%)
Not understandable	0 (0%)	4 (12%)	4 (6%)	2 (5%)	0 (0%)
Total	31 (100%)	34 (100%)	46 (100%)	41 (100%)	42 (100%)

Due to the small number of occurrences, the categories ‘Metaphorical/Inalienable’, ‘Two referents’, ‘Not obvious’, and ‘Not understandable’ were combined, and the collapsed frequency was compared to ‘Identity’ and ‘Context verb’, the other two categories of interpretation. Thus, the analyses of these responses are particularly focused on whether a sentence was given an identity or a non-identity interpretation and on whether any other kinds of interpretation categories were employed. A chi-square test performed for all five conditions with three interpretation categories (‘Identity’, ‘Context verb’, and the combined category) demonstrated significant differences across five conditions ( $\chi^2(8, N=194) = 60.95, p = <.0001$ ). Standardized residuals compare the count in each cell to what would be expected by chance. If the value is

positive, the count is larger than expected; if the value is negative, the count is smaller than expected. Specifically, the test showed that (i) sentences in the identity (no context) condition received significantly more identity interpretations (standardized residual = 1.98) and significantly fewer interpretations from the combined category (standardized residual = -2.13), (ii) sentences in the contradictory condition received significantly fewer ‘Context verb’ (standardized residual = -2.01) interpretations and significantly more interpretations from the combined category (standardized residual = 3.77), and (iii) sentences in the double-bridge condition received significantly more ‘Context verb’ interpretations (standardized residual = 4.49) and significantly fewer interpretations from the combined category (standardized residual = -2.26). These results indicate that when a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is read without context (identity condition), it has a strong tendency of being understood as an identity sentence. When a Type II sentence is read in the double-bridge condition, the frequency of a non-identity reading that depends on the syntactically parallel relation with the context sentence increased significantly.

When the same sentences appeared in a contradictory context, various interpretations were given. Some interpretations assumed an identity reading, and the information in the context sentence was modified so that the context and the target sentences described a single semantically consistent situation. Consider the example in (6). Here, a contradictory situation is

avoided by interpreting the context sentence as referring to a past event.

(6) 'Identity' for the contradictory condition

Context sentence: *Tanuma-san wa bengosi sikaku o hakudatu-sare-ta*  
Tanuma-Mr./Ms.TOP lawyer license ACC canceled  
'Tanuma had his license as a lawyer canceled.'

Target sentence: *Tanuma-san wa bengosi da*  
Tanuma-Mr./Ms. TOP lawyer COP

Interpretation: 'Tanuma had his license as a lawyer canceled, but he took it again, and now he is a lawyer.'

Assigning two separate referents to the NP in the context sentence and the NP<sub>1</sub> in the target sentence was another way of avoiding a contradiction as in example (7).

(7) 'Two referents' for the contradictory condition

Context sentence: *Kitou-san wa yakyuu no ruuru o sira-nai*  
Kitou-Mr./Ms. TOP baseball GEN rule ACC know-not  
'Kitou does not know the rule of baseball.'

Target sentence: *Kitou-san wa yakyuu-sensyu da*  
Kitou-Mr./Ms. TOP baseball player COP

Interpretation: 'There are two Kitous. One is an ordinary person who does not know the rule of a baseball game, and the other is a baseball player.'

An interpretation based on a metaphorical or inalienable relation between NP<sub>1</sub> and NP<sub>2</sub> connected the two NPs not by an identity relation but by a kind of quasi-identity relation, which also avoided the semantic inconsistency between the context and the target sentences, as in example (8).

(8) ‘Metaphorical/Inalienable’ for the contradictory condition

Context sentence: *Mayama-san wa oyoge-nai*  
Mayama-Mr./Ms. TOP swim-can-not  
‘Mayama cannot swim.’

Target sentence: *Mayama-san wa suiei-sensyu da*  
Mayama-Mr./Ms. TOP swimmer COP

Interpretation: ‘Mayama cannot swim, but he/she is a person who can struggle with the hardship of life as a swimmer who swims in rougher seas.’

These results show that interpreting Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in a contradictory context was not impossible, but the interpretations were not straightforward. Rather, the interpretative process seemed to require extra contextual assumptions which the readers had to infer or add to the overall context. This extra effort can account for the low rating of these sentences in the Understandability Test, as already discussed in Section 5.3.1.

In the chi-square test that examined all five conditions, only the double-bridge condition showed significantly more uses of ‘Context verb’, which resulted in a non-identity interpretation of the target Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In order to examine the specific effect of the syntactically parallel relationship between the target and the context sentences in both the single and double context conditions, a chi-square test was conducted for these three conditions: ellipsis, double-ellipsis, and double-bridge. The test showed a significant difference among the three conditions ( $\chi^2(4, N=129) = 18.92, p = <.0001$ ). Specifically, sentences in the ellipsis condition

received significantly fewer 'Context verb' interpretations (standardized residual = -2.17) while the sentences in the double-bridge condition received significantly more 'Context verb' interpretations (standardized residual = 2.74) and marginally fewer interpretations from the combined category (standardized residual = -1.93). The results also showed that the single ellipsis condition was typically not strong enough to override the identity interpretation while the double-bridge condition had a tendency to elicit the 'Context verb' interpretation.

In order to examine the effect of the double-ellipsis condition more specifically, the double-ellipsis condition was compared to the single ellipsis and to the double-bridge separately by two separate chi-square tests. Though there was no significant difference between the single and double-ellipsis, there was a significant difference between the double-ellipsis and the double-bridge ( $\chi^2(2, N=83) = 9.18, p = <.01$ ). Post-hoc Fisher Exact tests show that the only significant difference between these two conditions is in the ratio of 'Context verb' to the combined category ( $p = .004$ ). Sentences in the double-ellipsis condition tended to receive more interpretations from the combined category, while sentences in the double-bridge condition received fewer interpretations from the combined category.

Overall, these tests indicated that the two ellipsis conditions, whether single or double, differed significantly from the double-bridge condition. It can be said that only the double-bridge condition had the effect of eliciting the use of the context verb which then lead to a non-identity

interpretation. Example (9) is an example of the use of ‘Context verb’ to interpret the sentence in the double-bridge condition.

(9) ‘Context verb’ for the double-bridge condition

Context sentence 1: *Segawa-san to Ozaki-san wa dareka o home-ta*  
Segawa-Mr./Ms. and Ozaki-Mr./Ms. TOP someone ACC complimented  
‘Segawa and Ozaki complimented someone.’

Context sentence 2: *Segawa-san wa kangofu o home-ta*  
Segawa-Mr./Ms. TOP nurse ACC complimented  
‘Segawa complimented the nurse.’

Target sentence: *Ozaki-san wa isya da*  
Ozaki-Mr./Ms. TOP doctor COP

Interpretation: ‘Though Segawa complimented the nurse, Ozaki complimented the doctor.’

Examples (10) and (11) below illustrate the uses of the ‘Identity’ interpretation for sentence in the single and double ellipsis conditions.

(10) ‘Identity’ for ellipsis condition

Context sentence : *Segawa-san wa kangofu o home-ta*  
Segawa-Mr./Ms. TOP nurse ACC complimented  
‘Segawa complimented a nurse.’

Target sentence: *Ozaki-san wa isya da*  
Ozaki-Mr./Ms. TOP doctor COP

Interpretation: ‘Ozaki is a doctor and saw a nurse being complimented by Segawa.’

(11) ‘Identity’ for double-ellipsis condition

Context sentence 1: *Isomura-san wa zyosanpu o hometa*  
Isomura-Mr./Ms. TOP midwife ACC complimented  
‘Isomura complimented a midwife.’

Context sentence 2 : *Segawa-san wa kangofu o hometa*  
Segawa-Mr./Ms. TOP nurse ACC complimented  
‘Segawa complimented a nurse.’

Target sentence: *Ozaki-san wa isya da*  
Ozaki-Mr./Ms. TOP doctor COP

Interpretation: ‘Ozaki is a doctor, so he complimented both the midwife and the nurse.’

Looking back at the results of the Understandability Test, it might be reasonable to conclude that the lower mean rating of sentences in the double-ellipsis condition, when compared to the single ellipsis and double bridge conditions, can be attributed to the fact that there seems to be a greater variety in the possible interpretations for sentences in this context. Compared to sentences in the double-bridge condition, sentences in the double-ellipsis condition received more interpretations from the combined interpretation category that consisted of the ‘Metaphorical/Inalienable’, ‘Idiosyncratic’ (‘Not obvious’) or ‘Not understandable’ interpretations. Why only the double-ellipsis condition showed such a pattern in its interpretation will be discussed in the next section. Another finding from the Interpretation Test that should be looked at more carefully is a difference in the pattern in the interpretation category frequencies between the single ellipsis and double-bridge conditions. A Fisher Exact test that compared these two conditions showed fewer ‘Context verb’ interpretations for the single ellipsis condition and more ‘Context verb’ interpretations for the double-bridge condition. In the Understandability Test, the sentences in these two conditions earned similar mean ratings: 3.2 for single ellipsis and 3.29 for double-bridge, but it is believed that these ratings were given for different reasons. Sentences

in the single ellipsis condition were more likely to be understood as identity sentences while sentences in the double-bridge condition were more likely to have non-identity readings.

#### **5.4. Integrating the results of the sentences of Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences:**

##### **How did context work?**

The overall aim of these experimental studies is to examine whether and how context affects the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Two types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, Type I and Type II, were studied with two different kinds of tests. The Understandability Test examined the participants' immediate judgment of the understandability of the sentence in a specific context, while the Interpretation Test revealed the actual interpretations of each sentence when they were read without any time management. These two kinds of tests made clear that context had particular effects on the understanding and interpretation of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. This section is a general discussion of how context affects understanding and interpretation based on the results of the studies on both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The specific contextual factors observed in the results of these experimental studies help us to give content to the 'aboutness' relations necessary to interpret both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Chapter 7 will elaborate on the nature of the 'aboutness' relation by reviewing the various kinds of relationships established between the context and the two kind of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

In the studies of both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, context affects understanding and interpretation in a variety of ways. The results of the studies here demonstrate that context can both help and hinder the understanding and interpretation of a given sentence. In addition, the contextual effect was not predetermined by sentence type. Both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can become more or less understandable or interpretable depending on the context. With Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, a transitive or intransitive verb was presented in the context sentence. This provided the readers with a way of making a connection between the context and the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence by using the context verb to connect the target NP<sub>1</sub> and the NP<sub>2</sub>. The same set of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences was understood and interpreted differently depending on whether or not the transitive or intransitive verb in the context could be linked syntactically or semantically with the NP<sub>2</sub>. When a syntactic or semantic relation between the context and the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence was easily available, the target sentence was generally more understandable and easier to interpret. When such a relation was not available, or less obviously available, the target sentence was correspondingly less understandable and more difficult to interpret. Additionally, when the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences used in the semantic and non-semantic conditions were presented in the absence of a context sentence, i.e. in a ‘no-context’ condition, the sentences were interpreted in a very specific way. In the follow-up Interpretation Test discussed in Section 4.3.2.3, the referents of NP<sub>1</sub> and NP<sub>2</sub> in the no-context

condition were interpreted as being metaphorically identical or connected by an inalienable relation. This result shows that even Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences may be interpretable, even if not easily understandable, by establishing a link between the two NPs within the sentence. This inherent interpretation presumably interferes with the possible interpretations that arise when the sentence is put into a specific context. In particular, if a context sentence contains an actual verb, this opens the possibility of interpreting the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence based on the meaning of that verb. In such a case, the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* is interpreted based on a link with a concept outside of the sentence.

Similarly, different kinds of context affected the understanding and interpretation of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences differently. Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences have a default identity interpretation in which the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, can naturally refer to a semantically identical referent. The sentences were interpreted this way in almost all responses when they were read without context. However, this default interpretation was not available, and the sentences became increasingly difficult to understand when they were put into contexts that contradict the identity reference of the two NPs or that may suggest other non-identity interpretations. Thus, even a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, which appears to be self-contained and fully interpretable independent of any context, can be affected by context. Although it was also found that overriding the default identity interpretation of Type II sentences was difficult, it was not

impossible, and in some contexts, the sentences become difficult to understand and difficult to interpret in a consistent manner. These experimental studies also showed that the situation in which a sentence was read without any preceding context, what was called the ‘no context’ condition, is also a particular kind of context, equal to contexts that include preceding sentences. All of these contexts affect the sentences and make them more or less understandable and interpretable.

What these results suggest is that context is very influential and not always helpful for understanding the meaning of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. Theories on the structure of conversation, such as Grice (1975), assume as a basic premise the cooperation of all participants to enable smooth communication. We have seen that it is also possible for the participants in a conversation to make use of context to make the meaning of a sentence unclear, whether intentionally or not, for various purposes. For example, a speaker can avoid making their statement too specific by uttering an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as in example (12) below. Here, speaker B answers the question of speaker A without providing specific information, and, as the translation indicates, the listener is unlikely to know what exactly the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence means.

(12)

A: *O-sigoto wa nani o?*  
Polite-job TOP what ACC  
'What do you do?'

B: *Boku wa tetsudou-kankei desu*  
I TOP railway-relation COP  
'I work for a railway company/I am a motorman, etc.'

The contextual dependency of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences enables this kind of response. The vagueness attributed to NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences is also based on their two structural possibilities as Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

Another finding is that the notion of 'context' must include a variety of different factors. The combinations of these factors affect the understanding and the interpretation of Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences differently. In understanding and interpreting a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, adding an overt locative to the preceding context sentence created a context which presented a locative frame for where the event takes place. This information about a particular frame was combined with the syntactic and semantic information provided by the transitive or intransitive verb in the context sentence. These different kinds of information create particular kinds of contexts. Specifically, a context that includes a transitive or intransitive verb which does not take the NP<sub>2</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as a direct object or a theme had a significant effect of improving the understandability and interpretability only when an overt locative was added. While the verb in such examples is not very helpful in interpreting the target

NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, a locative in the context sentence provided useful information on the particulars of a place. In the studies of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, the ellipsis, double-ellipsis, and double-bridge conditions provided differing amounts of contextual information and the kinds of factors included. These conditions also shared one context sentence that had a transitive verb and a direct object. This transitive verb was compatible with the NP<sub>2</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, so this context sentence enabled a syntactic and semantic connection with the target sentence. In the context created for the double-ellipsis condition, the target sentence was preceded by two of the same kind of context sentence with the same transitive verb. In the context created for double-bridge condition, a different kind of context sentence, presenting a frame for the whole situation, was added to the context. These different combinations of contextual factors resulted in different effects on the understandability and interpretability of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. In particular, sentences in the double-ellipsis condition were less understandable and less interpretable than sentences in the double-bridge condition. This result suggests that the context does not necessarily help the understanding and interpretation of sentences even if it contains more information. One possible reason that the double-ellipsis condition had a lower mean rating than either the single ellipsis or the double-bridge conditions was in its nature as a context which simply repeated the same kind of information twice. Rather than helping to give a whole picture or giving information about a

frame that might explain the relationship between the context and target sentences, the double ellipsis context simply mentioned the same action taken by two different persons. In contrast, the context for the double-bridge condition presented information about the frame for the whole situation in the first context sentence as well as detailed information of the specific event in the second context sentence. These two context sentences also show how the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence can be syntactically and semantically connected to the context. Thus, the combination of the syntactic and semantic relation and the frame-based relation between the context and the target sentences created a particular context that was very likely to elicit non-identity interpretations for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. How and why the conditions of the double-bridge condition had this effect will be reviewed again in the discussion of real world context in Chapter 6.

In summary, the experimental studies on NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences reviewed in Chapters 4 and 5 show that context has a complex structure composed of various linguistic factors which provide information on grammar, meaning, and frame. The presence or absence of these contextual factors as well as their combination work differently and affect the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in different ways. In the next chapter, some examples of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences collected from real world contexts will be introduced to examine how a longer extended context created by the multiple contextual factors, along with the

immediately preceding context, affects each utterance.

## CHAPTER 6

### NP<sub>1</sub>WA NP<sub>2</sub>DA SENTENCES IN REAL WORLD CONTEXTS

This chapter will introduce some examples of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences observed in contexts in the real world. Though the sources of the examples collected for this study are very limited, and the examples do not exemplify all possible kinds of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, it is believed that the examples discussed here still generally illustrate the actual uses of NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences.<sup>26</sup> Synthesizing these examples and the results of the experimental studies described in the earlier chapters will help understand the deductive process by which NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences that occur in conversations in the real world are used and understood.

The context in which NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are used in real conversations is often long and extended with various kinds of contextual factors. Section 6.1 will examine a Type I NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence in a broad context to clarify whether and how the contextual factors discussed in the experimental studies in Chapters 4 and 5 actually affect the understanding and interpretation of such a sentence. This kind of broad context often activates a frame for the whole conversation, as discussed in Section 3.2.2. This helps the understanding of a given NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence by

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<sup>26</sup> It was rather unexpected that both Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with non-identity reading do not seem to occur so often in real world contexts. It may be that this is partly due to the fact that the sentence contains an unexpressed element. It seems that such sentences were most likely to be used when the participants in a conversation shared a large amount of information about their topic of conversation and in a relatively casual situation when they paid less attention to their speech.

designating a particular interpretation for that sentence which is very specific to each speaking situation. Examples with an activated frame will be discussed in Section 6.2. Finally, some examples of non-identity interpretations of Type II NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences in real world contexts will be examined to see how such contexts achieve this kind of interpretation, which was generally difficult in the experimental contexts.

### **6.1. Effects of narrow and broad contexts:**

#### **Intertwining contextual factors and repeated metacommunicative messages**

The uses of NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences in an extended real-world context often involve factors that play a role in both the immediate and the extended contexts. This section will introduce one such example observed in a TV show.<sup>27</sup> This weekly broadcasted show basically consists of two different parts: the recordings of a day-trip taken by the host and the weekly guest, and short discussion by the presenter, the host, and the guest recorded at the studio. During the day-trip, the host and guest visit a particular area. They usually travel together at first and then go separate ways, visiting different places in the area. In each episode, the recordings of their trip are shown in parts with a short discussion between each part; the presenter always asks where the host or the guest visited next before introducing that part of the recording. Thus, how each event takes place in the show and how the presenter introduces the events is quite regular.

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<sup>27</sup> ‘*Turubei no Kazoku ni Kanpai* [Toast to families by Turubei]’, an episode of a television series broadcast on August 24, 2009 on NHK (Japan Broadcasting Corporation).

Example (1) below was uttered by the host in one episode of this TV show. Linguistic and pragmatic factors found in the immediately preceding conversations of the presenter, the host, and the guest, and also found in the broader context of the entire show seem to help understand (1).

(1)  
*Watasi wa Yokosaka-san*  
I TOP Yokosaka-Mr./Ms.  
'I (?) Mr./Ms. Yokosaka.'

Example (1) is a Type I NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence. The referent of the NP<sub>1</sub> (the host) is not the person who is named Yokosaka, the referent of the NP<sub>2</sub>.<sup>28</sup> Thus the relationship between the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, is not obvious. This makes the meaning of (1) vague in the same way as the Type I NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences in the experimental studies discussed in Chapter 4. On the TV show, example (1) was uttered after the interaction by the presenter and the guest found in Conversation (2) below. Conversation (2) occurred after the showing of a video recording in the latter half of the whole episode. The presenter asked the guest and the host where each of them visited next on their trip as an introduction to the next video recording.

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<sup>28</sup> Even if the listener does not know who the speaker of (1), the host, is, the sentence still sounds unnatural as a Type I NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence since the title *-san* 'Mr./Ms.' is not usually used to name a person's own name in Japanese.

Conversation (2)

a. Presenter : *Kono ato Marina-san wa?*

this after Marina-Ms. TOP

‘After this, (where did you go), Marina-san?’

b. Marina (guest) : *Hai, watasi wa desu ne, sakihodo ii o-hanasi ga*

yes I TOP COP-polite FP a little while ago good polite-story NOM

*ukagaeta node yasai-nouka denai kata to*

heard-polite because vegetable farmer COP not polite-person with

*o-ai-si-tai to omotte-masi-ta-ra, totyuu de bokuzyou*

polite-see-want-to COMP was thinking-formal then on my way cattle ranch

*ga ari-masi-te soko ni tyotto yot-te mi-masi-ta*

NOM exist-formal there to a little stop-by tried-to-formal

‘Yes, I heard a nice story (from a person I met) before and wanted to talk

with someone who was not a farmer. Then there was a cattle ranch, so I

stopped over a little.’

c. Host: *Watasi wa Yokosaka-san*

I TOP Yokosaka-Mr./Ms.

‘I (stopped over at) Mr. Yokosaka (’s home).’

The immediate context provides information based on a discourse type, a frame, and a semantic relation. Taken together, this information helps elicit the intended interpretation given in the translation of (2c). The preceding interaction between the presenter and the guest is a question-and-answer interaction. The presenter asked the place where the guest visited next, and the guest answered this question by explaining the place where she stopped next and why she chose that place. This question-and-answer discourse type introduced a frame which primed listeners to expect that the speakers were supposed to answer the question and therefore would talk about the place where they visited. In addition, the utterance in (2b) included an intransitive verb, *yoru*, ‘to stop over’; this verb could be linked semantically with the NP<sub>2</sub> in the sentence in

(2c). With this linguistic and pragmatic information, listeners would most likely understand the speaker of example (2c) (i.e. the host) to be talking about the place where he visited. (2c) would therefore have the meaning given in the English translation.<sup>29</sup>

The extended preceding context of this utterance includes two more contextual factors which can assist in reaching the correct understanding of (1). One factor was provided by the speaker himself (the host). He had already mentioned his visit to the Yokosaka's house several times in the earlier parts of this trip which had already been shown in the recordings.

Conversation (3) is one such conversation. This is the conversation in which the name Yokosaka was spoken for the first time. The host heard about the big house that Yokosaka owns from a man whom he met; he then talks about his intention to visit Yokosaka to see his house.

Conversation (3)

a. Man: *Kono hen ni wa kore kurai tat-teru uti ga kekkou nangen*  
 this around in TOP this about passing house NOM quite so many houses  
*mo ari-masu yo*  
 too exist-formal FP

‘There are several more houses that are old like mine around here.’

b. Host: *Aa, so desu ka.*  
 oh so COP (formal) FP  
 ‘Oh, really?’

c. Man: *Ee, kore yori dekai uti ga nangen mo.*  
 yes this than bigger house NOM so many houses too

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<sup>29</sup> It might also be said that the NP<sub>2</sub> in (2c) has a semantic relation with other verbs, such as ‘to go’ or others with similar meanings, that are also omitted in (2a). Even with this syntactic ellipsis, the guest and the host as well as the audience understood the meaning of the presenter’s question. This is because their knowledge of the organization of this TV show functions as a frame for their understanding. This will be discussed in Section 6.2.

- ‘Yes, many, even bigger than this one.’
- d. Host: *E, doko, doko ga sou desu ka?*  
 ah where where NOM so COP-polite Q  
 ‘Ah, which, which one is that kind?’
- e. Man: *Yokosaka-san toko ga. Koko kara sugu da yo. Soko kara mieru kara.*  
 Yokosaka-Mr.place NOM here from soon COP FP there from can-see because  
 ‘Mr. Yokosaka’s house (is the one). Near from here. You can see (it) from there.’
- f. Host: *Koko yori ookii?*  
 here than bigger  
 ‘Bigger than this house?’
- g. Man: *Dekai.*  
 bigger  
 ‘Bigger.’
- h. Host: *Ussoo. It-te ki-masu wa.*  
 lie go-will-formal FP  
 ‘No way! (I) will go (there).’

In the last line of this conversation, the host clearly means that he will visit Yokosaka’s house.

The intransitive verb *it-te kuru* ‘will go’ has a semantic relation with the mention of Yokosaka’s

house in (3e) by taking the noun *toko* as a theme. The semantic relation between the verb *it-te*

*kuru* and the noun referring to Yokosaka’s house in Conversation (3) would prime the listeners of

the meaning of the NP<sub>2</sub>, *Yokosaka-san*, in the later Conversation (2) above. It is not only a

particular person’s name, but it is the place that the host is looking for throughout the trip. It can

also be said that the host’s utterances in (3h) or the entire Conversation (3) introduced a frame

for the trip. That is, his plan on the trip was to look for and visit Yokosaka’s house. This frame

was kept activated all through the show even when Conversation (2) took place at the studio

because the host asked about the Yokosaka’s house and kept mentioning the name *Yokosaka* in

the recordings of the trip. This behavior added to the audience’s knowledge about what the host

was going to do and served to remind them that the host's linguistic and nonlinguistic behavior, both in the recordings and at the studio, should be understood through the specific frame of looking for and visiting Yokosaka's house. When the audience heard Conversation (2), they naturally understood that the NP<sub>2</sub>, *Yokosaka-san*, was being used as the theme of the verb *it-te ki-masu* 'will go' used by the host in the preceding context found in Conversation (3). This understanding was based on the semantic connection between the NP<sub>2</sub> and the verb in (3h) and on the frame provided by the host's plan, which was emphasized repeatedly in various scenes on the trip and in the recorded video. This kind of information found in the extended preceding context functions to form what Ross (1975) calls 'structures of expectation', i.e. covert bits of information that can be connected to a predicate and its potential arguments as discussed in Section 3.3.2. Structures of expectation work as background knowledge and help a listener to infer implied meanings. In the specific case discussed here, these structures of expectation allow the listener to infer the meaning of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence.

Thus, for the audience who watched the TV show from the beginning, the information given in both the immediately preceding context and in the extended context would help understand the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in Example (1). This information includes (i) the semantic connection between the verb *yoru* and the NP<sub>2</sub>, *Yokosaka-san*, (ii) the pragmatic information about the frame and about the question-and-answer discourse interaction, (iii) the

semantic connection between the verb *it-te kuru* and the NP<sub>2</sub>, and (iv) the knowledge of the plan to visit Yokosaka's house shown in the extended context of Conversation (3), which was kept activated throughout the show.

Consequently, the two kinds of context given for Conversations (2) and (3) illustrate how multiple contextual factors can be involved in understanding a particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. It should also be noted that the particular verb which may connect the NP<sub>1</sub> and the NP<sub>2</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences does not necessarily appear in the immediately preceding context in actual conversation but may appear (repeatedly) in the extended context, sometimes in different forms. The complex nature of the contexts of example (1) may provide an explanation for some of the rather unexpected Understandability Tests results for both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. One issue is why the mean ratings of the sentences for the syntactic and semantic conditions with/without locatives in the experiments were subject to a flooring effect. NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with a syntactic/semantic relation with/without locatives were expected to be rated higher than those with a non-syntactic/non-semantic relation with/without locatives, and although these predictions were confirmed, the sentences in the syntactic/semantic conditions with/without locatives still did not have mean ratings higher than 3.5 on a scale of 1 to 5 (as discussed in Section 4.3.1). These results mean that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with a syntactic/semantic relation with/without locatives were still not particularly easy to understand,

or at least they were not particularly easy to understand when presented in the context of a computer-generated understandability test in which the sentences appeared on a screen in a particular experimental rhythm.

It can be assumed that NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences will be more easily understood if multiple contextual factors that provide different kinds of information to connect the NP<sub>1</sub> and NP<sub>2</sub> all serve to emphasize one particular interpretation, as in the case of example (1) discussed here. It is also reasonable to assume that the different kinds of information found in the context will have a coherence that allows the listener to give a unique interpretation to the sentence. In this sense, the naturally occurring contexts of example (1) provided both general and detailed information from a number of different perspectives, all of which helped to specify a particular interpretation. In contrast, in the experimental study, even the syntactic/semantic conditions with locatives did not present such thorough contexts. In contrast to the context preceding example (1), the experimental contexts were all very limited and in some sense unnatural, with very little extralinguistic information. This may very well have influenced the participant's instantaneous judgments about the various sentences. They were never judged as perfect, although they were given more consistent interpretations than those without a syntactic/semantic relation with/without locative on Interpretation Tests. Similarly, in the Understandability Test of Type II NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences, sentences in the double-ellipsis condition received an unexpectedly

low mean rating of 2.39 (as shown in Section 5.3.1.). This condition presented a context in which two people are taking the same action without any general explanation of the whole situation. There is no discussion of the relationship between the two people, the relationship between the two people and the person referred to by NP<sub>1</sub> in the target NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentence, or any plan that might explain these people's actions. It can be said that in contrast to a real-world context, the double-ellipsis experimental context not only lacked the kind of information that would be useful (and normal) for understanding an NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentence, it actually presented the sentence in a rather unnatural context. However, as has been mentioned, these observations about the uses of NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentences in naturally occurring contexts are limited. It may be the case that there are different kinds of contexts, some of which contains less information and work more effectively to help our understanding of an NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentence.<sup>30 31</sup>

The observations made with regards to example (1) also tell us why only the double-bridge condition for Type II NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentences had the effect of overriding the default identity interpretation of this type of sentence, at least to some degree. The context sentences for the

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<sup>30</sup> An example of such a context is one based on specific prior knowledge of the conversational participants; this will be discussed in Section 6.2.

<sup>31</sup> It can also be said that experimental context itself may be 'unnatural' in general in the sense that it contains very limited information, such as the various facts about the real world. This may lead the participants of the experiments to be reluctant to commit themselves to a particular interpretation of the target sentences.

double-bridge condition have a structure that is the most similar to the structure found in natural conversation such as in Conversations (2) and (3). As in these conversations, the first context sentence in the double-bridge condition introduces a particular frame which sets up the expectations for the whole situation. The second context sentence then gives supplementary information that introduces a possible target interpretation. The first context sentence also designates how the target sentence might be interpreted through a syntactic connection with its verb. These contextual cues, similar to the ones observed in the TV show example, were the most effective in overriding the identity interpretation of Type II sentences. However, it remains true that the experimental context of the double-bridge also did not receive a very high rating, with a mean rating of 3.32. This will be discussed again in Section 6.3.

Finally, it should be noted that while watching the TV show from the beginning and thereby understanding all the contextual factors introduced in Conversations (2) and (3) will have the effect of making example (1) most clearly understandable, the utterance in (1) may also be interpretable based only on the information from one or the other of these contexts. Thus, even if they miss the immediately preceding question and answer discussion in Conversation (2), the semantic relation and the information about the speaker's plan given in Conversation (3) will be sufficient to allow a viewer to infer the intended meaning of example (1). Similarly, if a viewer did not watch the scene that included Conversation (3), they can at least infer that

example (1) would have something to do with the place where the speaker (the host) would visit from the immediate preceding context of Conversation (2), though the referent of *Yokosaka-san* (i.e. NP<sub>2</sub>) in (1) may be somewhat ambiguous. It is also predicted that some listeners of example (1) would be able to guess the intended meaning of (1) even if they heard the utterance without any of the preceding context information provided in the TV show. This case will be discussed in the next section.

## 6.2. Prior knowledge in a real world context

In contexts in the real world, specific prior knowledge often affects the understanding of NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences. This specific knowledge helps establish a unique frame which provides structured information about particular objects, persons, places, events, etc. The meaning of example (1) discussed in the previous section can be inferred based on this kind of specific prior knowledge. As explained, the weekly broadcasted show has a routine sequence of events, and the context in which example (1) is uttered by the host (Conversation (2) above spoken at the studio) gave one such context. Specifically, the speaker uttered this NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence in the studio at the end of the short discussion in Conversation (2), and a recording of the trip followed immediately after this utterance. Some audience members, probably those who regularly watch the show, would be able to guess what was going on in the immediately preceding context even without listening to or watching the interaction between the presenter and the guest. Other

examples of Type I NP<sub>1</sub>wa NP<sub>2</sub> da sentences used in the same way by the host or the weekly guests were found in other episodes of the TV show, as well.

In this way, prior knowledge can have the effect of conveying specific information to activate a particular frame for particular people which might then elicit particular interpretations of particular NP<sub>1</sub>wa NP<sub>2</sub> da sentences. The understandability and interpretability of examples (4) and (5), observed in different episodes of the same show, are dependent on the viewers' knowledge of particular information on the speakers' work.<sup>32 33</sup>

(4) *Nan to it-temo watasi wa Momotaroo desu kara*  
 after all I TOP Momotaroo COP (formal) because  
 'Because after all, I (had been playing the role of) 'Momotaroo'.'

(5) *Watasi wa, ano, 'Dear Doctor' desu kara ne*  
 I TOP that 'Dear Doctor' COP (formal) because FP  
 'Because as for me, well, I (starred in the movie) 'Dear Doctor'.'

Example (4) was uttered by a weekly guest of the show, who is an actor. The conversation took place at the beginning of the episode in which the guest explained that he chose the specific place to visit since it was associated with his role in a long running TV drama. The NP<sub>2</sub> in (4) is the name of the role that he played. A similar example is (5), in which the host of the show

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<sup>32</sup> *Turubei no Kazoku ni Kanpai* [Toast to families by Turubei], an episode of a television series broadcast on November 2, 2009 on NHK (Japan Broadcasting Corporation).

<sup>33</sup> *Turubei no Kazoku ni Kanpai* [Toast to families by Turubei], an episode of a television series broadcast on September 14, 2009 on NHK (Japan Broadcasting Corporation).

explained that he visited a doctor since he had just starred as a doctor in a movie called ‘Dear Doctor’. The understandability of both of these utterances would be greatly affected by whether or not the listeners know these facts about the speakers’ occupations and their specific performances. If the listeners know them, it should be straightforward for them to connect the meaning of the two NPs, NP<sub>1</sub> and NP<sub>2</sub>, since they reflect a kind of inalienable relationship between the person (NP<sub>1</sub>), and his work (NP<sub>2</sub>). Without this knowledge, the sentences would be much more difficult to interpret.

Another example, given in (6), was taken from a transcript of a dialogue.<sup>34</sup>

(6) *Kotosi wa aka (no kati) yo*  
 this year TOP red (of victory) FP  
 ‘This year, the Red team will win.’

The transcription includes the supplementary text shown in parenthesis in (6). This represents the implied meaning needed to understand the original utterance, which is an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In the preceding dialogue, an announcer talked about a well-known year-end song festival on Japanese TV in which male and female singers are divided into White and Red teams, respectively, to compete. The announcer was the host of the Red team, and (6) was what one of the singers in the Red team had said to her. Specific knowledge of the song festival as well as

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<sup>34</sup> Agawa, S. (2003). *Agawa Sawako no Gahaha no Ha*. [Agawa Sawako’s *Gahaha no ha*] (pp.14-15).Tokyo: Bungeisyunzyuu.

knowledge about the speaker and the listener would enable readers to adduce a possible set of verbs such as ‘to win’, ‘to lose’, etc., which would enable a syntactic connection between the NPs in (6). Since readers would have a set of contextual assumptions, in particular that the speaker (a singer on the Red team) is trying to encourage the listener (the host of the Red team), this would lead readers to the specific interpretation in (6). The meaning of (6) is therefore inferable to readers even without making explicit the supplementary texts in the parenthesis as in (7).

(7) *Kotosi wa aka yo.*  
 this year TOP red FP  
 ‘This year, the Red team (will win).’

In Section 3.2.2.1, Bartlett’s (1932) examination of the use of prior knowledge to understand an unfamiliar situation was discussed. Examples (4) to (7) examined in this section illustrate how specific prior knowledge can encourage listeners and/or readers to make particular contextual assumptions which then enable them to specify the unexpressed elements in the NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentence and thereby connect the whole sentence to the context in which it is spoken.

### **6.3. Eliciting non-identity interpretations of Type II NP<sub>1</sub>*wa* NP<sub>2</sub>*da* sentences**

As was described in Section 5.3.2, a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence has a default interpretation in which the two NPs refer to an identical referent. Moreover, this interpretation

was difficult to override experimentally. Of the three conditions that allowed a syntactically parallel relationship between the context sentence(s) and the NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence, it was only the double-bridge condition that showed an unambiguous tendency to elicit non-identity interpretations. In addition, even sentences in the double-bridge context had a mean rating on the Understandability Test of 3.32 on the scale of 1 to 5; this is not particularly high. This section will discuss three examples of Type II NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentences in real-world contexts to understand the relationship between such sentences and their contexts of use. The first example is a Type II NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence successfully used as a non-identity sentence. The second example is somewhat ambiguous, and the listener required some clarification. The last example describes the use of an ambiguous Type II NP<sub>1</sub>*wa* NP<sub>2</sub> *da* sentence used to make a joke and create a humorous atmosphere.

The first example, in Conversation (8) below, is taken from a different episode of the TV show introduced in Section 6.1.1. It is a conversation between an actor who visited a small town in Ishikawa prefecture and a local woman.<sup>35</sup> A big earthquake had occurred in this area about four years before the date of the recording, and the actor asked a question about this incident.

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<sup>35</sup> ‘*Turubei no Kazoku ni Kanpai* (Toast to families by Turubei)’ [television series episode] (2009, December 7) NHK (Japan Broadcasting Corporation)

Conversation (8)

- a. Actor: *Itiban, zisin no toki ni, maa, mazu nani o mamorou to sitan'-desu ka*  
most earthquake GEN time in well first what ACC try to protect did COP(formal) Q  
'What did you want to protect most of all during the earthquake?'
- b. Woman: *Watasi wa, ano, giri no haha nan'-desu kedo*  
I TOP that in-law GEN mother NOMI COP(formal) FP  
'I (wanted to protect) my mother-in-law.'
- c. Actor: *Syutome-san desyo*<sup>36</sup>  
husband's mother COP(formal)-FP  
'That's your husband's mother, right?'
- d. Woman: *Sou desu*  
so COP(formal)  
'Yes.'

The woman's utterance (8b) is a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence which could be interpreted as an identity sentence since the NP<sub>1</sub>, *watasi* 'I' and the NP<sub>2</sub>, *giri no haha* 'mother-in-law' can refer to an identical referent. In such a case, the sentence would mean 'I am (someone's) mother-in-law.' Instead, this woman used this sentence to express a non-identical meaning, 'I wanted to protect my mother-in-law.' This utterance is an example of a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence used for expressing a non-identical reading. It is believed that for the actor talking to the woman and for members of the show's audiences, this local woman's utterance in (8b) was interpreted without any difficulty, as intended by the speaker, as a non-identity sentence.

Everyone listening would understand that NP<sub>1</sub> and NP<sub>2</sub> were not coreferential. Moreover, it is

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<sup>36</sup> The actor is asking this question to confirm that *giri no haha* 'mother-in-law' does not mean any other kind of non-biological mother for her since the word *giri no haha* can be used to refer both to one's husband's mother and to a non-biological mother.

also probable that everyone listening interpreted the utterance in the specific way given in the English translation (8b). Why was this possible? Presumably the context of use presented exactly the right information in the most effective way. The question in (8a) introduced a frame built around an earthquake and who or what one might try to save. (8a) also introduced the discourse type as a question and answer interaction. This led the listeners to perceive the woman's utterance as the answer to the question. This wh-question included a syntactic gap in the direct object position of the predicate, *mamorou to suru*, 'to try to protect'. This set up the expectation that an element in the answer should fit syntactically into this position. Since the NP<sub>2</sub>, *giri no haha*, in (8b) can in fact fit into this position syntactically and semantically, it created a possible syntactic and semantic connection between the verb in (8a) and the NP<sub>2</sub> in (8b). Thus, (8b) is easily interpreted in the context of (8a) as a non-identity sentence. Arguably, a wh-question is one of the most effective ways to direct listeners to make particular contextual assumptions based on both linguistic and pragmatic factors. The question requires that the following utterance be an answer, and the syntactic gap in the question defines the syntactic and semantic relationship that must hold between the predicate in the question and some component found in the response. The only difference between the context of Conversation (8) and the experimental context given in the double-bridge condition discussed in previous sections would be the strength of the effects of the frame and the syntactic/semantic relation. The context sentence in

Conversation (8), a *wh*-question, indicates that the following  $NP_1 wa NP_2 da$  sentence is an answer to the question. The location of the gap defines the possible relationship that must hold between the question and the answer. In contrast, the context sentences for the double-bridge experimental context, although they presented similar information about a frame and a possible syntactic and/or semantic relationship, were statements. Statements place few if any constraints on following statements, so any sentence, including an identity sentence, might follow. As shown in the results of Type I  $NP_1 wa NP_2 da$  sentences for the semantic/non-semantic relation with/without locative, listeners have the general capacity to tolerate semantic inconsistency in a particular context. As such, the experimental contexts for the double-bridge condition did not control the particular reading of the various experimental target Type II  $NP_1 wa NP_2 da$  sentences as strongly as the *wh*-question in Conversation (8) did.

A second example of a Type II  $NP_1 wa NP_2 da$  sentence was also observed in a different episode on the same TV show. In this conversation, the host of the TV show talked to a woman who runs a family-owned inn.<sup>37</sup>

Conversation (9)

a. Host: *Tigi wa nan'nen desu ka, Tigi-san wa*

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<sup>37</sup> ‘*Turubei no Kazoku ni Kanpai* [Toast to families by Turubei]’, an episode of a television series broadcast on May 8, 2009 on NHK (Japan Broadcasting Corporation).

- Tigi TOP how many years COP(formal) Q Tigi-Mr./MS.TOP  
 ‘How many years (have been passed since) Tigi (opened)?’
- b. Woman: *Eeto, eigyo desu ka.*  
 well business COP(formal) Q  
 ‘Well, (are you asking about) our business?’
- c. Host: *Eigyō.*  
 business  
 ‘Business.’
- d. Woman: *Eee, sanzyuuhati-nen kara yat-terun-desu, Syouwa.*  
 well 38-year from doing COP(formal) Syowa  
 ‘Well, from the 38<sup>th</sup> year, of the Syowa period.’
- e. ***ni-daime desu, watasi wa.***  
 second COP(formal) I TOP  
 ‘**I (am?) the second manager.**’
- f. Host: *ni-daime*  
 second  
 ‘The second manager.’
- g. Woman: ***ni-daime no tuma***  
 second GEN wife  
 ‘**(I am) the wife of the second manager**’

The woman’s utterance (9e) is an example of a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, although it is expressed with topic inversion.<sup>38</sup> The host’s utterance in (9f) was interpreted as a confirmation question, and woman clarified her utterance in (9g). This showed that the intended meaning of the woman’s utterance in (9e) was that she wanted to say ‘I (am the wife of) the second manager’.

The NP<sub>1</sub> *watasi* and the NP<sub>2</sub> *ni-daime* referred to non-identical referents. In contrast to the context in the example in Conversation (8) above, the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (9e) was supported by fewer contextual factors. The information provided in the utterances from (9a-e) opened a frame about an inn that opened almost 37 years ago, the 38<sup>th</sup> year of the Syowa

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<sup>38</sup> The sentence would appear as ‘*Watasi wa ni-daime desu*’ in the normal word order.

period, that is, in 1963. This implies that their business was somehow traditional, and this information may have implied a semantic association with the NP<sub>2</sub> *ni-daime* in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (9e). She was probably trying to explain that she and her husband were not the ones who started the inn. However, the utterance in (9e) did not make clear whether she herself or some other person was the second manager of the inn, and there is no syntactic or semantic relation between any components in the preceding utterances and the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in (9e) to suggest a non-identical interpretation of the NP<sub>1</sub> and the NP<sub>2</sub>. The contextual information therefore left the sentence ambiguous, and the subject of the host's statement in (9f) is also unclear. (9g) makes a clarification.

The ambiguous nature of a Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, which can be understood as an identity or non-identity sentence, can also be used by a conversational participant to make a joke. In the conversation in (10) below, the host of the same TV show in another episode visited a city of his hometown and met his old school friend, who is a priest.<sup>39</sup>

Conversation (10)

- a. Friend: *Ooo... Bikkuri suru gana. Kyuu da kara.*  
 oh surprise do FP suddenly COP because  
 'Wow, I am surprised. Because (you appeared) suddenly.
- b. Host: *Kyuu yaro. Tonari de kiitan'ya.*  
 suddenly FP next COP heard FP

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<sup>39</sup> 'Turubei no Kazoku ni Kanpai [Toast to families by Turubei]', an episode of a television series broadcast on February 28, 2011 on NHK (Japan Broadcasting Corporation).

*Sorede S ga kokoni are yat-teru iu kara yana*  
 and S NOM here that doing say because FP  
 ‘Suddenly, right? (I heard about you) from your neighbor.  
 Then (I heard) S does that here.’

c. Friend: *Are yaro, tera, asoko yaro, onaji yaro.*  
 that FP temple there FP same FP  
 ‘(It) is that, right? The temple, the same (as before), right?’

d. Host: *Ore Nitiren ya mon.*<sup>40</sup>  
 I Nitiren COP FP  
 ‘I (belong to) Nitiren (school of Buddhism).’

e. Friend: *Omae Nitiren chau.*<sup>41</sup>  
 you Nitiren COP-not

f. *Omae Turubei.*<sup>42</sup>  
 you Turubei  
 ‘You are not Nitiren. You are Turubei.’

Three Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are found in this conversation, in (10d), (10e), and (10f).

The host uttered (10d) to name the school of Buddhism to which he belongs. He was talking to his friend who is a priest of a different school. Thus, the host’s utterance in (10d) is intended to express a non-identity meaning as shown in the translation of (10d). Here NP<sub>1</sub> and NP<sub>2</sub> are

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<sup>40, 41, 42</sup> Some components are omitted in these examples of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The topic marker *wa* was omitted in all of them, and so was the copula in (10f). Also, the speakers were talking in Kansai [Western Japan] dialect, which was reflected in their intonation and the use of *ya* in (10d) and *chau* in (10e). These are used in place of *da* (copula) and to express the meaning of ‘different (literally)’, respectively. The conversation would be something like the following if the omissions are recovered and the elements of the Kansai dialect are removed.

(10’)

- d. *Ore wa Nitiren da mono.*  
 I TOP Nitiren COP FP  
 e. *Omae wa Nitiren dewa nai.*  
 you TOP Nitiren COP-not  
 f. *Omae wa Turubei da.*  
 you TOP Turubei COP

supposed to refer to different referents, and NP<sub>2</sub> referred to a school of Buddhism, Nitiren, and not to the priest Nitiren himself. However, the friend intentionally perceived the host's utterance as an identity sentence in which the host referred to himself as Nitiren. He denied this in (10e), and corrected the host in (10f), "You are not Nitiren. You are Turubei." The examples in (10e) and (10f) express identity meanings and are uttered to create a humorous atmosphere. It can be said that this utterance by the friend is an example of speech play (cf. Sherzer, 2002), and that the ambiguous nature of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences enables this particular kind of joke.

In this section, three examples of Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were discussed. The examples demonstrated the ambiguous nature of this type of sentence and possible contexts that encourage a non-identity interpretation of what is basically an ambiguous sentence. The section also discussed one example where such sentences are used for a particular pragmatic purpose, i.e. to create humor.

This chapter reviewed some examples of the uses of Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in real world contexts to examine if the contextual factors found in the experimental studies actually work to elicit a particular interpretation of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The studies indicate that the contextual factors that affect the understanding and interpretation of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the experimental contexts, i.e., syntactic or semantic relation with the context and a frame of locative or of a situation, were also observed in the uses of NP<sub>1</sub> *wa* NP<sub>2</sub>

*da* sentence in the real world contexts. The examinations also reveal the effect of an extended context with multiple contextual factors both at linguistic and non-linguistic levels combined and demonstrated most effectively. In the next chapter, the mechanism of reaching a unique interpretation of a NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in each context by making use of these contextual factors will be discussed.

## CHAPTER 7

### A MECHANISM OF UNDERSTANDING/INTERPRETING

#### NP<sub>1</sub> WA NP<sub>2</sub> DA SENTENCES

The current study aims to examine the interaction between particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and context. It was demonstrated that, in the process of understanding a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and its context, different kinds of relationship are established. These different links between the sentence and its context help determine the relationship between the two NPs in a particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In some sense, this means that the ‘aboutness’ in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is characterized by the relationship between the sentence and its context. In this chapter, Sections 7.1 and 7.2 discuss the mechanism of establishing an ‘aboutness’ relation in each context. Several factors are discussed as are their relative strengths. It is proposed that the mechanism for understanding NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can also be applied to the comprehension of other language structures. Section 7.3 extends the applications of the findings of this study to general theories of human communication. In the final section, the meaning of ‘*wa*’ is discussed since, as reviewed in Chapter 2, it is a linguistic function of the topic marker *wa* to enable the connection between the topic (NP<sub>1</sub>) and the predicate (NP<sub>2</sub>) and therefore to establish an ‘aboutness’ relation.

### 7.1. 'Aboutness': How do we determine aboutness?

Previous studies on 'aboutness' have attempted to determine its nature as a particular kind of fixed grammatical relationship. For example, Haig (1996) claims (as discussed in Section 2.2.3) that the whole predicate must be related to the topic so that some kind of sentential coherence must be achieved. How this coherence is achieved, however, is never defined. The experimental studies conducted for this dissertation indicated that there are basically two different ways of understanding and interpreting a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, that is, two different ways of connecting NP<sub>1</sub> and NP<sub>2</sub>. A link may be established sentence internally, i.e. directly, or by a link established through a relation with the context. The ways of establishing the 'aboutness' relation also varied in accordance with these two kinds of links.

These findings suggest that the 'aboutness' relation is not a fixed relation that can be defined by one particular kind of relation. Rather, 'aboutness' reflects a pragmatic process for determining the meaning of a sentence and should therefore be explained based on a relationship with context. Furthermore, as the understandability and interpretability of both Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences changes in relation to the context, the strength of the relation that connects the two NPs in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence also varies according to the relationship between the sentence and the context. The experimental studies, along with the observations of the uses of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in naturally occurring contexts, revealed several contextual

factors that demonstrated particular kinds of effects between the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and its context. These different kinds of relationships contributed to different kinds of ‘aboutness’ relations. This section will review the different kinds of ‘aboutness’ relations that played a role in understanding and interpreting the various NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the various contexts discussed in Chapters 4 , 5, and 6.

### **7.1.1. ‘Aboutness’ defined via a relation with context**

#### **7.1.1.1. ‘Aboutness’ established in Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with context:**

##### **syntactic/semantic relation and frame by locative**

When reading a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in a particular context, a particular verb taken from the context was understood as an unexpressed element. This verb established a syntactic or semantic relation with the NP<sub>2</sub> by taking it as its direct object or theme. The combination of a transitive or an intransitive verb and the NP<sub>2</sub> brought coherence to the whole predicate of the sentence (unexpressed verb + NP<sub>2</sub>) and connected it to the topic NP (NP<sub>1</sub>). Thus, an understanding based on a syntactic/semantic relation with the context was established between the NP<sub>1</sub> and the NP<sub>2</sub> with the help of a verb adapted from the context.

The general meaning expressed by this ‘aboutness’ relation is that an action expressed by the predicate (the transferred verb and the NP<sub>2</sub>) is ‘about’ the person referred to by the NP<sub>1</sub>. For example, in an experimental Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence used for the syntactic condition,

*Kikuti-san wa manga da* (Kikuti TOP comic COP), the two NPs (a person named Kikuti and the word meaning ‘comic’) do not have an obvious connection. They were, however, connected by an ‘aboutness’ relation derived from the predicates in the preceding context sentence,

*Nakamura-san wa tatiyomisita* ‘Nakamura browsed (something)’. The meaning of the transitive verb *tatiyomisita* ‘browse’ was transferred from the context and enabled a connection between the two NPs in the experimental sentence. This link meant that the action of browsing a comic has something to do with a person named Kikuti. This enabled the sentence to be interpreted as ‘Kikuti (browsed) a comic.’ A semantic relation between an intransitive verb in the context sentence and the NP<sub>2</sub> established an ‘aboutness’ relation in a similar way. Thus, an ‘aboutness’ relation can be established through a syntactic or a semantic relation with the context.

A locative in the preceding context sentence does not directly designate a specific verb to connect the two NPs in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, but it does evoke a set of verbs that can be adapted to make the connection. The same experimental item discussed above was presented with a different context sentence with a different transitive verb and a locative as in the following, *Nakamura-san wa hon'ya de tetudatta* ‘Nakamura helped (someone do something) at the bookstore’. From the set of verbs associated with the frame activated by the locative *hon'ya* ‘bookstore’, a particular verb that could be adapted to the NP<sub>2</sub> ‘comic’ was chosen by the reader and used to connect the meanings of NP<sub>1</sub> and NP<sub>2</sub>. A possible interpretation was something like

‘Kikuti read a comic (while Nakamura helped someone) in the bookstore.’ Here, an ‘aboutness’ relation is established between the NP<sub>1</sub> Kikuti, and the predicate ‘reading a comic in the bookstore’, which consisted of the NP<sub>2</sub>, a locative, and the verb evoked by the frame of locative.

There are other cases of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in which the appropriate ‘aboutness’ relations are created based purely on a semantic association between the general context and the particular nouns in a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In Conversation (1), below, it can be said that the NP<sub>2</sub> *tomato* ‘tomato’ may be semantically associated with *rakunou* ‘dairy industry’ in the preceding context sentence in the sense that both terms have something to do with food production. Given this association and the expectation established by the discourse frame that utterance in (1b) should be related to the speaker’s business since (1a) is a question asking about this issue, (1b) can be understood as a statement about her business. However, even if the meaning in (1b) is what is naturally inferable, it is still vague because of the lack of syntactic or semantic connections with the context sentence based on specific grammatical arguments or thematic roles.

Conversation (1)<sup>43</sup>

a. *Anata mo rakunou yatten 'no*  
you too dairy industry doing Q

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<sup>43</sup> ‘*Turubei no Kazoku ni Kanpai* [Toast to families by Turubei]’, an episode of a television series broadcast on June 16, 2008 on NHK (Japan Broadcasting Corporation).

- ‘Are you also engaged in dairy industry?’
- b. *Watasi wa tomato desu*  
 I TOP tomato COP(formal)  
 ‘I (grow (?)) tomato.’

#### 7.1.1.2. ‘Aboutness’ established in Type II NP<sub>1</sub>wa NP<sub>2</sub>da sentences with context:

##### Identity vs. syntactic/semantic relation and frame

In Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences, the NP<sub>1</sub> and the NP<sub>2</sub> are naturally connected. In the experimental sentences of this study, NP<sub>2</sub> always expresses an occupation of the person referred to by NP<sub>1</sub>, as in *Tanuma-san wa bengosi da* ‘Tanuma is a lawyer’.<sup>44</sup> The ‘aboutness’ relation that connects the two NPs is based on an identity relationship in which the NP<sub>2</sub> has something to do with identifying the NP<sub>1</sub>. This relationship is available in the absence of any context. In contrast, when the sentence is put into a particular context, different kinds of ‘aboutness’ relations that connect the two NPs become possible, depending on the nature of the context information. In some cases, this contextual information can hinder the identity interpretation. In the experiments, Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences were examined in four kinds of contexts: contradictory, ellipsis, double-ellipsis, and double-bridge. The contradictory context provided a context which overtly contradicts the fact that NP<sub>1</sub> and NP<sub>2</sub> refer to a semantically identical referent; it does this without presenting other possible relationships. The other three conditions

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<sup>44</sup> Following Relevance Theory, it can be argued that the identity is the optimally relevant choice for the reader in these cases because it is an interpretation that can be achieved without any unnecessary processing effort.

were defined by single or double context sentences, which enable a syntactic and semantic connection with the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence (in the ellipsis and double-ellipsis conditions), or by a frame for the particular event (in the double-bridge condition). In these contexts, an ‘aboutness’ relation based on the possible identity relationship conflicted with other kinds of ‘aboutness’ relations inferable from the various context sentence(s), although, generally, it seemed difficult to override the core ‘aboutness’ relation based on the identity relationship (which is inherent in Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences).

Nishiyama (personal communication) defines the differences between sentences (2) and (3) in terms of the possible interpretations achieved when the sentences are transformed into NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as in (2') and (3'). Again, the strength of an identity interpretation is crucial. While (2') becomes a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in which the two NPs do not have an obvious relationship, and the unexpressed element must be recovered from the particulars of the context in order to be interpreted, (3') is a context-independent identity sentence that has a completely different interpretation from (3). (3') is a Type II identity sentence in which the NP<sub>1</sub> *Tarou* can be connected with the NP<sub>2</sub> ‘painter’ by an ‘aboutness’ relation based on an identity relationship. The ‘aboutness’ relation based on an identity relationship overrides the ‘aboutness’ relation in the original (3). That relation is based on a kind of inalienable relationship between *Tarou* and his sister. These examples show the strength and independence of an ‘aboutness’

relation based on the identity relationship.

(2) *Tarou wa nekutai ga furansu-sei da*  
Tarou TOP necktie NOM made-in-France COP  
'Speaking of Tarou, his necktie is made in France.'

(2') *Tarou wa furansu-sei da*  
Tarou TOP made-in-France COP  
'Speaking of Tarou, ( ) is made in France.'

(3) *Tarou wa imouto ga gaka da*  
Tarou TOP younger sister NOM painter COP  
'Speaking of Tarou, his younger sister is a painter.'

(3') *Tarou wa gaka da*  
Tarou TOP painter COP  
'Speaking of Tarou, he is a painter.'

### **7.1.2. 'Aboutness' relation created within NP<sub>1</sub> wa NP<sub>2</sub> da sentences**

#### **7.1.2.1. Conceptual relation in Type I and Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences**

When Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences were presented without context, readers tried to interpret the sentences by seeking possible connections between the NP<sub>1</sub> and the NP<sub>2</sub> within the sentence. As shown in Section 4.3.2.3, when the interpretations of Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the semantic and non-semantic conditions were examined without context sentences, particular kinds of conceptual relations that connect the two NPs were used to establish the 'aboutness' relations. Such relations were those based on a metaphorical or

inalienable relationship or on a relationship that expresses the speaker's preference as shown in examples (25) (26), and (27) on page 165 in Section 4.3.2.3.

It can be said that Shimojo's example of a topicalization (Shimojo 2002, p.79) discussed on page 26 in Section 2.2.3, repeated here as (4), involves an 'aboutness' relation based on the inalienable relationship between the topic NP *ano sinsi* and the NP in the predicate *yoofuku*. Assuming this 'aboutness' relation between the topic NP and the predicate, the connection becomes 'inferable', as Shimojo claims.

(4) *Ano sinsi<sub>i</sub> wa yoofuku<sub>j</sub> ga yogoreteiru*  
that gentleman TOP clothes NOM dirty  
'That gentleman, the clothes (which (he) is wearing) are dirty.'

It can also be argued that a relation based on a conventional interpretation for a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, 'as for NP<sub>1</sub>, NP<sub>2</sub> is important, necessary, the best, etc.', discussed in Section 3.1.4, is a similar kind of 'aboutness' relation. In a relationship based on a conventional interpretation, the predicate, that is, the NP<sub>2</sub>, refers to what is, from the speaker's perspective, the most essential property of the NP<sub>1</sub>. There were also interpretations based on relationships observed in real world contexts. The utterances, *Chanchan-yaki wa mesu* (*Chanchan-yaki* TOP female) that means 'For cooking *Chanchan-yaki*, you should definitely have female [salmon] (not male [salmon]),' and *Hokkaido wa kani da ne* (Hokkaido TOP crab COP FP) 'Speaking of

Hokkaido, crabs [are the best to eat]’, are such examples heard on TV.<sup>45</sup> ‘Aboutness’ relations based on conceptual links between the NP<sub>1</sub> and the NP<sub>2</sub> all demonstrate a close relationship between the two NPs.

Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were also interpreted through an ‘aboutness’ relation based on conceptual connections between the NP<sub>1</sub> and the NP<sub>2</sub> as shown in the interpretations of the sentences discussed in Section 5.3.2. Example (8) on page 198 is one example of a metaphorical interpretation for a Type II sentence in the contradictory condition. Another example of this kind of conceptual connection is seen in an interpretation for the experimental sentence (5), a Type II sentence interpreted with no context.

(5) ‘metaphorical’ in a no context condition

*Simizu-san wa tranpetto-sousya da*  
Simizu-Mr./Ms. TOP trumpeter COP  
‘If we compare the character of Shimizu to a part in an orchestra, he/she is a trumpeter.’

Example (6) illustrates an ‘aboutness’ relation based on an inalienable relationship. The NP<sub>2</sub> ‘doctor’ is interpreted as the dream of the person referred to by the NP<sub>1</sub>, and the ‘aboutness’ relation is based on the inalienable relation between a person and his/her dream. This enables an interpretation of the Type II sentence even though it is in a contradictory context.

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<sup>45</sup> ‘*Syoku-sai Roman* [food-coloring roman]’ broadcast on October 23, 2005 on NHK (Japan Broadcasting Corporation).

(6) ‘Inalienable’ in a contradictory condition

Context sentence: *Ozaki-san wa isi-kokkasiken ni otita*  
Ozaki-Mr./Ms. TOP National Examination for Medical Practitioners in failed  
‘Ozaki failed the National Examination for Medical Practitioners.’

Target sentence: *Ozaki-san wa isya da*  
Ozaki-Mr./Ms. TOP doctor COP

Interpretation: ‘Ozaki had a dream which was to become a doctor, but it did not come true because he failed the exam.’

As discussed in Section 3.1.1, Wisniewski (1996, 1997) provides an account of one interpretative process by which the two nouns in an English noun-noun compound are linked by attributing a property expressed by the modifier noun to the head noun. These compounds are interpreted by comparing the two concepts expressed by the two nouns and finding the commonalities. Given the structural similarity between noun-noun compounds and NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, and the pragmatic function of the topic marker *wa* which makes an assertion by attributing a property expressed by the predicate to the topic NP (as discussed by Kuroda (1965, 1992, 2005) and Fiengo and McClure (2002) in Section 2.1), the same kind of interpretive process can be assumed to establish the ‘aboutness’ relation within a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence when it is interpreted without contextual information. Such an interpretation is based completely on sentence internal information.

### **7.1.2.2. Identity relation in Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences**

As demonstrated by the results of the Interpretation Test described in Section 5.3.2, Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are strongly preferred to have an interpretation where there is identical referent for the NP<sub>1</sub> and the NP<sub>2</sub>. This type of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is defined by a sentence-internal ‘aboutness’ relation, i.e. an identity relationship, which syntactically and conceptually connects the topic and the predicate. This relation is easily evoked when the sentence is presented with or without a context.

It can be concluded that all of the interpretations based on conceptual and identity relations between the two NPs in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence show an extremely close relationship between the two NPs, and this close relationship can be assumed to be the basis of the ‘aboutness’ relation. In this sense, the various conceptual relationships such as metaphorical, inalienable, conventional, or preference describe what might be called a quasi-identity relationship between the NP<sub>1</sub> and the NP<sub>2</sub>. In all such cases, the readers (of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences) are looking for the commonalities between the two NPs, as Wisniewski (1996, 1997) argues, and this is especially so when no other contextual assumptions are available.

### **7.1.3. ‘Aboutness’ relation formulated by specific prior knowledge**

As discussed in Section 6.2, specific prior knowledge can provide useful contextual information for interpreting a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. An ‘aboutness’ relation established

with the help of such specific prior knowledge can be idiosyncratic and based on many different kinds of possible connections between the two NPs. In example (4) discussed in Section 6.2 on p.222, *Watasi wa Momotarou desu* (I TOP Momotarou COP-polite), the NP<sub>1</sub> and the NP<sub>2</sub> are connected through an ‘aboutness’ relation based on an inalienable relationship between a person and the role he played in a TV drama series. If, however, the listeners do not know that the speaker played this role, this interpretation of the sentence would be very difficult to achieve. In example (6) in Section 6.2 on p.223, *Kotosi wa aka yo* (this year TOP red FP), specific prior knowledge functions to delimit a possible set of particular verbs that can connect the NP<sub>1</sub> and the NP<sub>2</sub>. With this information and the information from the immediate context, the reader (informed about song contests held in Japan on New Year’s Eve) can derive the particular interpretation that would be most relevant in this context, i.e. ‘This year, the Red team will win’. The interpretation illustrates the correct syntactic connection between the NPs in the topic and predicate positions, *kotosi* and *aka*.

It can also be argued that the sentence which Kuno gives as an example of an ‘ungrammatical’ topicalized construction, as discussed in Section 2.2.2 on p.21 and repeated here as (7), might be more understandable if the context includes specific prior knowledge of steel companies that they are going to take responsibility for the consequences of their manufacturing processes, i.e. if our factory dirties your windows, we will clean them. If (7) is uttered as a

statement that reveals a speaker's thoughts on such an unusual cause-and-effect relationship between a steel company and the negative consequences of steel production as in (8c), the sentence in (7) is clearly more acceptable if not completely natural.

(7)

\**U.S. steel wa boku no apaato no mado ga kitanai*  
U.S. steel TOP I GEN apartment GEN window NOM dirty  
'Speaking of U.S. Steel, the windows of my apartment are dirty.'

(8)

a: *ABC steel wa mado ga yugamu*  
ABC steel TOP window NOM warp  
'ABC steel makes windows warp.'

b: *DEF steel wa mado ga wareru*  
DEF steel TOP window NOM break  
'DEF steel makes windows break.'

c: *U.S. steel wa boku no apaato no mado ga kitanai*  
U.S. steel TOP I GEN apartment GEN window NOM dirty  
'U.S. Steel makes the window of my apartment dirty.'

The steel companies mentioned in (8) function to define a contextual assumption which creates an unusual cause-and-effect relationship between the topic NP 'steel company' and the various (negative) predicates. The example in (8) suggests that topicalized constructions should be examined in terms of the degree of understandability or interpretability in relation to context, not in terms of a strict grammaticality judgment. It is not a question of grammatical or not, but rather

a question of interpretable in a given context or not.

The kinds of ‘aboutness’ relations formulated based on prior knowledge cannot be predicted since such relations depend completely on the knowledge and experiences of individual listeners and/or readers, but how such knowledge helps to define the ‘aboutness’ relation in given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can be analyzed based on the results of the experimental studies in this dissertation as well as on the observations of naturally occurring NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. The specific pieces of prior knowledge help define contextual assumptions that help identify particular verbs that can define a particular syntactic or semantic relation between the two NPs in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. Prior knowledge can evoke a particular frame which then helps identify particular verbs to connect the two NPs. Prior knowledge can elicit metaphorical, inalienable, or conventional conceptual relations between the two NPs. All of this information plays a role in delimiting the most appropriate interpretation for an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence.

## **7.2. Mechanism and hierarchy**

The results of the experimental studies in this dissertation indicate that an ‘aboutness’ relation in which the NP<sub>2</sub> expresses the identity of the NP<sub>1</sub> so that the two NPs refer to a semantically identical referent is the strongest connection when it is available. This relation is based on the closest conceptual relationship between the two NPs, and is enough to establish a

strong and appropriate connection between the two NPs. The relation is so strong that it is difficult to override even if the context hinders it. Even in a contradictory context, 50% of the total number of responses interpreted the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence as identity sentences. In these cases, semantic consistency was achieved by making wide-ranging and often creative assumptions about the context for each sentence, as shown in Section 5.3.2.

A syntactic relation formed in relation to the context sentence also helps establish a strong ‘aboutness’ relation between the two NPs in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The results of the experimental studies of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences showed that even an overt locative in the preceding context sentence does not help the understanding of the target sentence when the target NP<sub>2</sub> and the verb in the context sentence lacked a syntactic connection. In the non-syntactic condition, the NP<sub>2</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* violated the selectional restrictions of the transitive verb in the context sentence. This violation could not be compensated for by other relations that might be elicited by, for example, a locative. An ‘aboutness’ relation based on a syntactic relation between an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and its context was also observed in the uses of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in real-world extended contexts. Such connections had the strongest effect in eliciting consistent interpretations both for Type I and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

A semantic relation between a context sentence with an intransitive verb in the context and

a given NP<sub>2</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence can also define an ‘aboutness’ relation between the two NPs in the target sentence. This relation is based on a relationship between the intransitive verb and its implicit theme. Such a relation establishes a more obvious link between the NP<sub>1</sub> and the NP<sub>2</sub> than a relation evoked simply by semantic association with particular components in the context. Consider again example (e) in Conversation (9) in Section 6.3 or example (1) in Section 7.1.1.1. Since a semantic relation based on a thematic relationship depends on the meaning of the words and not on their grammar, i.e. not on selectional restrictions, a non-semantic relation in the experimental context did not result in a grammatical violation. Rather, in such non-semantic contexts, an ‘aboutness’ relation was established via a particular verb evoked by an overt locative frame or the intransitive context verb itself, even in the absence of a semantic relation with the NP<sub>2</sub> (as shown in Section 4.3.2.3). Readers of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in a non-semantic context seemed to create a possible situation in which the intransitive verb in the preceding context and the NP<sub>2</sub> are both components of the frame activated by the locative even though they were not semantically connected to each other. They wanted all of the pieces to fit together.

As these results of the experimental studies indicate, when the NP<sub>1</sub> and the NP<sub>2</sub> were not connected by an obvious sentence-internal link, as is the case for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, readers sought components from the context, if there was any contextual information

available, and then created various syntactic or semantic (thematic) relations that were consistent with that context. Various kinds of frames, including frames based on a particular event or place or on a particular discourse type in the immediate or extended contexts, provided information which the readers used to develop the most reasonable contextual assumptions in order to develop a connection between the NP<sub>1</sub> and the NP<sub>2</sub>. And if there were no contextual assumptions given, and readers were forced to establish a link between the two NPs, they did this sentence internally but with considered effort and creativity.

As discussed in the previous section, an ‘aboutness’ relation can be established based on specific prior knowledge of the listeners/readers. This kind of ‘aboutness’ relation may vary markedly from individual to individual. If it is available, it can also be the strongest connection between the two NPs in NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence.

Based on this discussion, it can be concluded that ‘aboutness’ cannot be defined as a fixed relation. Rather, it is a procedure for understanding and interpreting an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. At its most basic it entails the process of determining an appropriate predicate that allows the readers to create a proposition which can connect the topic NP<sub>1</sub> and the predicate NP<sub>2</sub>. All of the context-internal and context-external information discussed in this section, that is, potential semantic identity, conceptual information, syntactic/semantic relations, or relations based on various frames or prior knowledge, help the reader choose a predicate that appropriately specifies

the unexpressed element in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. With the appropriate predicate and the NP<sub>2</sub>, the readers create a proposition that can be attributed to the topic NP, and the ‘aboutness’ relation is established.

### **7.3. Toward a broader understanding of human communication**

This study examined the understanding and interpretation of a particular type of Japanese topicalized construction, NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. As was described in the previous sections, the examinations of this type of construction in a set of experimentally controlled contexts as well as in real-world contexts have revealed the contextual factors that affect the understanding and interpretation of this construction and the mechanism of how these factors interact with each other according to the different kinds of context. These findings demonstrate that the linguistic and pragmatic knowledge of the readers or listeners of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, discussed in Chapters 2 and 3, plays a critical role in understanding and interpreting the sentences. The study also specified how many specific kinds of linguistic and pragmatic knowledge are combined and employed according to the particulars of each context. Listeners use everything they know to understand an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. Such an inclusive analysis has never been attempted in the previous studies of this kind of construction.

To review, studies in the field of syntax and semantics have focused on the ‘grammaticality’ of a sentence and the rules that prevent an ‘ideal’ speaker from producing

ungrammatical sentences. While these studies have developed the understanding of linguistic competence, understanding a particular type of construction such as NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences requires a broader perspective that evaluates the understandability or interpretability of a sentence in relation to context.

The examinations of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in various contexts deepens our understanding about human communication in two main ways. First, as discussed in Section 7.1.3, the study indicates that it is not the case that a given NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is ‘grammatical’ or ‘ungrammatical’. Rather, such sentences should be ‘easy’ or ‘difficult’ to understand or interpret in a specific context. The findings of the Interpretation tests of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences demonstrate that even the most difficult cases such as the Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-syntactic condition or the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the contradictory condition were somehow interpretable by at least some participants although the frequencies were very low or the interpretations were not very consistent. These kinds of examples are unaddressed in syntactic and semantic studies, and in fact, as discussed in Chapter 3, the main concern of semanticists has been how the knowledge of grammar and meaning enables speakers of a language to exclude such ‘ungrammatical’ and ‘anomalous’ combinations of concepts. The analyses of the interpretations of the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in these contexts indicate syntax and semantics alone are perhaps too narrowly defined to understand the range of

possible conceptual connections used to interpret such sentences. The examples of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the real-world context discussed in Sections 6.1 and 6.2 also show that NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences were used even in contexts in which the relationship between the sentence and the context required the listeners' efforts in understanding the sentences. In such cases, it might be said that the communication is not successful from the speaker's perspective. In other words, if the interpretation of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is not consistent, this means that the speaker does not communicate successfully with the listener/reader. In this sense, the 'grammaticality' of a sentence cannot be determined by the sentence itself. Rather, 'grammaticality' is a larger notion and should be determined in the context in terms of both the speaker's intended meaning and the listener/reader's processing effort to understand that meaning.

Among the difficult NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences to interpret, some conceptual combinations were easier to understand than others. Results of the Understandability and Interpretation Tests of Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences show that the non-semantic relationship between an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence and the context generally hinders understandability less than the lack of a syntactic relationship. This tendency became more obvious when an overt locative was added to the context sentence. The NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in the non-semantic with locative condition have relatively consistent interpretations by adding a verb to connect the NP<sub>1</sub> and the NP<sub>2</sub> in spite of the lack of the semantic relationship, but this was not the case for the sentences in the

non-syntactic with locative. This difference in the relationship between the non-semantic and the non-syntactic is in the nature of the relationship between the verb in the context sentence and the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. In the non-semantic condition, the relationship is all semantic, but in the non-syntactic condition, it contains a possible grammatical violation. These different kinds of relationship can be realized as a different kind of frame evoked by an intransitive or transitive verb in the context sentence. As discussed in Fillmore (1977, 1982) in Section 3.2.1.3, a particular verb introduces an event, and this makes all the elements related to this event accessible. When the participants read the context sentences in the non-syntactic condition, the transitive verb along with the topic NP evoked a frame that introduces a particular event. Since the transitive verb implies a direct object, a group of possible objects that might fit into the thematic role that can be assigned to the implicit direct object is also reminded to the participants. However, if the object named in the target sentence does not seem to fit in this particular role, this causes difficulty in creating an internally consistent frame for the situation expressed by the context and the target sentences. In the context with non-semantic relationship, it is also possible to find a verb such as 'sit' that does not imply a particular theme. It can be said that this kind of verb, instead of evoking a frame about particular events with a relatively restricted set of possible related elements, implicates a frame which expresses a more general situation where a wider variety of events can take place. An overt locative in the context sentence facilitates a connection

to the degree that it is semantically consistent with all the other elements in the context. All of these conceptual connections help the reader to a consistent understanding of the whole situation. Thus, semantic relationships are more flexible, allowing a greater possibility in connecting semantically different concepts, according to information introduced into the context. This is in contrast to syntactic facts, such as selectional restriction on direct objects, which are very rigid. Thus, the examination of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in different kinds of contexts clarify the interpretative process of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. They demonstrate how each concept in an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence links to other concepts in the context, what are the useful or interpretable connections or not, and why. This knowledge structure, consisting of the knowledge of grammar, meaning, and pragmatics, reveals how the meaning of a NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in a particular context is determined based on all of the available linguistic and pragmatic information. At its root, this is essentially an insight into the basis of human communication.

The interpretative process of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences also enables us to characterize the processing effort required to understand an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. This interpretative process, detailed in Relevance Theory (Sperber and Wilson 1986), assumes that people choose one meaning of a sentence while discarding other options to the degree that the new meaning is maximally informative while affecting existing assumptions as minimally as possible. While

Relevance Theory presents a general framework of the motivation for achieving optimally relevant interpretation in communication, an explanation for how and when such motivation is maintained has not been fully developed. To that end, the study here might be considered one case study, attempting to give specifics to the general principles outlined in Relevance Theory.

The flexible conceptual connections that play a role in understanding and interpreting NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences based on semantic relations with the context and the less flexible connections of concepts based on syntactic relations can reflect a difference in the accessibility of possible contextual assumptions. Consider the difference in the preferences of the interpretations for the Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences between the single ellipsis and the double-bridge conditions.

As discussed in Section 5.3.2, in the context of single ellipsis, the context sentence describes one person's action with a transitive verb and its direct object. In spite of this context, when participants read the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, most of them chose the identity interpretation for the sentence based on the assumption that the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence has an identity reading in spite of the context sentence. In this complex scenario, the resulting interpretations described one situation consistent with the assumption that the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence expresses an identity-reading. (9) is one of such interpretations. (The context sentence was 'Isiyama is looking for an accountant' and the target sentence was '*Tanuma-san wa bengosi da*')

(9) 'Isiyama is looking for an accountant, and he/she asked Tanuma to help since Tanuma is a lawyer.' (= '*Tanuma-san wa bengosi da*')

On the other hand, the interpretations for sentences in the double-bridge condition were more likely to be created based on the assumption that the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence has a non-identity reading and that the agent referred to by the NP<sub>1</sub> is engaged in the same kind of activity expressed in the two context sentences. What made this non-identity interpretation more accessible was probably the existence of the first context sentence that describes the whole situation. This first sentence activated a frame which later allows the participants to assume that the agent expressed by the NP<sub>1</sub> in the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence is engaged in a particular activity expressed by the transitive verb in the context sentence. The second context sentence, describing a particular person engaged in the same activity, reinforces this non-identity interpretation for the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. These examples in the double-bridge condition demonstrate a particular way of presenting the contextual information, that is, a frame for the whole situation followed by more detailed explanation about the events (and thereby the thematic roles) activated in the frame. This kind of pragmatic and linguistic relationship with the context enables participants to overcome the existing and presumably the most accessible assumption about the internal identity relationship of the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. This effect was not observed

in the interpretations for the double-ellipsis condition in which two seemingly unrelated events that include the two agents engaged in the same kind of activity but without any general explanation of the situation. These examples in the single and double ellipsis and the double-bridge conditions indicate how the different kinds of linguistic and pragmatic information change the optimally relevant interpretations for the same target sentence. As Sperber and Wilson also note (Wilson and Sperber 2002, pp.277-280), the fundamental assumptions in Relevance Theory, such as optimal relevance, processing efforts, and contextual effects, need to be refined through experimental investigations. The examinations in this study demonstrate one example of the relationship between readers achieving the optimally relevant interpretations and their processing efforts.

Thus, the examinations of a particular kind of construction, the NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, in different contextual conditions has offered insight into the specific aspects of linguistic and pragmatic knowledge that affect the understanding and interpreting of language. Can these contextual factors and the mechanism for understanding NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences be generalized to other constructions in Japanese or to other constructions in other languages? The next section will discuss this issue.

#### **7.4. The meaning of *wa***

As demonstrated in the previous sections, the understanding and interpretation of NP<sub>1</sub> *wa*

NP<sub>2</sub> *da* sentences requires the establishment of a relation between the sentence and its context.

We might ask what it is that triggers this interpretive process for readers/listeners of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. It can be hypothesized that this is the actual function of topic marker *wa*. What is called a topic marker *wa* actually functions as a linguistic and pragmatic signal to engage readers/listeners in a deductive process to determine the relationship between the *wa*-marked NP and the rest of the sentence.

As discussed in Section 2.2, discussions about *wa* have focused mainly on its linguistic function as a topic marker that connects the topic and the rest of the sentence. Syntacticians such as Saito (1985) and Hoji (1985) have attempted to provide a syntactic analysis for *wa* claiming specific syntactic derivations based on movement or base generation. These analyses assume that *wa* functions syntactically to connect the topic NP and the predicate. However, as was also discussed in Section 2.2, their analyses of the specific derivations of the topicalized construction do not really explain when the topic and the rest of the sentence are licensed by ‘aboutness’. In general, discussions of ‘aboutness’ have not paid much attention to the meaning or function of *wa* in determining whether particular examples of topicalization are ‘grammatical’ or ‘ungrammatical’, and they simply claim the possibility that the topic and the rest of the sentence can somehow be connected.

Studies on *wa* by Kuroda (1965, 1992, 2005) and Fiengo and McClure (2002) as discussed

in Section 2.1 define *wa* pragmatically as a speech act marker that expresses a speaker's categorical judgment on a given item. By marking an item with *wa*, speakers have the listeners assume that the item is given and categorize the item by producing the predicate that matches the item. The predicate is then understood as expressing a property that can be attributed to the given item. From the listeners' perspective, it can be assumed that upon hearing the topic NP marked with *wa*, they expect that whatever they hear next as a predicate expresses a property of the topic NP, a given item. A pragmatic process of establishing 'aboutness' makes this connection possible, but it is the linguistic form of '*wa*' that activates this mechanism. Thus, '*wa*' functions as a speech act marker for speakers to mark an item as given so that an assertion about the given item can be made. At the same time, '*wa*' is a signal to listeners to direct them to look for possible connection between the item (topic NP) and the predicate in a way that the predicate expresses one of the properties of the given item.

This pragmatic function of '*wa*' is even more obvious when compared to a one-word sentence and to the use of non-'*wa*' form such as *ga* as in examples (10) and (11) respectively.

(10) *Manga da*  
comic COP

(11) *Kikuti-san ga manga da*  
Kikuti-Mr./Ms. NOM comic COP

(12) *Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP

The one-word construction such as in (10) illustrates a different kind of speech act, which requires a different interpretative process. (10) is a unitary cognitive act that expresses the recognition of the existence of an entity or a situation. The speaker of (10) simply recognizes an item *manga* or a situation related to *manga* through her direct perception or other sources and expresses the recognition.

(11) has the same construction as a Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence (as in (12)) with the topic NP marked with *ga*. According to Fiengo and McClure (2002), speakers of a sentence such as (11) with *ga* let the listeners assume that the predicate is given and that it is the item that matches the given predicate. ‘*Ga*’ is used to mark the produced part. While the sentence in (11) is also presumed to contain reference to an unexpressed (predicate) entity, the listeners’ deductive processes to understand the sentence will be different from those needed in Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences as in (12). In (11), the predicate *manga da*, whatever this means, is something that the listener is expected to assume, and the NP *Kikuti* is produced to fit to the predicate. It can be used as an answer to a rather unnatural question that has two variables such as *Dare ga nani (o sita no)* ‘Who did what?’, where the speaker and the listener both assume that the predicate,

which contains an unexpressed element, has something to do with *manga*. It can be said that a construction such as (11) is similar to the use of an English sentence such as ‘John is the hamburger’ by a customer in a restaurant. This kind of English sentence is used in a situation in which both the speaker (the customer of the restaurant) and the listener (the waitress) assume the meaning of the unexpressed element and therefore the proposition created by the NP<sub>2</sub> and the unexpressed element.<sup>46</sup> The use in English is usually limited to a very particular situation, and this is also the case for the construction exemplified in (11). On the other hand, as discussed in Chapters 4, 5, and 6, NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are used in a much wider range of situation. As discussed in Section 7.3, the listener of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence deduces the intended meaning of the sentence by making use of all the linguistic and pragmatic information in the context and as well as their prior knowledge. They then use this information to create a proposition, that is, they establish the meaning of the predicate associated with the NP<sub>2</sub>, which expresses a property of the topic NP (NP<sub>1</sub>). In (12), the listener deduces a property expressed by one NP (NP<sub>2</sub>) *manga* among all the possible properties that can be attributed to the given item, Kikuti. ‘*Wa*’ is the marker that triggers this deductive process, and it specifies how the two NPs must be connected in the construction of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.

Thus, *wa* works as a signal to elicit a particular deductive process in topicalized

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<sup>46</sup> As reviewed in Section 2.3.4, Ward (2004) discussed this kind of English construction.

constructions. In the case of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences, as demonstrated in previous sections, the deductive process requires the listeners/readers to make use of all the information available. It can be information based on the conceptual relationship between the two NPs; syntactic or semantic information based on a relationship with other predicates mentioned explicitly in or inferable from the context; information based on a frame evoked by particular linguistic, discursive, or non-linguistic cues in the immediate and extended context; or information based on specific prior knowledge. The use of ‘*wa*’ in a NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence lets the listeners/readers assume that the topic NP (NP<sub>1</sub>) marked with *wa* can be connected to the predicate NP (NP<sub>2</sub>) by means of all the information that they have, while general properties of pragmatics (e.g. Grice (1975)) leads them to assume that an appropriate connection is in fact available. The most appropriate connection is determined in the context in part based on the balance between processing effort needed to determine sentence meaning and need to change existing assumptions, as described by Relevance Theory. Moreover, both the speaker and listener of an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence share all of these assumptions.

Of course, Japanese is well-known for the ease with which elements are left unspoken. It can be argued that the deductive process used to understand NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences can be applied to other kinds of omissions such as subjects or objects in Japanese as in (13) and (14) for example.

(13) *Manga o yomi-masi-ta*  
comic ACC read- formal-PAST

(14) *Yomi-masi-ta-ka*  
Read-formal-PAST Q

In (13), the subject of the sentence is omitted. It can be assumed that the subject is most likely to be the speaker herself expressing the meaning ‘I read a comic’, but this is a conclusion based on evidence to the contrary. Grammatically, the subject can be a different person, and in the right context, for example as an answer to ‘What did Kikuti do?’, the sentence may mean ‘Kikuti read a comic’. In (14), both the subject and object are omitted. In the case of a question, the subject is most likely to be the listener, and the sentence can mean ‘Did you read ( )?’. However, it is also possible that the subject can refer to a different person, and (14) may mean ‘Did Kikuti read ( )?’. The subjects in (13) and (14) as well as the object in (14) can be determined by the listener through the deductive process similar to that employed for NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences.<sup>47</sup> The listeners, realizing that the sentence contains an unspoken element, search for possible referents based on possible syntactic and semantic relations with the linguistic context or the wider

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<sup>47</sup> There are other linguistic forms that function as a cue to make reference to the omitted element. For example, a particular honorific form used for a verb may specify the subject or the person referred to by the direct/indirect object. Verbs of giving and receiving in Japanese also encode directionality between a speaker and a listener.

situational frame for relevant objects, events, situations, or prior knowledge that they have.

Though the topic marker ‘*wa*’ is not included in these sentences, the existence of an empty space can be a trigger for such a deductive process.

Although further studies are required, this kind of deductive process might also be generalized to communication in other languages. It is reasonable to assume that not only speakers of Japanese but also other languages, especially Asian languages such as Korean or Chinese, i.e. languages with this extreme kind of pro drop, assume this kind of deductive process. Such languages allow omission of many different elements in a sentence, and they contain very little morphology that provides the linguistic clues as to the identity of the omitted referents. Whether a construction has a linguistic signal such as *wa* or not, the fundamental job for listeners of such languages is to reconstruct the proposition that describes what is going on or what is talked about in the context of communication. To this, listeners use all of the available information in the context to generate a unique interpretation for the sentence. This basic deductive process can in theory be applied to any construction that includes reference to unexpressed elements, but in languages such as English or in Romance, there are grammatical and morphological rules that help specify the meaning of the various unexpressed elements. In most cases, these are enough to guide the listener’s search for an unspoken referent.

## CHAPTER 8

### CONCLUSIONS

The main goal of the current study has been to examine the relationship between a particular topicalized construction, an NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence, and its context. Experimental studies on understanding and interpreting two types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in a set of controlled contexts revealed that the understandability and interpretability of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences changed in relation to the context. Context could both help and hinder the understanding of both types of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. Specifically, a syntactic or semantic relation between the verb in the preceding context sentence and the NP<sub>2</sub> in the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence enhanced the understandability of the target sentence and tended to help readers to agree on particular interpretations for each experimental sentence. A frame referenced in the context sentence(s) had a similar effect. It was also discovered that these particular contextual factors affected the understanding and the interpretation of various NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with different strength and that there is a hierarchy among them.

The relationship between the various contextual factors and understandability revealed in the experimental studies demonstrated how readers actually make use of their linguistic and pragmatic knowledge of grammar, meaning, and frame. Specifically, readers drew on their knowledge of the syntactic and semantic structure of a verb or the frame structure of specific

places, events, and situations in order to specify the ‘aboutness’ relation between the two NPs in each NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence. The experimental studies thus help understand the application of theoretical arguments to the deductive process used to determine the meaning of a particular sentence in a particular context. The experimental investigation into the relationship between NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and context sheds light on our understanding of topicalized constructions as well as constructions with unexpressed elements.

The experimental findings were also supplemented by a review of some NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in naturally occurring contexts. Observation on the uses of NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences in real-world contexts demonstrated how the contextual factors investigated in the experimental studies actually helped listeners all reach a common understanding of particular NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences. It was also discovered that the contextual factors used in the experimental contexts tended to be presented more simply than is generally the case in real world contexts. On the other hand, the real world contexts were much richer, with much more information. For example, in the real world context, relevant information sometimes appeared separated from the target NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentence in an extended context; sometimes there was more than one relevant contextual factor to consider, combined with different levels of linguistic or non-linguistic information. It is hoped that both the experimental studies in controlled contexts as well as the detailed discussion of the examples in naturally occurring contexts will facilitate further

understanding of how NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences are used and understood.

The application of experimental methods to pragmatics has been developed in a field of study based on two disciplines, pragmatics and psycholinguistics, and has been called ‘experimental pragmatics’. This method of investigation combines the strengths of a theoretical framework based on pragmatic studies and experimental results gained from psycholinguistic analyses. Sperber and Noveck (2004, p.9) argue that experimental analyses require pragmatics to develop ‘a higher degree of theoretical explicitness’ in order to make the theories testable, and that the experimental evidence gained from psycholinguistic studies can be used to evaluate or compare pragmatic theories. An example of this field is a study on bridging implicature by Matsui (2000) as introduced in Section 3.3.3. Her experimental study demonstrates that the ‘optimal relevance’ in Relevance Theory explains better than the account in any previous study how listeners determine the referent that the speaker intended from more than one plausible referent. Another example is the study conducted by Van der Henst, Carles, and Sperber (2002) who examined how speakers changed their ways of answering the same question of asking the time according to the listeners’ needs in each context. The experiments showed how speakers inferred the ‘optimal relevance’ for the listeners in each speaking context and adjusted their way of answering their questions. Analyses based on the experiments in these studies have enabled the evaluation and development of the notion of ‘optimal relevance’ in the context of Relevance

Theory. Matsui's analysis confirmed the hypothesis that the optimally relevant contextual assumption is the most important for determining the appropriate referent. Van der Henst et al. has made a theoretical contribution to Relevance Theory by expanding on the idea of 'optimal relevance'.

The findings in the current study have described the basic nature of the 'aboutness' relation. In short, 'aboutness' changes in relation to specific contextual factors that, taken together, compose particular 'aboutness' relations. The experiments in this study have also revealed that contextual factors play an important role in smooth communication, following the Conversation Principle or the Relevance Theory. It is my hope that these findings are a first step in defining the common yet poorly understood notion of 'aboutness' and in elucidating our understanding of Japanese topicalization.

## APPENDIX A: MEAN UNDERSTANDABILITY RATINGS

Table A-1. Means and standard deviations for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with/without syntactic relation and locative (Subject-based)

Context type	Syntactic (n=12)	Non-syntactic (n=12)	Syntactic-locative (n=12)	Non-syntactic-locative (n=12)
Mean	3.06	1.55	3.41	2.20
SD	.62	.38	1.07	.48

Table A-2. Means and standard deviations for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with/without syntactic relation and locative (Item-based)

Context type	Syntactic (n=10)	Non-syntactic (n=10)	Syntactic-locative (n=10)	Non-syntactic-locative (n=10)
Mean	3.06	1.55	3.41	2.20
SD	.46	.56	.36	.65

Table A-3. Means and standard deviations for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with/without semantic relation and locative (Subject-based)

Context type	Semantic (n=16)	Non-Semantic (n=16)	Semantic-locative (n=16)	Non-semantic-locative (n=16)
Mean	3.03	1.81	3.07	2.59
SD	.91	.58	.73	.84

Table A-4. Means and standard deviations for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences with/without semantic relation and locative (Item-based)

Context type	Semantic (n=10)	Non- Semantic (n=10)	Semantic-locative (n=10)	Non-semantic-locative (n=10)
Mean	3.03	1.81	3.07	2.54
SD	.35	.41	.36	.45

Table A-5. Means and standard deviations for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (Subject-based)

Context type	No context (n=10)	Contradictory (n=10)	Ellipsis (n=10)	Double-Ellipsis (n=10)	Double-Bridge (n=10)
Mean	4.99	1.5	3.2	2.39	3.32
SD	.03	.41	.85	.61	.98

Table A-6: Means and standard deviations for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences (Item-based)

Context Type	No context (n=10)	Contradictory (n=10)	Ellipsis (n=10)	Double-Ellipsis (n=10)	Double-Bridge (n=10)
Mean	4.99	1.5	3.2	2.39	3.32
SD	.03	.54	.49	.38	.49

## APPENDIX B

B-1. Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences: Experimental sentence pairs for the Understandability Test ((1) to (10)) and for the Interpretation Test ((1) to (8)) for four syntactic conditions

(1) Context sentences	Conditions
<i>Tukamoto-san wa saibai-si-ta</i> Tukamoto-Mr./Ms. TOP cultivated	Syntactic
<i>Tukamoto-san wa hatake de saibai-si-ta</i> Tukamoto-Mr./Ms. TOP farm in cultivated	Syntactic with locative
<i>Tukamoto-san wa hakat-ta</i> Tukamoto-Mr./Ms. TOP measured	Non-syntactic
<i>Tukamoto-san wa hatake de hakat-ta</i> Tukamoto-Mr./Ms. TOP farm in measured	Non-syntactic with locative
‘Tukamoto cultivated (in the farm).’	Syntactic (with locative)
‘Tukamoto measured (in the farm).’	Non-Syntactic (with locative)

Target sentence

*Tanabe-san wa tomato da*  
Tanabe-Mr./Ms. TOP tomato COP

(2) Context sentences	Conditions
<i>Nakamura-san wa tatiyomi-si-ta</i> Nakamura-Mr./Ms. TOP browsed	Syntactic
<i>Nakamura-san wa hon'ya de tatiyomi-si-ta</i> Nakamura-Mr./Ms. TOP bookstore in browsed	Syntactic with locative
<i>Nakamura-san wa tetudat-ta</i> Nakamura-Mr./Ms. TOP helped	Non-syntactic
<i>Nakamura-san wa hon'ya de tetudat-ta</i> Nakamura-Mr./Ms. TOP bookstore in helped	Non-syntactic with locative
‘Nakamura browsed (in the bookstore).’	Syntactic (with locative)
‘Nakamura helped (in the bookstore).’	Non-syntactic (with locative)

Target sentence

*Kikuti-san wa manga da*  
Kikuti-Mr./Ms. TOP comic COP

## (3) Context sentences

## Conditions

<i>Hosoda-san wa utat-ta</i> Hosoda-Mr./Ms. TOP sang	Syntactic
<i>Hosoda-san wa karaoke-bokkusu de uta-ta</i> Hosoda-Mr./Ms. TOP karaoke-box in sang	Syntactic with locative
<i>Hosoda-san wa seisan-si-ta</i> Hosoda-Mr./Ms. TOP paid	Non-syntactic
<i>Hosoda-san wa karaoke-bokkusu de seisan-si-ta</i> Hosoda-Mr./Ms. TOP karaoke-box in paid	Non-syntactic with locative

‘Hosoda sang (at the karaoke-box).’ Syntactic (with locative)

‘Hosoda paid (at the karaoke-box).’ Non-syntactic (with locative)

## Target sentence

*Koike-san wa enka da*  
Koike-Mr./Ms. TOP Japanese ballad COP

## (4) Context sentences

## Conditions

<i>Maekawa-san wa kansatu-si-ta</i> Maekawa-Mr./Ms. TOP observed	Syntactic
<i>Maekawa-san wa ike de kansatu-si-ta</i> Maekawa-Mr./Ms. TOP pond at observed	Syntactic with locative
<i>Maekawa-san wa syuuri-si-ta</i> Maekawa-Mr./Ms. TOP repaired	Non-syntactic
<i>Maekawa-san wa ike de syuuri-ta</i> Maekawa-Mr./Ms. TOP pond at repaired	Non-syntactic with locative

‘Maekawa observed (at the pond).’ Syntactic (with locative)

‘Maekawa repaired (at the pond).’ Non-syntactic (with locative)

## Target sentence

*Murase-san wa otamazyakusi da*  
Murase-Mr./Ms. TOP tadpole COP

## (5) Context sentences

## Conditions

<i>Sakurai-san wa okawari-si-ta</i> Sakurai-Mr./Ms. TOP another helping-did	Syntactic
<i>Sakurai-san wa syokutaku de okawari-si-ta</i> Sakurai-Mr./Ms. TOP table at another helping-did	Syntactic with locative
<i>Sakurai-san wa tyuui-si-ta</i> Sakurai-Mr./Ms. TOP warned	Non-syntactic
<i>Sakurai-san wa syokutaku de tyuui-si-ta</i> Sakurai-Mr./Ms. TOP table at warned	Non-syntactic with locative

‘Sakurai had another helping (at the table).’ Syntactic (with locative)

‘Sakurai warned (at the table).’

Non-syntactic (with locative)

Target sentence

*Miyata-san wa misosiru da*  
Miyata-Mr./Ms. TOP miso-soup COP

(6) Context sentences

Conditions

<i>Isono-san wa souzyuu-si-ta</i> Isono-Mr./Ms. TOP operated	Syntactic
<i>Isono-san wa kouzigenba de souzyuu-si-ta</i> Isono-Mr./Ms. TOP construction site at operated	Syntactic with locative
<i>Isono-san wa kakunin-si-ta</i> Isono-Mr./Ms. TOP confirmed	Non-syntactic
<i>Isono-san wa kouzigenba de kakunin-si-ta</i> Isono-Mr./Ms. TOP construction site at confirmed	Non-syntactic with locative

‘Isono operated (at the construction site).’ Syntactic (with locative)

‘Isono confirmed (at the construction site).’ Non-syntactic (with locative)

Target sentence

*Tunoda-san wa kureen-sya da*  
Tunoda-Mr./Ms. TOP crane truck COP

(7) Context sentences

Conditions

<i>Horikawa-san wa sityaku-si-ta</i> Horikawa-Mr./Ms. TOP tried on	Syntactic
<i>Horikawa-san wa butikku de sityaku-si-ta</i> Horikawa-Mr./Ms. TOP boutique at tried on	Syntactic with locative
<i>Horikawa-san wa situmon-si-ta</i> Horikawa-Mr./Ms. TOP asked a question	Non-syntactic
<i>Horikawa-san wa butikku de situmon-si-ta</i> Horikawa-Mr./Ms. TOP boutique at asked a question	Non-syntactic with locative

‘Horikawa tried on (at a boutique).’ Syntactic (with locative)

‘Horikawa asked a question (at a boutique).’ Non-syntactic (with locative)

Target sentence

*Kosino-san wa uwagi da*  
Kosino-Mr./Ms. TOP jacket COP

(8) Context sentences	Conditions
<i>Ookawa-san wa kougi-si-ta</i> Ookawa-Mr./Ms. TOP lectured	Syntactic
<i>Ookawa-san wa daigaku de kougi-si-ta</i> Ookawa-Mr./Ms. TOP university at lectured	Syntactic with locative
<i>Ookawa-san wa tuuyaku-si-ta</i> Ookawa-Mr./Ms. TOP interpreted	Non-syntactic
<i>Ookawa-san wa daigaku de tuuyaku-ta</i> Ookawa-Mr./Ms. TOP university at interpreted	Non-syntactic with locative

‘Ookawa lectured (at the university).’ Syntactic (with locative)

‘Ookawa interpreted (at the university).’ Non-syntactic (with locative)

Target sentence

*Kosino-san wa uwagi da*  
Kosino-Mr./Ms. TOP jacket COP

(9) Context sentences	Conditions
<i>Morimoto-san wa ensou-si-ta</i> Morimoto-Mr./Ms. TOP played	Syntactic
<i>Morimoto-san wa hooru de ensou-si-ta</i> Morimoto-Mr./Ms. TOP hall at played	Syntactic with locative
<i>Morimoto-san wa ansyou-si-ta</i> Morimoto-Mr./Ms. TOP recited	Non-syntactic
<i>Morimoto-san wa hooru de ansyou-si-ta</i> Morimoto-Mr./Ms. TOP hall at recited	Non-syntactic with locative

‘Morimoto played (at the hall).’ Syntactic (with locative)

‘Morimoto recited (at the hall).’ Non-syntactic (with locative)

Target sentence

*Masuda-san wa baiorin da*  
Masuda-Mr./Ms. TOP violin COP

(10) Context sentences	Conditions
<i>Sonoda-san wa tyuumon-si-ta</i> Sonoda-Mr./Ms. TOP ordered	Syntactic
<i>Sonoda-san wa syokudou de tyuumon-si-ta</i> Sonoda-Mr./Ms. TOP diner in studied	Syntactic with locative
<i>Sonoda-san wa benkyou-si-ta</i> Sonoda-Mr./Ms. TOP studied	Non-syntactic
<i>Sonoda-san wa syokudou de benkyou-si-ta</i> Sonoda-Mr./Ms. TOP diner in studied	Non-syntactic with locative

‘Sonoda ordered (in the diner).’ Syntactic (with locative)

‘Sonoda studied (in the diner).’ Non-syntactic (with locative)

Target sentence

*Ogawa-san wa aisu kuriimu da*  
Ogawa-Mr./Ms. TOP ice cream COP

B-2. Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences: Experimental sentence pairs for the Understandability Test ((1) to (10)) and for the Interpretation Test ((1) to (8)) for four semantic conditions

(1) Context sentences

			Conditions
<i>Tanaka-san</i>	<i>wa</i>	<i>dokusyo-si-ta</i>	Semantic
Tanaka-Mr./Ms. TOP		read	
<i>Tanaka-san</i>	<i>wa</i>	<i>tosyokan de dokusyo-si-ta</i>	Semantic with locative
Tanaka-Mr./Ms. TOP		library in read	
<i>Tanaka-san</i>	<i>wa</i>	<i>suwat-ta</i>	Non-semantic
Tanaka-Mr./Ms. TOP		sat	
<i>Tanaka-san</i>	<i>wa</i>	<i>tosyokan de suwat-ta</i>	Non-semantic with locative
Tanaka-Mr./Ms. TOP		library in sat	

‘Tanaka read (in the library).’ Semantic (with locative)

‘Tanaka sat (in the library).’ Non-Semantic (with locative)

Target sentence

*Suzuki-san wa ren'ai-syouseitu da*  
Suzuki-Mr./Ms. TOP love story COP

(2) Context sentences

			Conditions
<i>Kobayasi-san</i>	<i>wa</i>	<i>insyu-si-ta</i>	Semantic
Kobayasi-Mr./Ms. TOP		drank alcohol	
<i>Kobayasi-san</i>	<i>wa</i>	<i>izakaya de insyu-si-ta</i>	Semantic with locative
Kobayasi-Mr./Ms. TOP		pub in drank alcohol	
<i>Kobayasi-san</i>	<i>wa</i>	<i>zatudan-si-ta</i>	Non-semantic
Kobayasi-Mr./Ms. TOP		chatted	
<i>Kobayasi-san</i>	<i>wa</i>	<i>izakaya de zatudan-si-ta</i>	Non-semantic with locative
Kobayasi-Mr./Ms. TOP		pub in chatted	

‘Kobayasi drank alcohol (in the pub).’ Semantic (with locative)

‘Kobayasi chatted (in the pub).’ Non-Semantic (with locative)

Target sentence

*Ikeda-san wa biiru da*  
Ikeda-Mr./Ms. TOP beer COP

## (3) Context

## Conditions

<i>Asada-san wa kaimono-si-ta</i> Asada-Mr./Ms. TOP did one's shopping	Semantic
<i>Asada-san wa depaato de kaimono-si-ta</i> Asada-Mr./Ms. TOP department store in did one's shopping	Semantic with locative
<i>Asada-san wa arukimawat-ta</i> Asada-Mr./Ms. TOP walked around	Non-semantic
<i>Asada-san wa depaato de arukimawat-ta</i> Asada-Mr./Ms. TOP department store in walked around	Non-semantic with locative

‘Asada did her shopping (in the department store).’ Semantic (with locative)

‘Asada walked around (in the department store).’ Non-Semantic (with locative)

## Target sentence

*Katou-san wa tokei da*  
Katou-Mr./Ms. TOP watch COP

## (4) Context sentences

## Conditions

<i>Kondou-san wa zyugyou-si-ta</i> Kondou-Mr./Ms. TOP gave a class	Semantic
<i>Kondou-san wa kyousitu de zyugyou-si-ta</i> Kondou-Mr./Ms. TOP classroom in gave a class	Semantic with locative
<i>Kondou-san wa unadui-ta</i> Kondou-Mr./Ms. TOP nodded	Non-semantic
<i>Kondou-san wa kyousitu de unadui-ta</i> Kondou-Mr./Ms. TOP classroom in nodded	Non-semantic with locative

‘Kondou gave a class (in the classroom).’ Semantic (with locative)

‘Kondou nodded (in the classroom).’ Non-Semantic (with locative)

## Target sentence

*Sirai-san wa keizaigaku da*  
Sirai-Mr./Ms. TOP economics COP

## (5) Context sentences

## Conditions

<i>Sakata-san wa syokuzi-si-ta</i> Sakata-Mr./Ms. TOP dined	Semantic
<i>Sakata-san wa kissaten de syokuzi-si-ta</i> Sakata-Mr./Ms. TOP cafe in dined	Semantic with locative
<i>Sakata-san wa kyuuukei-si-ta</i> Sakata-Mr./Ms. TOP rested	Non-semantic
<i>Sakata-san wa kissaten de kyuuukei-si-ta</i> Sakata-Mr./Ms. TOP cafe in rested	Non-semantic with locative

‘Sakata dined (in the cafe).’ Semantic (with locative)

‘Sakata rested (in the cafe). Non-Semantic (with locative)

Target sentence

*Hosino-san wa sandoitti da*  
Hosino-Mr./Ms. TOP sandwich COP

(6) Context sentences

	Conditions
<i>Mori-san wa amimono-si-ta</i> Mori-Mr./Ms. TOP knitted	Semantic
<i>Mori-san wa amimono-kyousitu de amimono-si-ta</i> Mori-Mr./Ms. TOP knitting class at knitted	Semantic with locative
<i>Mori-san wa osyaberi-si-ta</i> Mori-Mr./Ms. TOP talked	Non-semantic
<i>Mori-san wa amimono-kyousitu de osyaberi-si-ta</i> Mori-Mr./Ms. TOP knitting class at talked	Non-semantic with locative

‘Mori knitted (at a knitting class).’ Semantic (with locative)

‘Mori talked (at a knitting class). Non-Semantic (with locative)

Target sentence

*Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP

(7) Context sentences

	Conditions
<i>Sasaki-san wa tyuusya-si-ta</i> Sasaki-Mr./Ms. TOP parked	Semantic
<i>Sasaki-san wa rozyou de tyuusya-si-ta</i> Sasaki-Mr./Ms. TOP street on parked	Semantic with locative
<i>Sasaki-san wa furikaet-ta</i> Sasaki-Mr./Ms. TOP turned around	Non-semantic
<i>Sasaki-san wa rozyou de furikaet-ta</i> Sasaki-Mr./Ms. TOP street on turned around	Non-semantic with locative

‘Sasaki parked (on the street).’ Semantic (with locative)

‘Sasaki turned around (on the street). Non-Semantic (with locative)

Target sentence

*Nisino-san wa spootu-kaa da*  
Nisino-Mr./Ms. TOP sports car COP

(8) Context sentences	Conditions
<i>Nisimoto-san wa suizi-si-ta</i> Nisimoto-Mr./Ms. TOP cooked	Semantic
<i>Nisimoto-san wa daidokoro de suizi-si-ta</i> Nisimoto-Mr./Ms. TOP kitchen in cooked	Semantic with locative
<i>Nisimoto-san wa hatarai-ta</i> Nisimoto-Mr./Ms. TOP worked	Non-semantic
<i>Nisimoto-san wa daidokoro de hatarai-ta</i> Nisimoto-Mr./Ms. TOP kitchen in worked	Non-semantic with locative

‘Nisimoto cooked (in the kitchen).’ Semantic (with locative)  
‘Nisimoto worked (in the kitchen).’ Non-Semantic (with locative)

Target sentence

*Tomita-san wa tempura da*  
Tomita-Mr./Ms. TOP tempura COP

(9) Context sentences	Conditions
<i>Gotou-san wa kituen-si-ta</i> Gotou-Mr./Ms. TOP smoked	Semantic
<i>Gotou-san wa beranda de kituen-si-ta</i> Gotou-Mr./Ms. TOP veranda in smoked	Semantic with locative
<i>Gotou-san wa sinkokyuu-si-ta</i> Gotou-Mr./Ms. TOP took a deep breath	Non-semantic
<i>Gotou-san wa beranda de sinkokyuu-si-ta</i> Gotou-Mr./Ms. TOP veranda in took a deep breath	Non-semantic with locative

‘Gotou smoked (in the veranda).’ Semantic (with locative)  
‘Gotou took a deep breath (in the veranda).’ Non-Semantic (with locative)

Target sentence

*Misima-san wa Mildseven da*  
Misima-Mr./Ms. TOP Mildseven COP

(10) Context sentences	Conditions
<i>Yamanaka-san wa eiga-kansyou-si-ta</i> Yamanaka-Mr./Ms. TOP watched a movie	Semantic
<i>Yamanaka-san wa eigakan de eiga-kansyou-si-ta</i> Yamanaka-Mr./Ms. TOP movie theater at watched a movie	Semantic with locative
<i>Yamanaka-san wa gyouretu-si-ta</i> Yamanaka-Mr./Ms. TOP waited in line	Non-semantic
<i>Yamanaka-san wa eigakan de gyouretu-si-ta</i> Yamanaka-Mr./Ms. TOP movie theater at waited in line	Non-semantic with locative

‘Yamanaka watched a movie (at a movie theater).’ Semantic (with locative)

‘Yamanaka waited in line (at a movie theater).

Non-Semantic (with locative)

Target sentence

*Sumita-san wa Star Wars da*  
Sumita-Mr./Ms. TOP Star Wars COP

B-3. Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences: Filler sentence pairs for the Understandability and Interpretation Tests with their mean understandability ratings (Pairs with\* are for the Understandability Test only.)

Sentence pair	Structure of the target sentence	<i>wa/ga</i>	Mean Rating
C: <i>Okada-san wa gomi o sute-ta</i> 'Okada threw out the garbage.'			
T: <i>Itou-san no gomi wa sutereo da</i> 'Itou's garbage is a stereo.'	same	<i>wa</i>	4
C: <i>Aki ni wa undoukai ga aru</i> 'There is a sports day in fall.'			
T: <i>Budou wa aki no kudamono da</i> 'Grapes are a fruit of fall.'	same	<i>wa</i>	3.6
C: <i>Kyou wa kayoubi da</i> 'Today is Tuesday.'			
T: <i>Asita wa mokuyoubi da</i> 'Tomorrow is Thursday.'	same	<i>wa</i>	2.45
C: <i>Ekiin wa kippu o tenkensi-ta</i> 'The station employee examined the ticket.'			
T: <i>Hayasi-san no inu wa sibainu da</i> 'Hayasi's dog is a sibainu.'	same	<i>wa</i>	1.9
C: <i>Kubota-san wa yokka-go ni sinkansen de kuru</i> 'Kubota will come by sinkansen in four days.'			
T: <i>Hensyuusya wa bataa da</i> 'The editor (?) butter.'	same	<i>wa</i>	1
C: <i>Kabe ni e ga ni-mai kakat-te iru</i> 'Two oil paintings are hanging on the wall.'			
T: <i>Itimai ga zinbutuga da</i> 'One (of the paintings) is a figure painting.'	same	<i>ga</i>	5
C: <i>Kotosi no eto ga inosisi da</i> 'This year's zodiac animal symbol is boar.'			
T: <i>Kyonen ga usagi-dosi dat-ta</i> 'Last year was a year of the rabbit.'	same	<i>ga</i>	3
C: <i>Syougakusei ga norimono-yoi si-ta</i> 'An elementary school student got motion sickness.'			

T: <i>Nagayama-san no takaramono ga yotto da</i> 'Nagayama's treasure is a yacht.'	same	<i>ga</i>	1.95
C: <i>Ototosi no natu ni min'na ryokou-si-ta</i> 'Everyone traveled in summer two years ago.'			
T: <i>Kouno-san ga hotikisu da</i> 'Kouno (?) a stapler.'	same	<i>ga</i>	1
*C: <i>Sensei wa syukudai o dasi-ta</i> 'The teacher gave homework.'			
T: <i>Seitotati wa teisyutu-si-ta</i> 'The students submitted (it).'	different	<i>wa</i>	4.8
C: <i>Zyoukyaku wa zaseki ni otitui-ta</i> 'Passengers were settled down on the seats.'			
T: <i>Pairotto wa anaunsu si-ta</i> 'The pilot made an announcement.'	different	<i>wa</i>	4.65
C: <i>Haisya wa kakeoti-si-ta</i> 'The dentist eloped.'			
T: <i>Andou-san wa haisya ni itt-a</i> 'Andou went to a dentist.'	different	<i>wa</i>	2.9
C: <i>Ato sukosi de ni-zi gozyuusan-pun da</i> 'It will be 2:53 soon.'			
T: <i>Zyuugatu wa sanzuyu-iti-niti made aru</i> 'October is a month with 31days.'	different	<i>wa</i>	2.3
C: <i>Utida-san wa kon'nyaku o yude-ta</i> 'Utida boiled the konnyaku.'			
T: <i>Takahasi-san wa odokasi-ta</i> 'Takahasi scared (someone).'	different	<i>wa</i>	2.2
C: <i>Hanayome ga nyuuzyou-si-ta</i> 'The bride came in.'			
T: <i>Syoutaikyaku ga hakusyu de mukae-ta</i> 'The guests received (her) with applause.'	different	<i>ga</i>	4.95
*C: <i>Minarai ga tyubou de yasai o kizan-da</i> 'The assistant cook chopped the vegetable in the kitchen.'			
T: <i>Syefu ga furaipan de itame-ta</i> 'The chef sautéed (it) in a pan.'	different	<i>ga</i>	4.9

C: <i>Kameraman ga syattaa o kit-ta</i> 'The photographer released the shutter.'			
T: <i>Zyosyu ga atarasii fuirumu o youi-si-ta</i> 'The assistant got the new roll of a film ready.'	different	<i>ga</i>	4.7
C: <i>Daigakusei ga tebukuro o otosi-ta</i> 'A university student lost a pair of glove.'			
T: <i>Koibito ga sinpin o purezento si-ta</i> 'His girlfriend/her boyfriend gave a new pair.'	different	<i>ga</i>	4.55
*C: <i>Tozanka ga toutyou ni seikou-si-ta</i> 'A climber succeeded in climbing.'			
T: <i>Fuzisan ga nihon-iti takai</i> 'Mt. Fuji is the tallest in Japan.'	different	<i>ga</i>	3
C: <i>Kodomo ga koron-da</i> 'A child fell down.'			
T: <i>Abe-san ga kega o si-ta</i> 'Abe injured.'	different	<i>ga</i>	2.85
C: <i>Bareriina ga nenza-si-ta</i> 'The ballerina sprained.'			
T: <i>Ueno-san ga baree o narat-ta</i> 'Ueno learned ballet.'	different	<i>ga</i>	2.6
C: <i>Ginkouin ga isoi-da</i> 'A bank employee hurried.'			
T: <i>Nakagawa-san ga syuttyou kara kaet-ta</i> 'Nakagawa came back from the business trip.'	different	<i>ga</i>	2.4
C: <i>Rainen ga Heisei nizyuu-nen da</i> 'Next year is the 20 <sup>th</sup> year of Heisei.'			
T: <i>Go-nen mae ni Taisyuu-zidai ga hazimat-ta</i> 'The Taisyuu era started 5years ago.'	different	<i>ga</i>	1.95
C: <i>Zimuin ga madoguti de donat-ta</i> 'A clerk yelled at the window.'			
T: <i>Saitou-san ga sodate-ta</i> 'Saitou raised (it).'	different	<i>ga</i>	1.65
C: <i>Basu ga ensuto si-ta</i> 'The bus stalled.'			
T: <i>Kitune ga sagasi-ta</i> 'A fox searched (it).'	different	<i>ga</i>	1.25

*C: <i>Sensyuu kimatu-siken ga at-ta</i> 'The final exam was given last week.'			
T: <i>Koubekou da</i> '(It) is Port Koube.'	different	NA	1.85
C: <i>Itinen mae no fuyu wa samuku nakat-ta</i> 'It was not cold last winter.'			
T: <i>Uehara-san da</i> '(It) is Uehara/ (Here comes) Uehara.'	different	NA	1.35

B-4. Practice sentence pairs for the Understandability Test (Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for all conditions and Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the Contradictory and Ellipsis conditions)

Overt practice pairs	Mean rating
C: <i>Yamamoto-san ga daietto-si-ta</i> 'Yamamoto is going on a diet.'	
T: <i>Ikkagetu de san-kiro yase-ta</i> '( ) lost 3 kiros in a month.'	4.9
C: <i>Syoogakkoo wa yon-kai-date da</i> 'The elementary school is a 4-floor building.'	
T: <i>Nonaka-san da</i> '(It is)/ (Here comes) Nonaka.'	1.4
C: <i>Kuroda-san ga kutu o migai-ta</i> 'Kuroda polished his/her shoes.'	
T: <i>Sengetu tikakuni kutuya ga kaiten-si-ta</i> 'A shoe store opened in the neighborhood last month.'	2.4
C: <i>Kaneda-san wa Pari de miti ni mayot-ta</i> 'Kaneda got lost in Paris.'	
T: <i>Kaneda-san wa miti o tazune-ta</i> 'Kaneda asked a direction.'	3.2
C: <i>Tui sakki hi ga nobot-ta</i> 'The sun has just risen a little while ago.'	
T: <i>Mou sukosi si-ta ra hi ga kure-ru</i> 'It will be dark soon.'	2.6
C: <i>Mikka mae wa hati-gatu sanzuyuu-niti dat-ta</i> 'It was August 30 three days ago.'	
T: <i>Futuka mae wa kin'youbi da</i> 'It was Friday two days ago.'	3.1
C: <i>Nisen'yo-nen wa uruudosi da</i> 'The year 2004 was a leap year.'	
T: <i>2009-nen mo uruudosi da</i> 'The year 2009 will be a leap year again.'	1.1
C: <i>Biyousi ga atarasii kamigata o teian-si-ta</i> 'The hair stylist suggested a new hair style.'	
T: <i>Asisutanto ga syanpuu si-ta</i> 'The assistant shampooed'	3.8

C: <i>Kangosi ga nyuuinkanzya ni tyuusya-si-ta</i> 'The nurse gave the patient an injection.'	
T: <i>Konsyuu sono kanzya wa taiin-suru</i> 'That patient will be discharged from the hospital.'	4.6
Covert practice pairs	
C: <i>Ima wa gogo go-zi gozyuugo-fun da</i> 'It is 5:55 pm now.'	
T: <i>Ato go-fun de roku-zi ni naru</i> 'It will be six in 5 minutes.'	5
C: <i>Nakazima-san ga simauma o tukamae-ta</i> 'Nakazima caught a zebra.'	
T: <i>Mutou-san ga kabutomusi o nigasi-ta</i> 'Mutou released the beetle.'	3.5
C: <i>Kinosita-san wa kondo seizinsiki da</i> 'Kinosita will attend the ceremony for the people who turned 20 during the year.'	
T: <i>Kinosita-san wa sanzyus-sai da</i> 'Kinosita is 30 years old.'	1.8
C: <i>Sakkaa-sensyu ga akusyu si-te-iru</i> 'A soccer player is shaking hands.'	
T: <i>Tanukisoba da</i> '(It is)/ (Here comes) Tanukisoba.'	1.4
C: <i>Mousugu asa no ku-zi han da</i> 'It will be 9 am soon.'	
T: <i>Kurisumasu ga tikadui-ta</i> 'Christmas is coming.'	2.5
C: <i>Haiyuu ga kisyu-kaiken si-ta</i> 'An actor had a press conference.'	
T: <i>Kaiken wa zyup-pun kan da</i> 'The conference was held for 10 minutes.'	4.8

## APPENDIX C

### C-1. Language background questionnaire

言語背景に関するアンケート

被験者番号: \_\_\_\_\_

日付: \_\_\_\_\_

1. 生年月日: 昭和・平成 \_\_\_\_\_ 年 \_\_\_\_\_ 月 \_\_\_\_\_ 日      2. 性別: 男・女

3. 母国語: \_\_\_\_\_

4. 今までに外国に住んだことはありますか。      ある・ない

外国に住んだことがある場合、以下の質問にお答えください。

1) 国名 \_\_\_\_\_ 歳から \_\_\_\_\_ 歳まで 滞在期間 \_\_\_\_\_ 年 \_\_\_\_\_ ヶ月

日本語は、どの程度使いましたか。 \_\_\_\_\_

日本語以外の言語は、どの程度使いましたか

\_\_\_\_\_ 語 どの程度 \_\_\_\_\_

2) 国名 \_\_\_\_\_ 歳から \_\_\_\_\_ 歳まで 滞在期間 \_\_\_\_\_ 年 \_\_\_\_\_ ヶ月

日本語は、どの程度使いましたか。 \_\_\_\_\_

日本語以外の言語は、どの程度使いましたか

\_\_\_\_\_ 語 どの程度 \_\_\_\_\_

書ききれない場合は、同じ要領で、この用紙の裏に書いてください。

5. 日本語以外の言語を勉強した経験 (学校での英語教育、外国語教育を含む。)

\_\_\_\_\_ 語 \_\_\_\_\_ 歳から \_\_\_\_\_ 歳まで 学習期間 \_\_\_\_\_ 年 \_\_\_\_\_ ヶ月

\_\_\_\_\_ 語 \_\_\_\_\_ 歳から \_\_\_\_\_ 歳まで 学習期間 \_\_\_\_\_ 年 \_\_\_\_\_ ヶ月

書ききれない場合は、同じ要領で、この用紙の裏に書いてください。

6. 普段、日本語以外の言語を使いますか?      はい      いいえ

「はい」と答えた方は、その言語と使用状況について具体的にお書きください。

\_\_\_\_\_ 語 使用状況 \_\_\_\_\_

\_\_\_\_\_ 語 使用状況 \_\_\_\_\_

書ききれない場合は、同じ要領で、この用紙の裏に書いてください。

7. あなたが育った言語環境について、あてはまるものすべてにお答えください。

( ) 家庭でも外でも日本語

( ) 家庭では日本語、外では \_\_\_\_\_ 語 (何歳ごろですか \_\_\_\_\_)

( ) 家庭では \_\_\_\_\_ 語、外では日本語 (何歳ごろですか \_\_\_\_\_)

( ) 家庭でも外でも \_\_\_\_\_ 語 (何歳ごろですか \_\_\_\_\_)

( ) その他 \_\_\_\_\_

ご協力ありがとうございました

## C-2. Language background questionnaire (English translation)

A questionnaire on the subject's language background

Subject number: \_\_\_\_\_

Date: \_\_\_\_\_

1. Date of Birth: *Syowa/Heisei* \_\_\_\_\_ year \_\_\_\_\_ month \_\_\_\_\_ date

2. Sex: Male/Female

3. Your native language: \_\_\_\_\_

4. Have you ever lived in foreign countries? Yes/No

If you have lived in (a) foreign country (countries), please answer the following question.

1) Nation \_\_\_\_\_ From \_\_\_\_\_ years old to \_\_\_\_\_ years old Period of stay \_\_\_\_\_ year(s) \_\_\_\_\_ month(s)

How much did you use Japanese? \_\_\_\_\_

How much did you use any language other than Japanese? \_\_\_\_\_

\_\_\_\_\_ Language To what degree \_\_\_\_\_

2) Nation \_\_\_\_\_ From \_\_\_\_\_ years old to \_\_\_\_\_ years old Period of stay \_\_\_\_\_ year(s) \_\_\_\_\_ month(s)

How much did you use Japanese? \_\_\_\_\_

How much did you use any language other than Japanese? \_\_\_\_\_

\_\_\_\_\_ Language To what degree \_\_\_\_\_

If you cannot write all of your experiences, please use the back of this sheet.

5. The experience of learning foreign languages (Including the learning experiences at school)

\_\_\_\_\_ Language From \_\_\_\_\_ years old to \_\_\_\_\_ years old Period of study \_\_\_\_\_ year(s) \_\_\_\_\_ month(s)

\_\_\_\_\_ Language From \_\_\_\_\_ years old to \_\_\_\_\_ years old Period of study \_\_\_\_\_ year(s) \_\_\_\_\_ month(s)

If you cannot write all of your experiences, please use the back of this sheet.

6. Do you use any language(s) other than Japanese in your daily life? Yes/No

If 'Yes,' please specify the language and its uses

\_\_\_\_\_ Language Uses \_\_\_\_\_

\_\_\_\_\_ Language Uses \_\_\_\_\_

If you cannot write all of your experiences, please use the back of this sheet.

7. About the environment in which you grew up, please mark everything you fit and answer the questions.

( ) Japanese both at home and outside home

( ) Japanese at home, \_\_\_\_\_ outside home (How old? \_\_\_\_\_)

( ) \_\_\_\_\_ at home, Japanese outside home (How old? \_\_\_\_\_)

( ) \_\_\_\_\_ both at home and outside home (How old? \_\_\_\_\_)

( ) Other \_\_\_\_\_

Thank you very much for your cooperation.

## APPENDIX D

### D-1. Instructions for the Understandability Test (Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences for all condition)

これから、2つの文を読んでもらいます。

1番目の文を読んだら、スペースバーを押して、先に進んでください。

2番目の文が、画面に現われます。

この2番目の文を、最初の文の続きとして読んだ時、この文は、わかりやすいですか？

わかりにくいですか？

最初の文の続きとして、2番目の文を読んだときに、この文の意味がよくわかるかどうかを、下にある、5段階のスケールで評価してください。

文の意味が全く分からない場合が1に、とてもよくわかる場合が5になります。

1と5の間だと思われる場合は、2 3 4から、該当するものを選んでください。

1	2	3	4	5
まったく				とてもよく
わからない		←→		わかる

D-2. Instruction for the Understandability Test (Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for all condition: English translation)

You will read two sentences.

When you finish reading the first sentence, press the space bar to go on to the second sentence.

You will see the second sentence on the screen.

When you read the second sentence as what follows the first sentence, Is it easy to understand?

Or is it difficult to understand?

Please rank how easy or difficult to understand the second sentence on the scale of 1 to 5 below, when you read it as what follows the first sentence.

The ranking will be 1 if you do not understand the meaning of the second sentence, and it will be 5 if you understand the meaning very well.

If you think your ranking will be somewhere between 1 and 5, please choose the appropriate one from 2, 3, and 4.

1	2	3	4	5
You do not				You understand
understand at all.		←→		very well.

## APPENDIX E

### E-1 Instructions for the Interpretation Test (Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences for syntactic and semantic conditions)

各ページには、a、bと2つの文が書かれてあります。このbの文を、aの文の続きとして読んだとき、bの文はどんな意味を表しているでしょうか。次の例題にあるように、自分の言葉に置き換えて説明してください。

#### 例題

- a 岸本さんのオートバイの前に、黒い猫が飛び出してきた
- b あやうく、ひきそうになってしまった

bの文の意味 → 岸本さんは、オートバイで黒い猫をひきそうになった

bの文が、意味が通じないと思われる場合は、無理にお答えいただく必要はありません。その場合は、「わからない」とお答えください。また、bの文の意味が想像できうる場合は、こじつけて書いてみてください。

この調査は、日本語の文の解釈をお聞きするものであり、各質問に正解、不正解はありません。

#### 重要事項

- 1) bの文は必ず、aの文に続くものとして読んでください。
- 2) 1番の問題から順に、お答えください。
- 3) 答えを書き終えたら、次の問題に進んでいただき、そのまま最後までお答えください。最後まで解答し終えたら、そこで終了してください。前の問題に戻って、答えを書き直すことなどはないようにしてください。

E-2. Instructions for the Interpretation Test (Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for syntactic and semantic conditions: English translation)

You will see two sentences as *a* and *b* on each page. What does the sentence *b* mean **when you read it as what follows the sentence *a***? Explain the meaning of the sentence *b* with your own words as in the following example.

Example

*a* A black cat run in front of the Kisimoto's motorbike (when he/she is driving).

*b* (      ) almost hit (      ).

The meaning of *b* → Kisimoto almost ran over the black cat by his motorbike.

If you think the sentence *b* does not make sense, you do not need to make up an answer. Please write 'I do not understand,' in that case. If you can imagine what the sentence *b* means, please write down whatever you think it means.

This test asks your interpretations of Japanese sentences. There is no right or wrong answer.

Important information

- 1) Make sure you read the sentence *b* as what follows the sentence *a*.
- 2) Answer the questions in order from question 1.
- 3) When you finish writing down your answer to a question, go on to the next question and continue until the last question. When you finish answering the last question, the test is over. Do not change your answers after you go on to the next questions.

## APPENDIX F

### F-1. Instructions for the follow-up Interpretation Test of Type I NP<sub>1</sub> wa NP<sub>2</sub> da sentences and for the Interpretation Test for Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the No Context condition

以下のページにある文はどのような意味を表わしていると思いますか。自分の言葉に置き換えて説明してください。

文の意味を思いつくのが難しい場合は、どんな意味に受け取れるか想像して、できるかぎり書いてみてください。こじつけでもかまいません。

もし、こじつけるのが不可能な場合は「わからない」とお書きください。

いくつか異なる意味に受け取れると思われた場合は、思い浮かんだ意味をすべてお書きください。

この調査は、日本語の文の解釈をお聞きするものであり、各質問に正解、不正解はありません。

F-2. Instructions for the follow-up Interpretation Test for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences and for the Interpretation Test for Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the No Context condition (English translation)

What do you think the sentence on the following page would mean? Explain the meaning with your own words.

If you do not think of any meaning, imagine how the sentence is perceived and try to guess the meaning. Write down whatever the meaning that you come up with.

If it is impossible, then write 'I do not understand.'

If you think the sentence may express some different meanings, write down all the meanings you think of.

This test asks your interpretations of Japanese sentences. There is no right or wrong answer.

## APPENDIX G

Experimental sentences for the Follow-up Interpretation Test for Type I NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences

No context condition

- (1) *Suzuki-san wa ren'ai-syouseitu da*  
Suzuki-Mr./Ms. TOP love story COP
- (2) *Ikeda-san wa biiru da*  
Ikeda-Mr./Ms. TOP beer COP
- (3) *Katou-san wa tokei da*  
Katou-Mr./Ms. TOP watch COP
- (4) *Sirai-san wa keizaigaku da*  
Sirai-Mr./Ms. TOP economics COP
- (5) *Hosino-san wa sandoitti da*  
Hosino-Mr./Ms. TOP sandwich COP
- (6) *Kagawa-san wa mafuraa da*  
Kagawa-Mr./Ms. TOP scarf COP
- (7) *Nisino-san wa spootu-kaa da*  
Nisino-Mr./Ms. TOP sports car COP
- (8) *Tomita-san wa tenpura da*  
Tomita-Mr./Ms. TOP tenpura COP

No context with locative condition

- (1) *Suzuki-san wa tosyokan de ren'ai-syouseitu da*  
Suzuki-Mr./Ms. TOP library in love story COP
- (2) *Ikeda-san wa izakaya de biiru da*  
Ikeda-Mr./Ms. TOP Japanese pub in beer COP
- (3) *Katou-san wa depaato de tokei da*  
Katou-Mr./Ms. TOP department store in watch COP
- (4) *Sirai-san wa kyousitu de keizaigaku da*

Sirai-Mr./Ms. TOP classroom in economics COP

(5) *Hosino-san wa kissaten de sandoitti da*  
Hosino-Mr./Ms. TOP cafe in sandwich COP

(6) *Kagawa-san wa amimono-kyousitu de mafuraa da*  
Kagawa-Mr./Ms. TOP knitting class in scarf COP

(7) *Nisino-san wa rozyou de spootu-kaa da*  
Nisino-Mr./Ms. TOP street on sports car COP

(8) *Tomita-san wa daidokoro de tempura da*  
Tomita-Mr./Ms. TOP kitchen in tempura COP

APPENDIX H

Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences: Experimental sentence pairs/triplets for the Understandability Test and the Interpretation Test

(1) Target sentence

*Tanuma-san wa bengosi da*  
 Tanuma-Mr./Ms. TOP lawyer COP  
 ‘Tanuma is a lawyer.’

Context sentences	Conditions
<i>Tanuma-san wa bengosi sikaku o hakudatusa-re-ta</i> Tanuma-Mr./Ms. TOP license of a lawyer ACC deprived ‘Tanuma’s license as a lawyer has been canceled.’	Contradictory
<i>Isiyama-san wa kaikeisi o sagasite-iru</i> Isiyama-Mr./Ms. TOP accountant ACC is looking for ‘Isiyama is looking for an accountant’	Ellipsis
C1: <i>Hatakeyama-san wa zeirisi o sagasite-iru</i> Hatakeyama-Mr./Ms. TOP tax accountant ACC is looking for C2: <i>Isiyama-san wa kaikeisi o sagasite-iru</i> Isiyama-Mr./Ms. TOP accountant ACC is looking for ‘Hatakeyama is looking for a tax accountant. Isiyama is looking for an accountant.’	Double-Ellipsis
C1: <i>Isiyama-san to Tanuma-san wa dareka o sagasite-iru</i> Isiyama-Mr./Ms. and Tanuma-Mr./Ms. TOP someone ACC are looking for C2: <i>Isiyama-san wa kaikeisi o sagasite-iru</i> Isiyama-Mr./Ms. TOP accountant ACC is looking for ‘Isiyama and Tanuma are looking for someone. Isiyama is looking for an accountant.’	Double-Bridge

(2) Target sentence

*Honda-san wa kaisyain da*  
 Honda-Mr./Ms. TOP company employee COP  
 ‘Honda is a company employee.’

Context sentences	Conditions
<i>Honda-san wa kinou kaisya o intai-si-ta</i> Honda-Mr./Ms. TOP yesterday company ACC retired ‘Honda retired from his company yesterday.’	Contradictory
<i>Satonaka-san wa syufu o damasite-iru</i> Satonaka-Mr./Ms. TOP housewife ACC is cheating ‘Satonaka has cheated a housewife.’	Ellipsis
C1: <i>Sindoo-san wa ten'in o damasite-iru</i>	Double-

<p>Sindoo-Mr./Ms. TOP clerk ACC is cheating  C2: <i>Satonaka-san wa syufu o damasite-iru</i>  Satonaka-Mr./Ms. TOP housewife ACC is cheating  ‘Sindo has cheated a housewife.  Satonaka has cheated a housewife.’</p>	Ellipsis
<p>C1: <i>Satonaka-san to Honda-san wa dareka o damasite-iru</i>  Satonaka-Mr./Ms. and Honda-Mr./Ms. TOP someone ACC are cheating  C2: <i>Satonaka-san wa syufu o damasite-iru</i>  Satonaka-Mr./Ms. TOP housewife ACC is cheating  ‘Satonaka and Honda have cheated someone  Satonaka has cheated a housewife.’</p>	Double-Bridge

(3) Target sentence

*Sayama-san wa sityou da*  
Sayama-Mr./Ms. TOP mayor COP  
‘Sayama is a mayor.’

Context sentences	Conditions
<p><i>Sayama-san wa sityou-senkyo de rakusen-si-ta</i>  Sayama-Mr./Ms. TOP mayor-election in lost  ‘Sayama lost in the mayoral election.’</p>	Contradictory
<p><i>Kawagoe-san wa yakuin o syoutai-si-ta</i>  Kawagoe-Mr./Ms. TOP member of the board ACC invited  ‘Kawagoe invited a member of the board.’</p>	Ellipsis
<p>C1: <i>Yokoyama-san wa daigisi o syoutai-si-ta</i>  Yokoyama-Mr./Ms. TOP Diet member ACC invited  C2: <i>Kawagoe-san wa yakuin o syoutai-si-ta</i>  Kawagoe-Mr./Ms. TOP member of the board ACC invited  ‘Yokoyama invited a Diet member.  Kawagoe invited a member of the board.’</p>	Double-Ellipsis
<p>C1: <i>Kawagoe-san to Sayama-san wa dareka o syoutai-si-ta</i>  Kawagoe-Mr./Ms. and Sayama-Mr./Ms. TOP someone ACC invited  C2: <i>Kawagoe-san wa yakuin o syoutai-si-ta</i>  Kawagoe-Mr./Ms. TOP member of the board ACC invited  ‘Kawagoe and Sayama invited someone.  Kawagoe invited a member of the board.’</p>	Double-Bridge

(4) Target sentence

*Ozaki-san wa isya da*  
Ozaki-Mr./Ms. TOP doctor COP  
‘Ozaki is a doctor.’

Context sentences	Conditions
<p><i>Ozaki-san wa isi-kokkasiken</i>  Ozaki-Mr./Ms. TOP National examination for the medical practitioner  <i>ni oti-ta</i>  in failed  ‘Ozaki failed in the National examination for the medical practitioner.’</p>	Contradictory
<p><i>Segawa-san wa kangofu o home-ta</i>  Segawa-Mr./Ms. TOP nurse ACC praised  ‘Segawa praised a nurse.’</p>	Ellipsis
<p>C1: <i>Isomura-san wa zyosanpu o home-ta</i>  Isomura-Mr./Ms. TOP midwife ACC praised  C2: <i>Segawa-san wa kangofu o home-ta</i>  Segawa-Mr./Ms. TOP nurse ACC praised  ‘Isomura praised a midwife.  Segawa praised a nurse.’</p>	Double-Ellipsis
<p>C1: <i>Segawa-san to Ozaki-san wa dareka o home-ta</i>  Segawa-Mr./Ms. and Ozaki-Mr./Ms. TOP someone ACC praised  C2: <i>Segawa-san wa kangofu o home-ta</i>  Segawa-Mr./Ms. TOP nurse ACC praised  ‘Segawa and Ozaki praised someone.  Segawa praised a nurse.’</p>	Double-Bridge

(5) Target sentence

*Kaneda-san wa ryousi da*  
Kaneda-Mr./Ms. TOP fisherman COP  
‘Kaneda is a fisherman.’

Context sentences	Conditions
<p><i>Kaneda-san wa yuubinkyoku de hataraitte-iru</i>  Kaneda-Mr./Ms. TOP post office at is working  ‘Kaneda works at a post office’</p>	Contradictory
<p><i>Yamakawa-san wa susisyokunin o suisen-si-ta</i>  Yamakawa-Mr./Ms. TOP susi-chef ACC recommended  ‘Yamakawa has recommended a sushi-chef.’</p>	Ellipsis
<p>C1: <i>Sugiyama-san wa itamae o suisen-si-ta</i>  Sugiyama-Mr./Ms. TOP cook of Japanese cuisine ACC recommended  C2: <i>Yamakawa-san wa susisyokunin o suisen-si-ta</i>  Yamakawa-Mr./Ms. TOP susi-chef ACC recommended  ‘Sugiyama has recommended a cook of Japanese cuisine.  Yamakawa has recommended a sushi-chef.’</p>	Double-Ellipsis
<p>C1: <i>Yamakawa-san to Kaneda-san wa dareka o</i>  Yamakawa-Mr./Ms. and Kaneda-Mr./Ms. TOP someone ACC  <i>suisen-si-ta</i>  recommended</p>	Double-Bridge

<p>C2: <i>Yamakawa-san wa susisyokunin o suisen-si-ta</i>  Yamakawa-Mr./Ms. TOP susi-chef ACC recommended  ‘Yamakawa and Kaneda have recommended someone.  Yamakawa has recommended a sushi-chef.’</p>	
--	--

(6) Target sentence

*Aida-san wa untensyu da*  
Aida-Mr./Ms. TOP driver COP  
‘Aida is a driver.’

Context sentences	Conditions
<p><i>Aida-san wa unten-menkyo o motte-inai</i>  Aida-Mr./Ms. TOP driver’s license ACC does not have  ‘Aida does not have a driver’s license’</p>	Contradictory
<p><i>Tatikawa-san wa haisougakari o nagut-ta</i>  Tatikawa-Mr./Ms. TOP deliveryman ACC hit  ‘Tatikawa hit a deliveryman.’</p>	Ellipsis
<p>C1: <i>Umemura-san wa keibiin o nagut-ta</i>  Umemura-Mr./Ms. TOP security guard ACC hit  C2: <i>Tatikawa-san wa haisougakari o nagut-ta</i>  Tatikawa-Mr./Ms. TOP deliveryman ACC hit  ‘Umemura hit a security guard.’  Tatikawa hit a deliveryman.’</p>	Double-Ellipsis
<p>C1: <i>Tatikawa-san to Aida-san wa dareka o nagut-ta</i>  Tatikawa-Mr./Ms. and Aida-Mr./Ms. TOP someone ACC hit  C2: <i>Tatikawa-san wa haisougakari o nagut-ta</i>  Tatikawa-Mr./Ms. TOP delivery man ACC hit  ‘Tatikawa and Aida hit someone.  Tatikawa hit a deliveryman.’</p>	Double-Bridge

(7) Target sentence

*Mayama-san wa suiei-sensyu da*  
Mayama-Mr./Ms. TOP swimmer COP  
‘Mayama is a swimmer.’

Context sentences	Conditions
<p><i>Mayama-san wa oyoge-nai</i>  Mayama-Mr./Ms. TOP cannot swim  ‘Mayama cannot swim.’</p>	Contradictory
<p><i>Sirakawa-san wa rikuzyou-sensyu o ouensite-iru</i>  Sirakawa-Mr./Ms. TOP field athlete ACC is supporting  ‘Sirakawa supports a field athlete.’</p>	Ellipsis
<p>C1: <i>Itimura-san wa taisou-sensyu o ouensite-iru</i></p>	Double-

<p>Itimura-Mr./Ms. TOP gymnast ACC is supporting  C2: <i>Sirakawa-san wa rikuzyou-sensyu o ouensite-iru</i>  Sirakawa-Mr./Ms. TOP field athlete ACC is supporting  ‘Itimura supports a gymnast.  Sirakawa supports a field athlete.’</p>	Ellipsis
<p>C1: <i>Sirakawa-san to Mayama-san wa dareka o</i>  Sirakawa-Mr./Ms. and Mayama-Mr./Ms. TOP someone ACC  <i>ouensite-iru</i>  are supporting  C2: <i>Sirakawa-san wa rikuzyou-sensyu o ouensite-iru</i>  Sirakawa-Mr./Ms. TOP field athlete ACC is supporting  ‘Sirakawa and Mayama support someone.  Sirakawa supports a field athlete.’</p>	Double-Bridge

(8) Target sentence

*Simizu-san wa baiorin-sousya da*  
Simizu-Mr./Ms. TOP violinist COP  
‘Simizu is a violinist.’

Context sentences	Conditions
<p><i>Simizu-san wa gakki ga deki-nai</i>  Simizu-Mr./Ms. TOP instrument NOM cannot  ‘Simizu cannot play any instruments.’</p>	Contradictory
<p><i>Koizumi-san wa pianisuto o an'nai-si-ta</i>  Koizumi-Mr./Ms. TOP pianist ACC ushered  ‘Koizumi ushered a pianist.’</p>	Ellipsis
<p>C1: <i>Murayama-san wa fruuto-sousya o an'nai-si-ta</i>  Murayama-Mr./Ms. TOP flutist ACC ushered  C2: <i>Koizumi-san wa pianisuto o an'nai-si-ta</i>  Koizumi-Mr./Ms. TOP pianist ACC ushered  ‘Murayama ushered a flutist.  Koizumi ushered a pianist.’</p>	Double-Ellipsis
<p>C1: <i>Koizumi-san to Simizu-san wa dareka o an'nai-si-ta</i>  Koizumi-Mr./Ms. and Simizu-Mr./Ms. TOP someone ACC ushered  C2: <i>Koizumi-san wa pianisuto o an'nai-si-ta</i>  Koizumi-Mr./Ms. TOP pianist ACC ushered  ‘Koizumi and Simizu ushered someone.  Koizumi ushered a pianist.’</p>	Double-Bridge

(9) Target sentence

*Kitou-san wa yakyuu-sensyu da*  
Kitou-Mr./Ms. TOP baseball player COP  
‘Kitou is a baseball player’

Context sentences	Conditions
<i>Kitou-san wa yakyuu no ruuru o sira-nai</i> Kitou-Mr./Ms. TOP baseball GEN rule ACC does not know 'Kitou does not know the rules of baseball.'	Contradictory
<i>Futigami-san wa kouti o sikat-ta</i> Futigami-Mr./Ms. TOP coach ACC blamed 'Futigami blamed a coach.'	Ellipsis
C1: <i>Kanesiro-san wa maneezyaa o sikat-ta</i> Kanesiro-Mr./Ms. TOP manager ACC blamed C2: <i>Futigami-san wa kouti o sikat-ta</i> Futigami-Mr./Ms. TOP coach ACC blamed 'Kanesiro blamed a manager. Futigami blamed a coach.'	Double-Ellipsis
C1: <i>Futigami-san to Kitou-san wa dareka o sikat-ta</i> Futigami-Mr./Ms. and Kitou-Mr./Ms. TOP someone ACC blamed C2: <i>Futigami-san wa kouti o sikat-ta</i> Futigami-Mr./Ms. TOP coach ACC blamed 'Futigami and Kitou blamed someone. Futigami blamed a coach.'	Double-Bridge

(10) Target sentence

*Katano-san wa syasinka da*  
Katano-Mr./Ms. TOP photographer COP  
'Katano is a photographer'

Context sentences	Conditions
<i>Katano-san wa syasin o tot-ta koto ga nai</i> Katano-Mr./Ms. TOP picture ACC has taken NOMI NOM not 'Katano has never taken pictures.'	Contradictory
<i>Handa-san wa sakka o demukaete-iru</i> Handa-Mr./Ms. TOP writer ACC is welcoming 'Handa is welcoming a writer.'	Ellipsis
C1: <i>Satake-san wa gaka o demukaete-iru</i> Satake-Mr./Ms. TOP painter ACC is welcoming C2: <i>Handa-san wa sakka o demukaete-iru</i> Handa-Mr./Ms. TOP writer ACC is welcoming 'Satake is welcoming a painter. Handa is welcoming a writer.'	Double-Ellipsis
C1: <i>Handa-san to Katano-san wa dareka o demukaete-iru</i> Handa-Mr./Ms. and Katano-Mr./Ms. TOP someone ACC are welcoming C2: <i>Handa-san wa sakka o demukaete-iru</i> Handa-Mr./Ms. TOP writer ACC is welcoming 'Handa and Katano are welcoming someone. Handa is welcoming a writer.'	Double-Bridge

## APPENDIX I

### I-1. Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences: Filler sentences for the Understandability Test for the No context condition

Sentence	Structure of the target sentence	<i>wa/ga</i>	Mean Rating
<i>Asita wa kayoubi da</i> 'Tomorrow is Tuesday.'	same	<i>wa</i>	5
<i>Budou wa aki no kudamono da</i> 'Grapes are a fruit of autumn.'	same	<i>wa</i>	5
<i>Itou-san no gomi wa sutereo da</i> 'Ito's trash is a stereo.'	same	<i>wa</i>	3.14
<i>Kisimoto-san wa ha da</i> 'Kisimoto (?) teeth.'	same	<i>wa</i>	1.63
<i>Ototosi no natu wa yokka-go da</i> 'Summer two years ago (?) four days later.'	same	<i>wa</i>	1.29
<i>Nagayama-san wa yotto da</i> 'Nagayama (?) a yacht.'	same	<i>wa</i>	1
<i>Hayasi-san no inu ga sibainu da</i> 'Hayashi's dog is a Shiba.'	same	<i>ga</i>	3.71
<i>Kotosi no eto ga nezumi da</i> 'This is the year of mouse in Chinese Astrology'	same	<i>ga</i>	3.29
<i>Ogata-san no wasuremono ga kasa da</i> 'What Ogata left behind is an umbrella.'	same	<i>ga</i>	3.26
<i>Hatano-san ga tentai-kansoku da</i> 'Hatano (?) an astronomical observation.'	same	<i>ga</i>	1.69
<i>Hensyuusya ga bataa da</i> 'The editor (?) butter.'	same	<i>ga</i>	1
<i>Kouno-san ga hotikisu da</i> 'Kouno (?) a stapler.'	same	<i>ga</i>	1

<i>Undoukai ga ekiin da</i> 'Sports day (?) a station employee.'	same	<i>ga</i>	1
<i>Sinagawa-san wa saihou ga tokui da</i> 'Sinagawa is good at sewing.'	different	<i>wa</i>	5
<i>Fuzisan wa nihon-iti takai</i> 'Mt. Fuji is the highest in Japan.'	different	<i>wa</i>	5
<i>Sensei wa syukudai o dasite-iru</i> 'A teacher is giving homework.'	different	<i>wa</i>	4.57
<i>Hyuuga-san wa hitori-gurasi o si-ta koto ga nai</i> 'Hyuga has never lived alone.'	different	<i>wa</i>	4.43
<i>Zyoukyaku wa zaseki ni otitui-ta</i> 'Passengers have settled in their seats.'	different	<i>wa</i>	3.86
<i>Takahasi-san wa kowasi-ta</i> 'Takahasi broke ( ).'	different	<i>wa</i>	2.29
<i>Zimuin wa madoguti de nori-kae-ta</i> 'A clerk transferred at the window.'	different	<i>wa</i>	2.14
<i>Sakamoto-san wa mizikai</i> 'Sakamoto's (?) short'	different	<i>wa</i>	1.57
<i>Uehara-san wa furaipan de nozoi-ta</i> 'Uehara peeped (?) with a flying pan.'	different	<i>wa</i>	1.43
<i>Zyosyu wa kansei-si-ta</i> 'An assistant finished ( ).'	different	<i>wa</i>	1.29
<i>Koukousei wa fura-nai</i> 'High school students do not come down.'	different	<i>wa</i>	1
<i>Kamera-man ga syattaa o kitte-iru</i> 'A photographer is clicking the shutter of the camera.'	different	<i>ga</i>	5
<i>Basu ga ugoka-nai</i> 'The bus does not move.'	different	<i>ga</i>	5
<i>Kodomo ga koron-da</i> 'A child fell down.'	different	<i>ga</i>	5

<i>Hanamura-san ga tebukuro o otosi-ta</i> 'Hanamura student lost her gloves.'	different	<i>ga</i>	4.86
<i>Minarai ga tyuubou de yasai o kizan-da</i> 'An apprentice cook chopped the vegetables.'	different	<i>ga</i>	4.71
<i>Syoutaikyaku ga hakusyu-site-iru</i> 'The guests are applauding.'	different	<i>ga</i>	4.21
<i>Saitou-san ga sodate-ta</i> 'Saito raised ( ).'	different	<i>ga</i>	3.43
<i>Haisya ga zitai-si-ta</i> 'A dentist turned down ( ).'	different	<i>ga</i>	2.14
<i>Ikesita-san ga kake-nai</i> 'Ikesita cannot write ( ).'	different	<i>ga</i>	1.86
<i>Bareriina ga tunde-i-nai</i> 'A ballet dancer has not piled up ( ).'	different	<i>ga</i>	1.43
<i>Kitune ga hirai-ta</i> 'A fox opened ( ).'	different	<i>ga</i>	1.29
<i>Kyou ga ni-zi da</i> 'Today ( ) 2 o'clock.'	different	<i>ga</i>	1.12

I-2. Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences: Filler sentence pairs for the Understandability Test for the Contradictory and Ellipsis conditions

Sentence pairs	Structure of the target sentence	wa/ga	Mean Rating
C: <i>Utiyama-san wa terebi ni dete-iru</i> 'Utiyama appears on television.'	same	wa	4.94
T: <i>Utiyama-san wa anaun'saa da</i> 'Utiyama is an announcer.'			
C: <i>Hamura-san wa yakin-ake da</i> 'Hamura has just come off night duty'	same	wa	4.44
T: <i>Hamura-san wa keizi da</i> 'Hamura is a detective.'			
C: <i>Okada-san wa gomi o dasite-i-nai</i> 'Okada has not taken out his trash.'	same	wa	2.73
T: <i>Itou-san no gomi wa sutereo da</i> 'Ito's trash is a stereo.'			
C: <i>Aki ni wa undoukai ga aru</i> 'There is a sports day in fall.'	same	wa	2.69
T: <i>Budou wa aki no kudamono da</i> 'Grapes are an autumn fruit.'			
C: <i>Isizuka-san wa norimono ni yowa-nai</i> 'Isizuka does not have travel sickness.'	same	wa	1.44
T: <i>Nagayama-san wa yotto da</i> 'Nagayama (?) a yacht.'			
C: <i>Kisimoto-san wa ha o migai-ta</i> 'Kisimoto brushed his teeth.'	same	wa	1.69
T: <i>Kisimoto-san wa nitiyoubi da</i> 'Kisimoto (?) Sunday.'			
C: <i>Ekiin wa kippu o tenken si-nakat-ta</i> 'A station employee did not examine the ticket.'	same	wa	1
T: <i>Hayasi-san no inu wa sibainu da</i> 'Hayashi's dog is a Shiba.'			
C: <i>Kabe ni e ga ni-mai kakatte-iru</i> 'Two oil paintings are hanging on the wall.'	same	ga	5
T: <i>Iti-mai ga zinbutu-ga da</i>			

‘One (of the paintings) is a figure painting.’

C: <i>Zitensya ga nusumare-ta</i> ‘A bicycle was stolen.’			
T: <i>Koukousei ga han'nin da</i> ‘A high school student did it.’	same	<i>ga</i>	4.75
C: <i>Takiyama-san ga puranetariumu ni yot-ta</i> ‘Takiyama stopped by a planetarium.’			
T: <i>Hatano-san ga tentai-kansoku da</i> ‘Hatano (?) an astronomical observation.’	same	<i>ga</i>	2.19
C: <i>Ototosi no natu ni min'na ryokou-site-iru</i> ‘Everyone has been on a trip during summer two years ago.’			
T: <i>Kouno-san no kinenhin ga hotikisu da</i> ‘Kouno’s memento is a stapler.’	same	<i>ga</i>	1.88
C: <i>Keisatukan ga wasuremono o site-iru</i> ‘A policeman left his belonging.’			
T: <i>Ogata-san no wasuremono ga kasa da</i> ‘What Ogata left behind is his umbrella.’	same	<i>ga</i>	1.44
C: <i>Kubota-san ga yokka-go ni Sinkansen de kuru</i> ‘Kubota will come by the Sinkansen in four days.’			
T: <i>Hensyuusya ga bataa da</i> ‘The editor (?) butter.’	same	<i>ga</i>	1.19
C: <i>Sensei wa syukudai o dasi-ta</i> ‘The teacher gave homework.’			
T: <i>Seitotati wa teisyutu-si-ta</i> ‘The students submitted (it).’	different	<i>wa</i>	4.88
C: <i>Zyoukyaku wa zaseki ni otitui-ta</i> ‘Passengers have settled in their seats.’			
T: <i>Pairotto wa anaunsu o si-ta</i> ‘The pilot made an announcement.’	different	<i>wa</i>	4.81
C: <i>Kameraman ga syattaa o kitte-iru</i> ‘The photographer is releasing the shutter.’			
T: <i>Zyosyu ga atarasii fuirumu o youi-si-ta</i> ‘The assistant got the new roll of a film ready.’	different	<i>ga</i>	4.81
C: <i>Sinagawa-san wa sukaato o nutte-iru</i> ‘Sinagawa is sewing a skirt.’			
T: <i>Sinagawa-san wa saihou ga tokui da</i>	different	<i>wa</i>	4.75

‘Sinagawa is good at sewing.’

C: *Tozanka wa toutyou ni seikou-site-iru*  
‘A climber succeeded in climbing.’

T: *Fuzisan wa nihon-iti takai* different wa 2.93  
‘Mt. Fuji is the tallest in Japan.’

C: *Haisya wa kakeoti-si-ta*  
‘The dentist eloped.’

T: *Andou-san wa haisya ni itt-a* different wa 2.9  
‘Andou went to a dentist.’

C: *Utida-san wa tamago o yude-ta koto ga nai*  
‘Utida has never boiled eggs

T: *Takahasi-san wa aruki-tuduke-ta* different wa 1.31  
‘Takahasi kept walking.’

C: *Hyuuga-san wa hitori de kurasite-iru*  
‘Hyuga is living alone.’

T: *Hyuuga-san wa hitori-gurasi o si-ta koto ga nai* different wa 1.25  
‘Hyuga has never lived alone.’

C: *Minarai ga tyuubou de yasai o kizan-da*  
‘The assistant cook chopped the vegetable  
in the kitchen.’

T: *Syefu ga furaipan de itame-ta* different ga 4.94  
‘The chef sautéed (it) in a pan.’

C: *Hanayome ga kintyou-site-iru*  
‘The bride looks nervous’

T: *Syoutaikyaku ga hakusyu de mukae-ta* different ga 4.75  
‘The guests received (her) with applause.’

C: *Hanamura-san ga tebukuro o otosi-ta*  
‘Hanamura student lost her gloves.’

T: *Okamoto-san ga sin'pin o purezento-si-ta* different ga 4.81  
‘Okamoto gave her new ones.’

C: *Sakamoto-san ga ame ni furare-ta*  
‘Sakamoto got caught in the rain.’

T: *Sakamoto-san ga kaze o hii-ta* different ga 4.69  
‘Sakamoto caught a cold.’

C: *Kodomo ga koron-da*  
‘A child fell down.’

T: <i>Abe-san ga kega o si-ta</i> 'Abe injured.'	different	<i>ga</i>	2.81
C: <i>Sakiyama-san ga isoide-iru</i> 'Sakiyama is in a hurry.'			
T: <i>Nakagawa-san ga syuttyou kara kaet-ta</i> 'Nakagawa came back from the business trip.'	different	<i>ga</i>	2.44
C: <i>Nisimoto-san ga tiketetu ni not-ta</i> 'Nisimoto got on the subway.'			
T: <i>Nisimoto-san ga hatizi ni oki-ta</i> 'Nisimoto woke up at eight.'	different	<i>ga</i>	2.19
C: <i>Ikesita-san ga gaikokugo ga deki-nai</i> 'Ikesita does not speak any foreign languages.'			
T: <i>Ikesita-san ga tuuyaku o tutome-ta</i> 'Ikesita worked as an interpreter.'	different	<i>ga</i>	2.19
C: <i>Bareriina ga toutyakusite-inai</i> 'The ballerina has not arrived.'			
T: <i>Ueno-san ga baree o narat-ta</i> 'Ueno learned ballet.'	different	<i>ga</i>	1.94
C: <i>Zimuin ga madoguti de donat-ta</i> 'A clerk yelled at the window.'			
T: <i>Saitou-san ga sodate-ta</i> 'Saitou raised (it).'	different	<i>ga</i>	1.75
C: <i>Basu ga ensuto si-ta</i> 'The bus stalled.'			
T: <i>Kitune ga sagasi-ta</i> 'A fox searched (it).'	different	<i>ga</i>	1.5
C: <i>Rainen ga Heisei nizyuuityi-nen da</i> 'Next year is the 21th year of <i>Heisei</i> .'			
T: <i>Go-nen mae ni Taisyuu-zidai ga hazimat-ta</i> 'The <i>Taisyuu</i> era began five years ago.'	different	<i>ga</i>	1.31
C: <i>Kyou wa gogatu tuitati da</i> 'Today is the 1st of May.'			
T: <i>Asita kara atarasii tosi da</i> 'We will have a new year from tomorrow.'	different	NA	1.27
C: <i>Sensyuu kimatu-siken ga at-ta</i> 'There was a final exam last week.'			

T: <i>Koube-kou da</i> '(?) is the port of Kobe.'	different	NA	1.19
C: <i>Itinen mae no fuyu wa samuku nakat-ta</i> 'It was not cold last winter.'			
T: <i>Uehara-san da</i> '(It) is Uehara/ (Here comes) Uehara.'	different	NA	1.19

I-3. Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences: Filler sentence pairs for the Understandability Test for the Double-Ellipsis and Double-Bridge conditions

Sentence triplets	Structure of the target sentence	wa/ga	Mean Rating
C1: <i>Utiyama-san to Murasugi-san wa dokoka e ryokou-si-ta</i> 'Utiyama and Murasugi went on a trip to somewhere.'			
C2: <i>Utiyama-san wa Akita e ryokou-si-ta</i> 'Utiyama went to Akita.'			
T: <i>Murasugi-san wa Kagosima da</i> 'Murasugi (?) Kagosima.'	same	wa	4.45
C1: <i>Okada-san to Itoo-san wa nanika o sute-ta</i> 'Okada and Ito threw something (in the trash).'			
C2: <i>Okada-san wa hondana o sute-ta</i> 'Okada threw a bookshelf (in the trash).'			
T: <i>Ito-san no gomi wa sutereo da</i> 'Ito's trash is a stereo.'	same	wa	4.2
C1: <i>Hamura-san wa yakin-ake da</i> 'Hamura has just come off night duty'			
C2: <i>Sakuya wa hitoban-dyuu isogasikat-ta</i> '(He) was busy all through the night.'			
T: <i>Hamura-san wa keizi da</i> 'Hamura is a detective.'	same	wa	4.15
C1: <i>Aki ni wa undoukai ga aru</i> 'There is a sports day in fall.'			
C2: <i>Haru ni wa ensoku ga aru</i> 'There is a school excursion in spring.'			
T: <i>Budou wa aki no kudamono da</i> 'Grapes are an autumn fruit.'	same	wa	2.45
C1: <i>Isizuka-san wa norimono ni yowa-nai</i> 'Isizuka does not have travel sickness.'			
C2: <i>Akatuka-san wa norimono ni you</i> 'Akatuka has travel sickness.'			
T: <i>Nagayama-san wa yotto da</i> 'Nagayama (?) a yacht.'	same	wa	2.15
C1: <i>Kisimoto-san to Iwasaki-san wa nanika o hirot-ta</i> 'Kisimoto and Iwasaki picked up something.'			
C2: <i>Kisimoto-san wa medaru o hirot-ta</i>			

	‘Kisimoto picked up a medal.’			
T:	<i>Iwasaki-san wa nitiyoubi da</i> ‘Iwasaki (?) Sunday.’	same	<i>wa</i>	1.25
C1:	<i>Ekiin wa kippu o tenken si-nakat-ta</i> ‘A station employee did not examine the ticket.’			
C2:	<i>Syasyoo mo si-nakat-ta</i> ‘A conductor did not (examine the ticket), either.’			
T:	<i>Hayasi-san no inu wa sibainu da</i> ‘Hayashi's dog is a Shiba.’	same	<i>wa</i>	1.1
C1:	<i>Kabe ni aburae ga ni-mai kakatte-iru</i> ‘Two oil paintings are hanging on the wall.’			
C2:	<i>Ni-mai tomo kouka-na mono da</i> ‘Both are expensive.’			
T:	<i>Iti-mai ga zinbutu-ga da</i> ‘One (of the paintings) is a figure painting.’	same	<i>ga</i>	4.95
C1:	<i>Zitensya ga nusumare-ta</i> ‘A bicycle was stolen.’			
C2:	<i>Sukeetoboodo mo nusumare-ta</i> ‘A skateboard was also stolen.’			
T:	<i>Koukousei ga han'nin da</i> ‘A high school student did it.’	same	<i>ga</i>	4.6
C1:	<i>Keisatukan ga wasuremono o site-iru</i> ‘A policeman left his belonging.’			
C2:	<i>Kanrinin ga kidui-ta</i> ‘The superintendent noticed ( ).’			
T:	<i>Ogata-san no wasuremono ga kasa da</i> ‘What Ogata left behind is his umbrella.’	same	<i>ga</i>	2.65
C1:	<i>Tabi-san to Usui-san ga dokoka e yot-ta</i> ‘Tabi and Usui stopped by somewhere.’			
C2:	<i>Tabi-san ga puranetariumu ni yot-ta</i> ‘Tabi stopped by a planetarium.’			
T:	<i>Usui-san ga tentai-kansoku da</i> ‘Usui (?) an astronomical observation.’	same	<i>ga</i>	2.6
C1:	<i>Kyonen no natu ga atukat-ta</i> ‘It was hot last summer.’			
C2:	<i>Senda-san ga natu-bate si-ta</i> ‘Senda suffered from the summer heat.’			
T:	<i>Kouno-san no kinenhin ga hotikisu da</i> ‘Kouno's memento is a stapler.’	same	<i>ga</i>	1

C1: <i>Kubota-san ga yokka-go ni Sinkansen de kuru</i> 'Kubota will come by the Sinkansen in four days.'			
C2: <i>Ituki-san mo issyoni kuru</i> 'Ituki will come together.'			
T: <i>Hensyuusya ga bataa da</i> 'The editor (?) butter.'	same	<i>ga</i>	1
C1: <i>Zyoukyaku wa zaseki ni otitui-ta</i> 'Passengers have settled in their seats.'			
C2: <i>Hikouki wa ririku-si-ta</i> 'The airplane took off.'			
T: <i>Pairotto wa anaunsu o si-ta</i> 'The pilot made an announcement.'	different	<i>wa</i>	4.75
C1: <i>Kayama-san wa tebukuro o otosi-ta</i> 'Kayama lost his/her gloves.'			
C2: <i>Itikawa-san wa hankati o otosi-ta</i> 'Itikawa lost his/her handkerchief.'			
T: <i>Kayama-san wa gakkari-si-ta</i> 'Kayama was depressed.'	different	<i>ga</i>	4.55
C1: <i>Miki-san to Sinagawa-san wa nanika o nutte-iru</i> 'Miki and Sinagawa are sewing something.'			
C2: <i>Sinagawa-san wa sukaato o nutte-iru</i> 'Sinagawa is sewing a skirt.'			
T: <i>Sinagawa-san wa saihou ga tokui da</i> 'Sinagawa is good at sewing.'	different	<i>wa</i>	4.35
C1: <i>Tozanka wa toutyou ni seikou-site-iru</i> 'The climber succeeded in climbing.'			
C2: <i>Eberesuto wa sekai-iti-takai</i> 'Mt. Everest is the highest in the world.'			
T: <i>Fuzisan wa nihon-iti takai</i> 'Mt. Fuji is the highest in Japan.'	different	<i>wa</i>	3.9
C1: <i>Hyuuga-san to Furuno-san wa hitori de kurasite-iru</i> 'Hyuuga and Furuno are living alone.'			
C2: <i>Furuno-san wa Sibuya ni sunde-iru</i> 'Furuno lives in Sibuya.'			
T: <i>Hyuuga-san wa hitori-gurasi o si-ta koto ga nai</i> 'Hyuga has never lived alone.'	different	<i>wa</i>	2
C1: <i>Haisya wa kakeoti-si-ta</i> 'The dentist eloped.'			

C2: <i>Mou modora-nai tumori da</i> 'He/she will not come back.'			
T: <i>Andou-san wa haisya ni itt-a</i> 'Andou went to a dentist.'	different	<i>wa</i>	1.8
C1: <i>Utida-san to Kawanaka-san wa nanika o yudete-iru</i> 'Utida and Kawanaka are boiling something.'			
C2: <i>Utida-san wa tamago o yudete-iru</i> 'Utida is boiling eggs.'			
T: <i>Kawanaka-san wa tobi-tuzuke-ta</i> 'Kawanaka kept jumping.'	different	<i>wa</i>	1.05
C1: <i>Minarai ga tyuubou de yasai o kizan-da</i> 'The assistant cook chopped the vegetable in the kitchen.'			
C2: <i>Syefu ga furaipan de itame-ta</i> 'The chef sautéed (it) in a pan.'			
T: <i>Mousugu dekiagari da</i> 'The dish will be ready soon.'	different	<i>ga</i>	4.9
C1: <i>Hanayome ga kintyou-site-iru</i> 'The bride looks nervous'			
C2: <i>Hanamuko mo kintyou-site-iru</i> 'The bridegroom also looks nervous.'			
T: <i>Syoutaikyaku ga hakusyu de mukae-ta</i> 'The guests received (them) with applause.'	different	<i>ga</i>	4.5
C1: <i>Kameraman ga syattaa o kitte-iru</i> 'The photographer is releasing the shutter.'			
C2: <i>Zyosyu ga atarasii fuirumu o youi-si-ta</i> 'The assistant got the new roll of a film ready.'			
T: <i>Sutairisuto ga moderu o naosi-ta</i> 'The stylist fixed the model.'	different	<i>ga</i>	4.4
C1: <i>Sensei ga syukudai o dasi-ta</i> 'The teacher gave homework.'			
C2: <i>Keisan-mondai da</i> '(It was) math exercises.'			
T: <i>Seitotati ga teisyutu-si-ta</i> 'The students submitted (it).'	different	<i>ga</i>	4.3
C1: <i>Sakamoto-san to Isikawa-san ga nanika o mituke-ta</i> 'Sakamoto and Isikawa found something.'			
C2: <i>Saifu da</i> '(They) found a wallet.'			

T: <i>Sakamoto-san ga todoke-de-ta</i> 'Sakamoto turned it (in to the police).'	different	<i>ga</i>	4.25
C1: <i>Kodomo ga koron-da</i> 'A child fell down.'			
C2: <i>Isii-san mo koron-da</i> 'Isii fell down, too.'			
T: <i>Abe-san ga kega o si-ta</i> 'Abe injured.'	different	<i>ga</i>	2.65
C1: <i>Ikesita-san to Iwai-san ga dareka o kabat-ta</i> 'Ikesita and Iwai protected someone.'			
C2: <i>Ikesita-san wa tuuyaku o kabat-ta</i> 'Ikesita protected an interpreter.'			
T: <i>Iwai-san ga gaikokugo ga dekinai.</i> 'Iwai does not understand foreign languages.'	different	<i>ga</i>	2.5
C1: <i>Sakiyama-san to Ebisawa-san ga dokoka e isoi-da</i> 'Sakiyama and Ebisawa hurried to somewhere.'			
C2: <i>Sakiyama-san wa ginkoo e isoi-da</i> 'Sakiyama hurried to a bank.'			
T: <i>Ebisawa-san ga syuttyou kara kaet-ta</i> 'Ebisawa came back from the business trip.'	different	<i>ga</i>	2.25
C1: <i>Nisimoto-san ga tikitetu ni not-ta</i> 'Nisimoto got on the subway.'			
C2: <i>Kawai-san mo tikitetu ni not-ta</i> 'Kawai got on the subway, too.'			
T: <i>Yasunaka-san ga hati-zi ni oki-ta</i> 'Yasunaka woke up at eight.'	different	<i>ga</i>	1.65
C1: <i>Bareriina to ensyutuka ga dareka o matte-iru</i> 'A ballerina and the director are waiting someone.'			
C2: <i>Bareriina wa tomodati o matte-iru</i> 'The ballerina is waiting her friend.'			
T: <i>Ensyutuka ga baree o narat-ta</i> 'The director learned ballet.'	different	<i>ga</i>	1.6
C1: <i>Basu ga ensuto si-ta</i> 'The bus stalled.'			
C2: <i>Ziko ga at-ta you-da</i> 'There seemed to be an accident.'			
T: <i>Kitune ga fun-da</i> 'A fox stepped onto ( ).'	different	<i>ga</i>	1.15

C1: <i>Zimuin ga madoguti de donat-ta</i> 'A clerk yelled at the window.'			
C2: <i>Okyaku ga sattou-si-ta</i> 'The customers rushed.'			
T: <i>Saitou-san ga sodate-ta</i> 'Saitou raised ( ).'	different	<i>ga</i>	1.1
C1: <i>Rainen ga Heisei nizyuuiti-nen da</i> 'Next year is the 21th year of <i>Heisei</i> .'			
C2: <i>Heisei-gan 'nen ga senkyuuhyakuhatizyuukyuu-nen da</i> 'The first year of Heisei is 1989.'			
T: <i>Go-nen mae ni Taisyuu-zidai ga hazimat-ta</i> 'The <i>Taisyuu</i> era began five years ago.'	different	<i>ga</i>	1.05
C1: <i>Sensyuu kimatu-siken ga at-ta</i> 'There was a final exam last week.'			
C2: <i>Sanzan-na deki dat-ta</i> '( ) had a terrible result.'			
T: <i>Koube-kou da</i> '( ) is the port of Kobe.'	different	NA	1.25
C1: <i>Kyou wa go-gatu tuitati da</i> 'Today is the 1st of May.'			
C2: <i>Asita wa go-gatu futuka da</i> 'Tomorrow is the second of May.'			
T: <i>Asita kara atarasii tosi da</i> 'We will have a new year from tomorrow.'	different	NA	1.5
C1: <i>Itinen mae no fuyu wa samuku nakat-ta</i> 'It was not cold last winter.'			
C2: <i>Ototosi wa samukat-ta</i> 'It was cold two years ago.'			
T: <i>Uehara-san da</i> '(It) is Uehara/ (Here comes) Uehara.'	different	NA	1.5

## APPENDIX J

### J-1. Practice sentence pairs for the Understandability Test (Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the Identity (no context) condition)

Overt practice sentences	Mean rating
<i>Yamamoto-san ga daietto-si-ta</i> 'Yamamoto is going on a diet.'	4.29
<i>Asita wa mokuyoobi da</i> 'Tomorrow is Thursday.'	4.43
<i>Kuroda-san ga migai-ta</i> 'Kuroda polished ( ).'	2.57
<i>Kaneda-san wa Pari de miti ni mayot-ta</i> 'Kaneda got lost in Paris.'	4.57
<i>Baba-san wa tissyu da</i> 'Baba ( ) tissue.'	1.54
<i>Syoogakkoo wa yon-kai-date da</i> 'The elementary school is a 4-floor building.'	4.29
<i>Nisenkyuu-nen mo uruudosi da</i> 'The year 2009 will be a leap year again.'	2.34
<i>Sengetu tikakuni kutuya ga kaiten-si-ta</i> 'A shoe store opened in the neighborhood last month.'	4.57
<i>Mou sukosi si-ta ra hi ga kure-ru</i> 'It will be dark soon.'	4.43
Covert practice sentences	
<i>Ima wa gogo go-zi gozyuugo-fun da</i> 'It is 5:55 pm now.'	4.86
<i>Tanukisoba da</i> '(It is)/ (Here comes) Tanukisoba.'	2.43
<i>Sakkaa-sensyu ga akusyu si-teiru</i> 'A soccer player is shaking hands.'	3.57

<i>Kinosita-san wa sanzyus-sai da</i> 'Kinosita is 30 years old.'	4.14
<i>Mutou-san ga nigasi-ta</i> 'Mutou released ( ).'	2.57
<i>Haiyuu ga kisyu-kaiken o si-nakatta</i> 'An actor didn't have a press conference.'	4.71

J-2 Practice sentence triplets for the Understandability Test (Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the Double- Ellipsis and Double-Bridge conditions)

Overt practice triplets	Mean rating
C1: <i>Yamamoto-san ga daietto-si-ta</i> ‘Yamamoto is going on a diet.’	
C2: <i>Ikkagetu de san-kiro yase-ta</i> ‘( ) lost 3 kilos in a month.’	
T: <i>Daietto wa seikou da</i> ‘( ) succeeded at dieting.’	4.64
C1: <i>Koukana pen ga ubaware-ta</i> ‘An expensive pen was robbed.’	
C2: <i>Taihen-na songai da</i> ‘It is a great damage.’	
T: <i>Baba-san wa tissyu da</i> ‘Baba ( ) tissue.’	1.36
C1: <i>Nisenyo-nen wa uruudosi da</i> ‘The year 2004 was a leap year.’	
C2: <i>Yo-nen go wa mata uruudosi da</i> ‘The leap year will come in 4 years.’	
T: <i>Nisenkyuu-nen mo uruudosi da</i> ‘The year 2009 will be a leap year again.’	1.21
C1: <i>Kuroda-san ga kutu o migai-ta</i> ‘Kuroda polished his/her shoes.’	
C2: <i>Tyairoi kutu da</i> ‘They are brown shoes.’	
T: <i>Sengetu tikakuni kutuya ga kaiten-si-ta</i> ‘A shoe store opened in the neighborhood last month.’	2.14
C1: <i>Kaneda-san wa Pari de miti ni mayot-ta</i> ‘Kaneda got lost in Paris.’	
C2: <i>Tizu o mi-temo wakara-nai</i> ‘( ) does not know (which way to go) even if ( ) saw a map.’	
T: <i>Kaneda-san wa miti o tazune-ta</i> ‘Kaneda asked a direction.’	4.86
C1: <i>Syoogakkoo wa yon-kai-date da</i> ‘The elementary school is a 4-floor building.’	
C2: <i>Tyuugakkoo mo yon-kai-date da</i> ‘The junior high school is also a 4-floor building.’	
T: <i>Nonaka-san da</i>	1.29

‘(It is)/ (Here comes) Nonaka.’

- C1: *Mikka mae wa hati-gatu sanzyuu-niti dat-ta*  
‘It was August 30 three days ago.’
- C2: *Futuka mae wa hati-gatu sanzyuuiti-niti dat-ta*  
‘It was August 31 two days ago.’
- T: *Futuka mae wa kinyoubi da* 2.79  
‘It was Friday two days ago.’
- C1: *Tui sakki hi ga nobot-ta*  
‘The sun has just risen a little while ago.’
- C2: *Taiyou ga mabusii*  
‘The sun is glaring.’
- T: *Mou sukosi si-ta ra hi ga kure-ru* 2.86  
‘It will be dark soon.’
- C1: *Biyousi ga atarasii kamigata o teian-si-ta*  
‘The hair stylist suggested a new hair style.’
- C2: *Asisutanto ga syanpuu si-ta*  
‘The assistant shampooed’
- T: *Biyousi ga kami o kiri-hazime-ta* 4.21  
‘The hair stylist began to cut the hair.’

#### Covert practice pairs

- C1: *Ima wa gogo go-zi gozyuugo-fun da*  
‘It is 5:55 pm now.’
- C2: *Ato go-fun de roku-zi ni naru*  
‘It will be six in 5 minutes.’
- T: *Roku-zi han ni yuusyoku da* 4.21  
‘Dinner will be ready at half past six.’
- C1: *Nakazima-san to Mutou-san ga nanika o tukamae-ta*  
‘Nakazima and Muto caught something.’
- C2: *Nakazima-san ga simauma o tukamae-ta*  
‘Nakazima caught a zebra.’
- T: *Mutou-san ga kabutomusi o nigasi-ta* 2  
‘Muto released the beetle.’
- C1: *Kinosita-san wa kondo seizinsiki da*  
‘Kinosita will have the ceremony for the people  
who turned 20 during the year.’
- C2: *Seizinsiki ni wa syusseki-suru tumori da*

	‘( ) will attend the ceremony.’	
T:	<i>Kinosita-san wa sanzyus-sai da</i> ‘Kinosita is 30 years old.’	1.29
C1:	<i>Sakkaa-sensyu ga akusyu si-teiru</i> ‘A soccer player is shaking hands.’	
C2:	<i>Fan ga sain o motomete-iru</i> ‘The fans are asking for his/her autography.’	
T:	<i>Tanukisoba da</i> ‘(It is)/ (Here comes) Tanukisoba.’	1
C1:	<i>Mousugu asa no ku-zi han da</i> ‘It will be 9 am soon.’	
C2:	<i>zyuu-zi ni nat-ta-ra dekake-ru</i> ‘( ) will go out at 10.’	
T:	<i>Kurisumasu ga tikadui-ta</i> ‘Christmas is coming.’	1.79
C1:	<i>Haiyuu ga kisyu-kaiken si-ta</i> ‘An actor had a press conference.’	
C2:	<i>Kaiken wa zyup-pun kan da</i> ‘The conference was held for 10 minutes.’	
T:	<i>Kisyu-tati ga situmon-si-hazime-ta</i> ‘The reporters started asking the questions.’	4.57

## APPENDIX K

### K-1. Instructions for the Interpretation Test (Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the Identity (no context) condition)

次のページの文はどんな意味を表しているでしょうか。次の例題にあるように、自分の言葉に置き換えて説明してください。

#### 例題

岸本さんは、オートバイの前に黒い猫が飛び出してきた

文の意味 → 岸本さんが、オートバイに乗っているときに黒い猫が目の前に飛び出してきた。

文の意味が通じないと思われる場合は、無理にお答えいただく必要はありません。その場合は、「わからない」とお答えください。また文の意味が想像できうる場合は、こじつけて書いてみてください。

この調査は、日本語の文の解釈をお聞きするものであり、各質問に正解、不正解はありません。

K-2. Instructions for the Interpretation Test (Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the Identity (no context) condition: English translation)

What does the sentence on the next page mean? Explain the meaning of the sentence with your own words as in the following example.

Example

A black cat run in front of the Kisimoto's motorbike.

The meaning of the sentence→ When Kisimoto was riding on the motorbike,  
a black cat ran in front of him.

If you think the sentence does not make sense, you do not need to make up an answer. Please write 'I do not understand,' in that case. If you can imagine what the sentence means, please write down whatever you think it means.

This test asks your interpretations of Japanese sentences. There is no right or wrong answer.

K-3. Instructions for the Interpretation Test (Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the Contradictory and Ellipsis conditions)

次のページには、a、bと2つの文が書かれてあります。このbの文を、aの文の続きとして読んだとき、bの文はどんな意味を表しているでしょうか。次の例題にあるように、自分の言葉に置き換えて説明してください。

例題

- a 岸本さんのオートバイの前に、黒い猫が飛び出してきた
- b あやうく、ひきそうになってしまった

bの文の意味 → 岸本さんは、オートバイで黒い猫をひきそうになった

bの文が、意味が通じないと思われる場合は、無理にお答えいただく必要はありません。その場合は、「わからない」とお答えください。また、bの文の意味が想像できうる場合は、こじつけて書いてみてください。

この調査は、日本語の文の解釈をお聞きするものであり、各質問に正解、不正解はありません。

K-4. Instructions for the Interpretation Test (Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the Contradictory and Ellipsis conditions: English translation)

You will see two sentences as *a* and *b* on the next page. What does the sentence *b* mean **when you read it as what follows the sentence *a***? Explain the meaning of the sentence *b* with your own words as in the following example.

Example

*a* A black cat run in front of the Kisimoto's motorbike (when he/she is driving).

*b* (       ) almost hit (       ).

The meaning of *b* → Kisimoto almost ran over the black cat with his motorbike.

If you think the sentence *b* does not make sense, you do not need to make up an answer. Please write 'I do not understand,' in that case. If you can imagine what the sentence *b* means, please write down whatever you think it means.

This test asks your interpretations of Japanese sentences. There is no right or wrong answer.

K-5. Instructions for the Interpretation Test (Type II NP<sub>1</sub> wa NP<sub>2</sub> da sentences for the Double Ellipsis and Double Bridge conditions)

次のページには、a、b、cと3つの文が書かれてあります。このcの文を、a、bの2つの文の続きとして読んだとき、cの文はどんな意味を表しているでしょうか。次の例題にあるように、自分の言葉に置き換えて説明してください。

例題

- a 岸本さんのオートバイの前に、黒い猫が飛び出してきた
- b 岸本さんはブレーキをかけた
- c あやうく、ひきそうになってしまった

cの文の意味 → 岸本さんは、オートバイで黒い猫をひきそうになった

cの文が、意味が通じないと思われる場合は、無理にお答えいただく必要はありません。その場合は、「わからない」とお答えください。また、cの文の意味が想像できうる場合は、こじつけて書いてみてください。

この調査は、日本語の文の解釈をお聞きするものであり、各質問に正解、不正解はありません。

K-6. Instructions for the Interpretation Test (Type II NP<sub>1</sub> *wa* NP<sub>2</sub> *da* sentences for the Double-Ellipsis and Double-Bridge conditions: English translation)

You will see three sentences as *a*, *b*, and *c* on the next page. What does the sentence *c* mean **when you read it as what follows the sentences *a* and *b***? Explain the meaning of the sentence *c* with your own words as in the following example.

Example

- a* A black cat run in front of the Kisimoto's motorbike (when he/she is driving).
- b* Kisimoto slammed on the brakes
- c* (       ) almost hit (       ).

The meaning of *c* → Kisimoto almost ran over the black cat with his motorbike.

If you think the sentence *c* does not make sense, you do not need to make up an answer. Please write 'I do not understand,' in that case. If you can imagine what the sentence *c* means, please write down whatever you think it means.

This test asks your interpretations of Japanese sentences. There is no right or wrong answer.

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