An LFG Account of Contrastive Particle -wa in Japanese

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1. Introduction

This article deals with the contrastive particle –wa in Japanese in the framework of Lexical-Functional Grammar (LFG). Japanese is one of the topic-prominent languages (Li and Thompson 1976) which have some syntactic or morphological devices to specify the topic of an unmarked sentence. In Japanese, the particle –wa explicitly shows that the constituent to which the particle adjoins is the topic of the sentence. However, the same particle is also used to show that a constituent bears the contrastive focus function, and sometimes one sentence has two constituents to which the particle –wa is adjoined, each expressing the topic and the contrastive focus of the sentence. Therefore, the particle –wa does not have a unique discourse function by itself and there must be a level of representation which encodes the particular discourse function the particle –wa has in a given context. In this article, it is shown that the framework of LFG can partly account for the contrastive focus of Japanese in terms of the level of representation where discourse functions of a sentence are encoded, and also we can articulate what remains to be solved in further study.

The content of this article is as follows. The section 2 briefly deals with the architecture of LFG, especially projection from constituent structure (c-structure) to functional structure (f-structure). Then, it is shown how constituent structure is projected onto information structure (i-structure), in analogy with the projection of grammatical function from the constituent structure node. In doing this, it is suggested that we need more detailed specification of i-structure. The section 4, as a preliminary account for such specification, shows the structural difference between the particle –wa used as a topic marker and the same particle used as a contrastive focus marker.

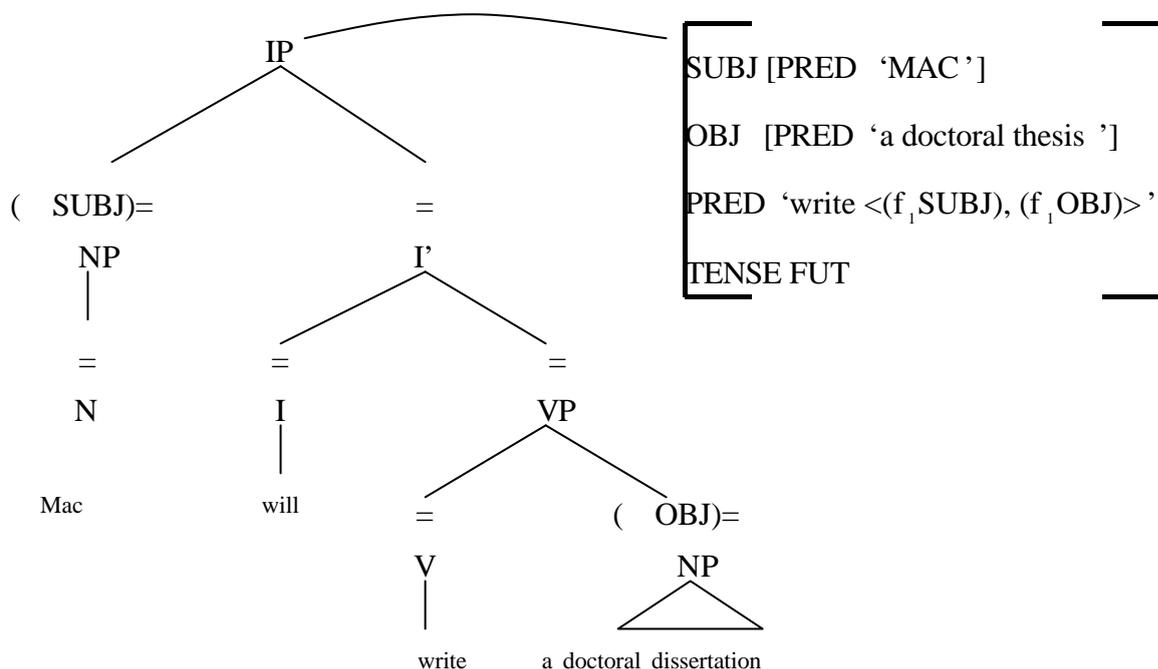## 2. Correspondences among different structures

2.1 Projection of grammatical function

In LFG literature (Bresnan 1982, 2001, among others), various aspects of linguistic structures are formally represented as different levels of representations and they are

related to one another by means of functional correspondences.

Grammatical functions of a sentence (subject, object, etc) are represented in an f-structure, and it functionally corresponds to a phrase structure tree annotated with functional description (c-structure). The correspondence is one-to-many: f-structure is comparatively identical cross-linguistically, while there is a variety of c-structure among various languages. The figure below shows the c-structure and the f-structure of an English sentence 'Mac will write a doctoral dissertation' (the details of the f-structure are omitted).

(1)

IP

(SUBJ)=
NP

=
N

Mac

=
I'

=
I

will

=
VP

=
V

write

(OBJ)=
NP

a doctoral dissertation

$$\begin{bmatrix} \text{SUBJ} & [\text{PRED 'MAC'}] \\ \text{OBJ} & [\text{PRED 'a doctoral thesis'}] \\ \text{PRED} & \text{'write} <(f_1\text{SUBJ}), (f_1\text{OBJ})>' \\ \text{TENSE} & \text{FUT} \end{bmatrix}$$

The f-structure above has the following set of information:
The SUBJ attribute of the f-structure of the sentence has the value 'Mac'; the subject of the sentence is 'Mac'.
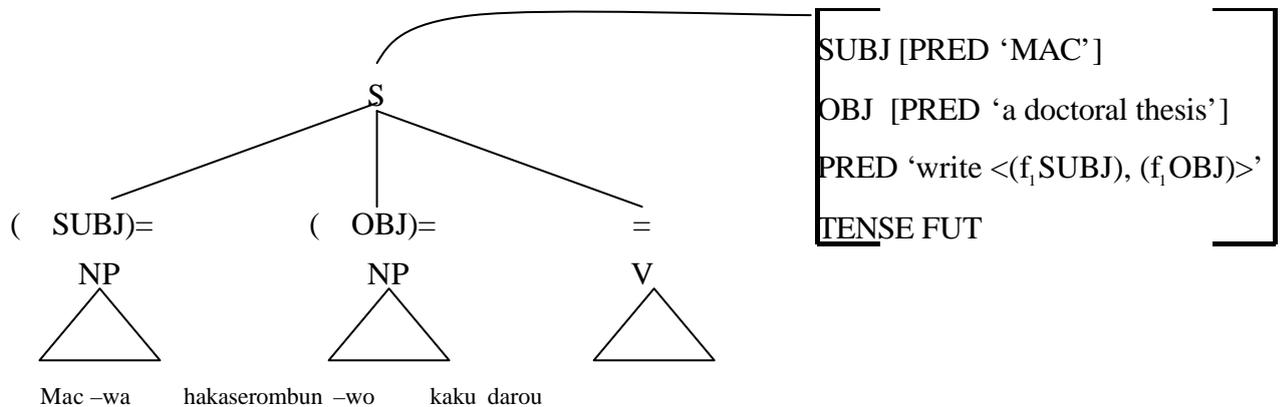The OBJ attribute of the f-structure of the sentence has the value 'a doctoral dissertation'; the object of the sentence is 'a doctoral dissertation'.
The PRED attribute of the f-structure of the sentence has the value 'write <(SUBJ), (OBJ)>'; the verbal predicate of this sentence is 'write' which has two arguments.
The TENSE attribute of the f-structure of the sentence has the value 'FUT'; the sentence has the future tense.

The Japanese sentence that has almost the same meaning with the English sentence above has the c-structure and the f-structure below:

(2)

S
(SUBJ)=   (OBJ)=   =
NP   NP   V

Mac –wa   hakaserombun –wo   kaku darou

SUBJ [PRED 'MAC']
OBJ [PRED 'a doctoral thesis']
PRED 'write <(f$_i$ SUBJ), (f$_i$ OBJ)>'
TENSE FUT

Notice that the sets of information these f-structures contain are almost identical with each other, while the c-structures are different[1]. English is one of the configurational languages. Configurational languages have hierarchical c-structures and the structural position of a constituent determines the functional and semantic properties the constituent, and it is often the case that the word-order is comparatively. Japanese, on the other hand, is one of the non-configurational languages. Non-configurational languages have flat c-structures and the word-order is comparatively free. The grammatical function and thematic role of a constituent of non-configurational languages are determined either by a certain morphological element on the constituent (e.g., the particles -wa and –wo in the Japanese sentence above) or by affixation on the verbal predicate . The one-to-many correspondence among structures in the framework of LFG can properly account for the difference between configurational and non-configurational languages, without ignoring the rather identical property in terms of grammatical function.

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[1] It is often the case that two different languages have different f-structures along with different c-structures when expressing the same proposition. For example, English tends to use the active voice when Japanese uses the passive voice, or English has an expletive subject while Japanese does not, etc. This kind of structural differences seems to be a matter of preference which is conventionalized in the community where each language is used. Though this issue is of interest in other field of study, I will not discuss it since the focus here is the one-to-many correspondence among different levels of linguistic knowledge.

2.2 Projection of discourse function

In analogy with the projection of grammatical function from c-structure, LFG constitutes the projection of discourse functions from c-structure, and the discourse functions are represented in information structure (King 1995, 1997 among others). Before going into the detail of this projection, it is better to briefly review what the term discourse function means in the literature, and the need of a level of representation for discourse function.

There is a rich tradition of research in the field of discourse function which originated in the Prague School. Lambrecht (1994: 213), among others, defines focus expression is "(t)he semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition." He also stresses there that focus is defined at the semantic level of proposition, and "(t)he pragmatic category 'focus' must be sharply distinguished from its grammatical realization in the sentence, i.e. the syntactic domain in which it is expressed and the prosodic means whereby this syntactic domain is marked, …" In other words, focus can be expressed in many ways, syntactically or prosodically, and there might be no fixed relations among them. For example, English has several ways of focus expression. Details aside, there are three types of them: stress, cleft-sentence, and pseudo-cleft.

Stress:

(3)

Mac will soon write a doctoral dissertation.

Mac will **soon** write a doctoral dissertation.

Mac will soon **write** a doctoral dissertation.

Mac will soon write **a doctoral dissertation**.

Cleft sentences:

It is **Mack** who will write a doctoral dissertation.

Pseudo-Cleft:

The one who will write a doctoral dissertation is **Mack**.

Within the framework of LFG, the statement by Lambrecht above can be interpreted that, since the pragmatic or discourse category 'focus' must be distinguished from its grammatical realization in the sentence, the level of representation for grammatical functions does not contain the set of discourse information and there must be another

level of representation for discourse functions including 'focus'.

Notice here that the fact that discourse functions and grammatical functions must be distinguished does not necessarily mean that there is no correspondence between the constituent structure and the discourse functions in a given sentence. Lambrecht (1994: 47) also introduces the notion of "Segmentation of information in a sentence". It is certain constituents of a sentence, in particular a subject, 'convey old information', … , whereas other constituents, in particular the predicate, 'convey new information', … ."

This statement presupposes that the information that a sentence has is segmentable, in other words, it can be segmented among the various sentence constituents and each constituent has some piece of information which can be integrated into the information as a whole. Here we can see a parallelism between discourse functions and grammatical functions. Grammatical functional annotations on a c-structure node of a sentence identify the grammatical function in the f-structure of the whole sentence to which the node corresponds. In other words, the c-structure nodes of a sentence each contain the partial, segmented information of grammatical function, and they are projected onto the f-structure of the sentence as a whole. Then, in the same manner, discourse functional annotations on a c-structure node can identify the discourse function in another level of information, or i-structure. Thus, discourse functions and grammatical functions, though they are different kinds of information, can be projected from the c-structure of a sentence onto two different levels of representation, both in the same manner. In the next section, we will see how the projection of discourse function from c-structure to i-structure.

2.3   Discourse functions in LFG:

In the framework of LFG, discourse functions of a sentence are formally represented in i-structure, which functionally corresponds to a phrase structure tree annotated with functional description.   Butt and King (2000) define the discourse functions as follows:

TOPIC, FOCUS, BACKGROUND, COMPLETIVE INFORMATION
TOPIC is old or known information that is relevant in the current context.
FOCUS is new and prominent information.
BACKGROUND INFORMATION is like TOPIC in consisting of old or known information.

COMPLETIVE INFORMATION is new information that is not prominent in the discourse.
(Butt and King 2000)

The correspondence between c- and i-structures of the sentence 'Mac will write a doctoral dissertation' is shown below; functional equations for grammatical functions are omitted for the sake of simplicity:

(4)
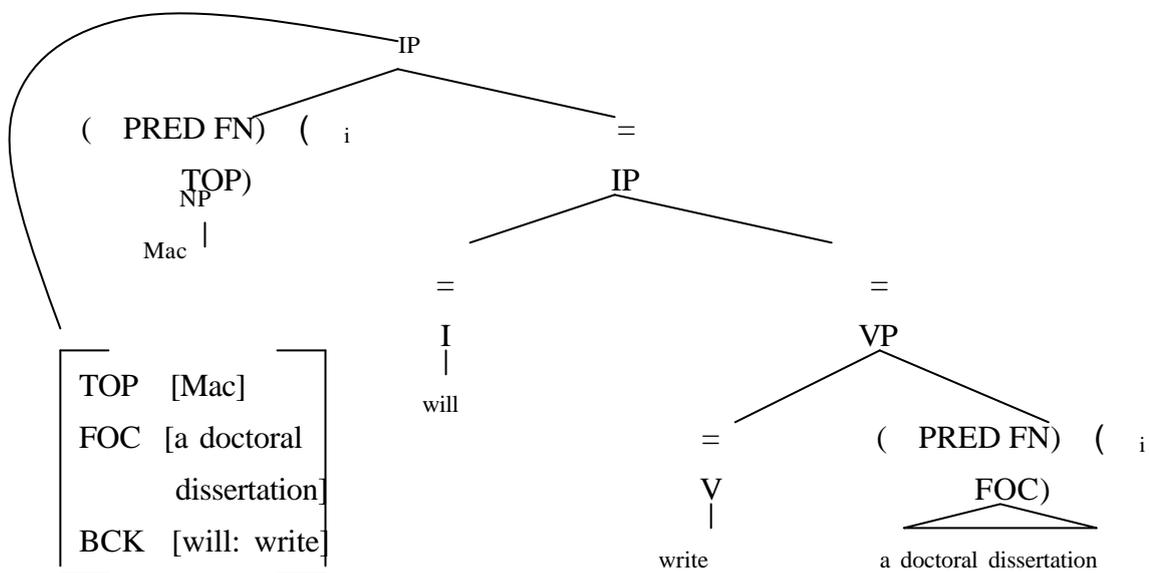
The i-structure represents the segmentation of discourse information in a sentence. For the sentence mentioned above, the discourse information is segmented as follows; we can see the parallelism between grammatical functions and discourse functions:

The TOPIC attribute of the i-structure of the sentence has the value 'Mac': the topic of the sentence is 'Mac'.
The FOCUS attribute of the i-structure of the sentence has the value 'a doctoral dissertation': the focus of the sentence is 'a doctoral dissertation'.
The BACKGROUND attribute of the i-structure of the sentence has the values 'will' and 'write': the background of this sentence is 'will write'.

Notice, however, that this segmentation of information is not always as straightforward as shown above in terms of projections from a constituent to discourse function, compared with those from a constituent to grammatical function. As the examples of English above show, the same sentence can have different discourse functions. That is, the same c-structure can correspond to different i-structures (one-to-many correspondence) according to the context in which the sentence is uttered. Since the formal architecture of LFG permits one-to-many correspondence among structures, it is possible how one c-structure corresponds to different i-structures. Moreover, it is impossible to determine which constituent of a sentence has which discourse function without any contextual information; in other words, it is not a syntactic rule which determines the discourse functional equation to be annotated on the appropriate node in the c-structure. Therefore, the issue of how contextual information is integrated into the projection of a c-structure to different i-structures requires a more detailed account of LFG architecture. In particular, contextual information can be expressed by the interaction of more than one i-structure, which is beyond the scope of this article.

However, some languages have some syntactic or morphological devices to show the discourse function of a sentence more explicitly than languages (e.g., English) which do not have such devices. Li and Thompson (1976) call such languages topic-prominent languages. It is possible to determine which constituent of a sentence of a given topic-prominent language has which discourse function more explicitly (but not without any contextual information, as we will see later). Japanese is one of the topic-prominent languages, and an LFG account of how syntax is projected onto discourse function in Japanese will be an appropriate step toward more comprehensive understanding of the integration of contextual information into the interstructural projection.

3. Contrastive focus in Japanese

3.1 Topicalization with the particle '-wa'

In Japanese, discourse functions such as topic or focus are expressed through the particle adjoined to a constituent of a sentence. For example, the topic of a sentence is expressed by the particle '-wa' adjoined to a particular constituent. As for the construction which contains the particle '-wa', Noda (1996) classifies it into five subcategories. In his analysis, it is assumed that the topicalized noun is moved to the initial position in the surface structure of the sentence from the base-generated position in the deep structure.

The first type of the construction is such that a noun phrase is topicalized:

(5)
Chichi wa kono hon wo kattekureta
Father TOP this book ACC bought‑gave
'My father bought me this book.'

Second, an adjectival phrase for another phrase is topicalized; in the example below, the noun 'zou' modifies the other noun 'hana' in the deep structure, then moves to the initial position:

(6)
Zou wa hana ga nagai
Elephant TOP trunk NOM long
'An elephant has a long trunk.'

Namely, the sentence above is derived from 'Zou no hana ga nagai' via the movement of a noun phrase to the initial position of the sentence and the deletion of the particle 'no'.

Thirdly, an adjectival phrase for a predicative noun is topicalized: in the example below, the noun phrase 'kaki ryori' modifies another noun phrase 'homba' in the deep structure, and it moves to the initial position. Just as like the second type of topic construction mentioned above, the sentence is derived from 'Hiroshima ga kaki ryori no homba da' via the movement and the deletion rules:

(7)
Kaki ryori wa Hiroshima ga homba da
Oyster cuisine TOP Hiroshima NOM the best place
'Hiroshima is the best place of oyster cuisine.'

Fourth, a phrase modified by an adjectival phrase is topicalized; in the example below, the noun phrase 'jisho' is modified by the adjective 'atarashii' in the deep structure and then moved to the initial position. This type of topic construction uses the –no insertion into the position where the moved element used to occupied in

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the deep structure; in the example below, it is derived from 'Atarashii jisho ga ii':

(8)
Jisho wa atarashii no ga ii
Dictionary TOP new no NOM good
'A new dictionary is better than an old one.'

Lastly, a clause is topicalized. As the example below shows, the topicalized clause is followed by a particle '-no', then the particle '-wa'. In this type of sentence, the constituent which is not topicalized is followed by a particle such as '-da' or '-darou' which expresses the tense and the mood of the sentence:

(9)
Hana ga saku no wa shichigatu goro da
(The) flower NOM bloom no TOP July around is
'The flower will bloom around July'

Noda (1996)'s analysis assumes that topicalization in Japanese is subject to the syntactic rules such as movement of a constituent and insertion or deletion of a particle. Oya (2002), contrary to Noda (1996)'s analysis, argues within the framework of LFG that the constituents with the particle '-wa' is actually base-generated in the initial position of the sentence and the particle lexically expresses the discourse function the constituent expresses.

3.2 Word order and contrastive focus
The analysis of the particle '-wa' in the previous section does not take into its scope another role of the particle '-wa', namely, the contrastive focus. As it has been mentioned, contrastive focus in Japanese is expressed by the particle '-wa' adjoined to the noun phrase, or other constituents such as a verb root. Since this particle is also used to express the topic of a sentence, it is often the case that one sentence has two NPs with '-wa' particles, one of which expresses the topic and the other the contrastive focus of the sentence.

(10)

a. Watashi-wa kono hon-wo   yon-da.

   I-TOP   this book-ACC read-PST

  'I read this book.'

b. Watashi-wa kono hon-wa yon-da..

   I-TOP this book-C.FOC read-PST

   'I read this book (but not other books).'

c. Kono hon-wa watashi-wa yon-da.

  this book -TOP I -C.FOC read-PST

   'As for this book, I read it (but anybody else didn't).'

It has been argued in the literature of Japanese linguistics (Kuno (1983: 48), Noda (1996: 210) among others) that it is the word order that determines the discourse function of the NP with the particle '-wa'; in other words, syntactic constituent with '-wa' near the predicate of a sentence typically bears the focus function in a sentence. This also means that the constituent with –wa in the initial position of a sentence bears the topic function. In the examples below, the sentences in the parentheses are implied via contrastive focus. The topic of the sentence, on the other hand, comes first in the sentence.
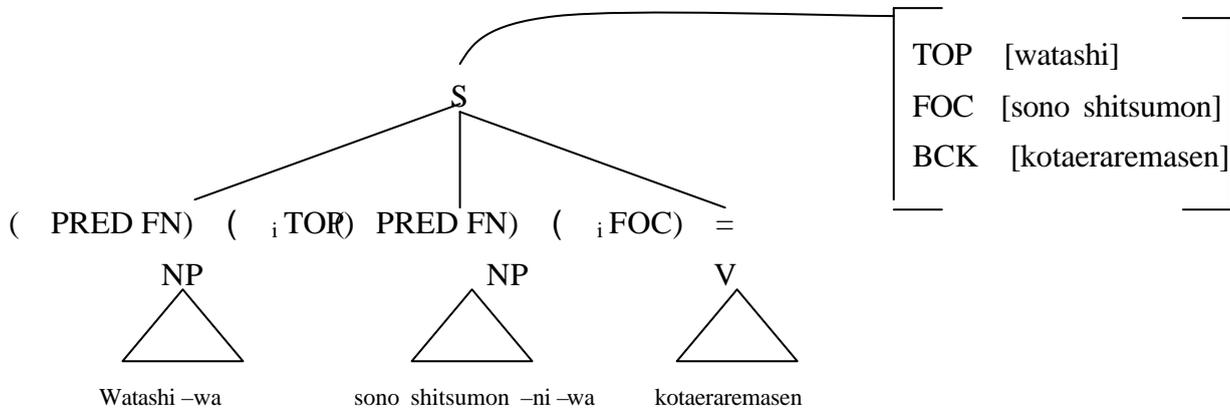
(11)

a. Watashi-wa   sono shitsumon-ni-wa   kotae-rare-mas-en.

I -TOP   the question-DAT-C.FOC   answer-able-PART-NEG

'(Though I can answer other questions,) I cannot answer the question.'

b. Sono shitsumon-ni-wa   watashi-wa kotaeraremasen.

  The question-DAT-TOP   I-C.FOC   answer-able-PART-NEG

'As for the question, I cannot answer it (but somebody else can).'(Ibid: 210)

Based on this observation, it seems to be possible to analyze that the discourse functions in Japanese are syntactically expressed. In other words, '-wa' particle does not explicitly specify the discourse function of the constituent to which it affixes, and the discourse functional equation is annotated on the node under which the constituent with the particle is inserted, just like the grammatical functions of configurational language such as English is specified syntactically. For example, the c-structures and i-structures for each of the examples just above could be as follows:
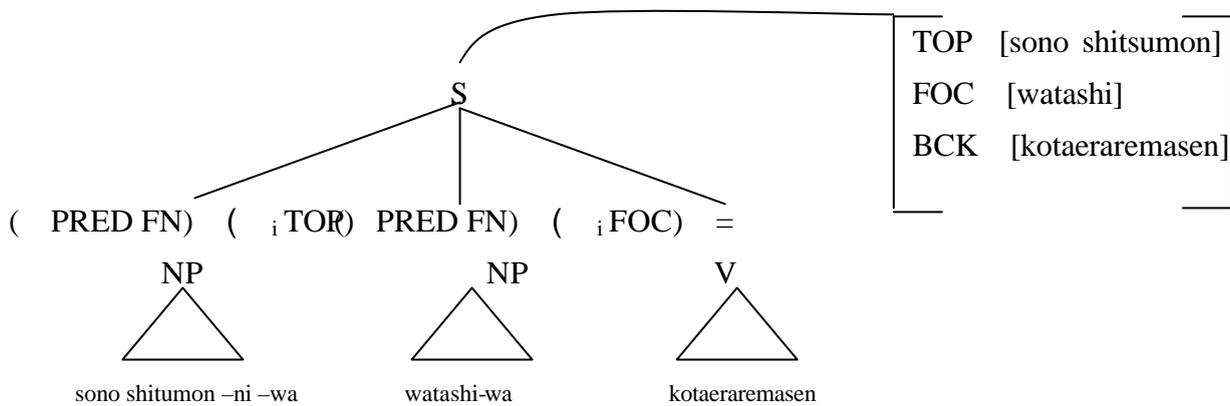
(12)

Watashi wa sono shitumon ni wa kotaeraremasen.

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                                                    ┌                          ┐
                                    _____│ TOP   [watashi]          │
                           S                        │ FOC   [sono shitsumon]   │
                  _____/|_____                │ BCK   [kotaeraremasen]   │
                 /         |         \               └                          ┘
( PRED FN)  ( ᵢTOP)  PRED FN)  ( ᵢFOC)   =
      NP                NP              V
     /\                /\             /\
    /  \              /  \           /  \
   /____\            /____\         /____\
  Watashi –wa    sono shitsumon –ni –wa   kotaeraremasen
```

(13)

Sono shitumon ni wa watashi wa kotaeraremasen.

```
                                                    ┌                          ┐
                                    _____│ TOP   [sono shitsumon]   │
                           S                        │ FOC   [watashi]          │
                  _____/|_____                │ BCK   [kotaeraremasen]   │
                 /         |         \               └                          ┘
( PRED FN)  ( ᵢTOP)  PRED FN)  ( ᵢFOC)   =
      NP                NP              V
     /\                /\             /\
    /  \              /  \           /  \
   /____\            /____\         /____\
 sono shitumon –ni –wa   watashi-wa   kotaeraremasen
```

As the functional equations indicate, the node of the constituent near the verbal predicate is annotated with the FOC equation, while the other node is annotated with the TOP functions. This analysis captures the intuitive observation by researchers cited above that Japanese has a word order that is sensitive to the discourse function each constituent has.

It is important to mention here that some native speaker's intuition differs from the intuition of the researchers cited above. Some native speakers of Japanese find that the first constituents in the examples in (12) and (13) are not necessarily the topic of the sentence, since there is no context, or no sentences preceding and following the example sentence. This argument, at first sight, seems to be crucial

to the analysis that Japanese has a word order in terms of the discourse function, since this argument claims in essence that the word order actually does not reflect the discourse function each constituent has. And this argument is actually worth considering when we are dealing with languages such as English in which discourse functions are not explicitly encoded in syntax; as we have already seen in Section 2, the fact that one sentence can correspond to many different i-structures necessarily leads us to explore the possibility of exploiting i-structure to represent the inter-sentential relationships. In other words, the analysis of Japanese contrastive focus seems to face the same problem as that of discourse function of English.

From the viewpoint of LFG, however, this problem is not as serious as it seems. Remember here that the framework of LFG assumes the one-to-many correspondence of each structure; it is often the case that one level of representation corresponds to several candidates of another level of representation. And among the candidates, there is a possibility that one of them is more The logic is as follows: as far as a single sentence is concerned, the c-structure configuration of the sentence provides the default information that the constituent that is nearer to the verbal predicate than the other constituent (or constituents) has the discourse function 'focus', and the node of the constituent is projected onto the FOC value of the i-structure corresponding to the root node (in this case, S) of the sentence. However, as the correspondence between c-structure and i-structure is one-to-many, there is a possibility for the c-structure to correspond to another i-structure that is different from the default i-structure, provided that there is enough information to motivate the construction of non-default, 'marked' i-structure. The native speaker's intuition seems to capture the existence of such non-default i-structure and motivate us to formulate the correspondence to such marked i-structure, along with the default one, but it does not refute the whole essence of the parallel structures. Moreover, the very fact that there is a particle which can be used to show both the topic and the contrastive focus of a sentence leads us to assume that there is a certain kind of knowledge which ensures identification of discourse function each constituent with '-wa' has, and the i-structure can be one of the candidates of representation for this kind of knowledge.

4. Conclusion

This article analyzes Japanese sentences with contrastive '-wa' within the framework of LFG, focusing on the correspondence between a constituent structure and an information structure. It is shown that the framework can account for the

phenomena without assuming the movement of focused constituents. However, there remains a problem that it is uncertain which grammatical function a constituent with '-wa' has in a sentence without a context. It is suggested that the one-to-many correspondence of different structure capture the uncertainty in structural correspondence, and the notion of markedness can partly account for the preference for a unmarked interpretation, namely, that the focused constituent comes nearer the verbal predicate than the topicalized one. The further task then is to explain the role which contextual information might play in determining the grammatical function each constituent has. Since this article deals with the projection from c-structure to i-structure, it is necessary for a grammatical theory to be able to account for the projection from i-structure to c-structure, which will be one of the main topics of further research.

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