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HPSG Analysis of Topicalization and Contrastivization

Chikara Hashimoto

Abstract

Constructions exhibiting unbounded dependency, such as topicalization and relativization, have often been analyzed as containing syntactic a gap. This paper shows that adopting Sirai and Gunji (1998) proposal on relativization, it is possible to analyze topicalization and contrastivization in Japanese without syntactic gaps. In addition, the analysis presented in this paper is able to account for the following differences between the two constructions:

- Topic *wa* phrases are prohibited from appearing in a relative clause whereas contrastive *wa* phrases are not.
- Topic constructions allow a resumptive pronoun to appear in an embedded clause, whereas contrastive constructions do not.
- So-called reconstruction effects are observed only in topic constructions, but not in contrastive constructions.

My assumptions and proposals are as follows:

- Arguments of a predicate are raised by the tense morpheme which the predicate attaches to. (Sirai & Gunji, 1998)
- Raised arguments don't appear in the argument structure of the raising verb. (Uda, 1996)
- Syntactic-semantic structure is not affected by scrambling. (Gunji, 1999)
- Topic *wa* phrases are licensed by being semantically bound by the tense morpheme which is assertive form.
- Contrastive *wa* phrases are analyzed as phonological variants of ordinary arguments.

1. Introduction

Topic constructions¹ and contrastive constructions have been said to show the differences described in (1), despite their surface similarity (Saito, 1985; Hoji, 1985)

¹Topic *wa* phrase in this paper corresponds to so-called *theta topic*, which has some theta relation to a predicate. I will make no proposal on so-called *non-theta topic* such as (i).

- (i) Kono nioi-wa dareka-ga sakana-wo yaite-ita
this smell-TOP someone-NOM fish-ACC grill-PAST
“From the smell of it, it seems someone grilled fish.”

(1)

	a. Can Appear in a Relative Clause	b. Allows a Resumptive Pronoun	c. Shows a Reconstruction Effect
Topic	No	Yes	No
Contrast	Yes	No	Yes

As for (1a), when a *wa* phrase appears in a relative clause, it is obligatorily construed as contrastive. (Hereafter *wa* with topic reading will be indicated by TOP, while *wa* with contrastive reading will be indicated by CON.)

- (2) a. *[Ken-*wa* kat-ta] hon
 [Ken-TOP buy-PAST] book
 “the book which Ken bought”
- b. [Naomi-*wa* kawa-naka-tta-ga Ken-*wa* kat-ta] hon
 [Naomi-CON buy-not-past-but Ken-CON buy-PAST] book
 “the book which Ken bought but Naomi didn’t”

As stated in (1b), when an argument in the embedded clause of a topic construction is topicalized, a resumptive pronoun can occur at the position originally occupied by the argument as demonstrated in (3a), while contrastive constructions never allow this as shown in (3b). (Resumptive pronouns are indicated by RES.)

- (3) a. ?sono hon_i-wa Ken-ga [Naomi-ga sore_i-wo yon-da]-to
 that book-TOP Ken-NOM [Naomi-NOM RES-ACC read-PAST]-COMP
 omo-tta
 think-PAST
 “As for the book, Ken thought that Naomi read it.”
- b. *sono mati_i-kara-wa Ken-ga [Naomi-ga soko_i-kara syuppatusi-ta]-to
 that city-from-COM Ken-NOM [Naomi-NOM RES-from leave-PAST]-COMP
 omo-tta-ga betu-no mati-kara-wa George-ga ...
 think-PAST-but another-GEN city-from-CON George-NOM ...
 “From the city Ken thought Naomi left, while from another city George thought ...”

Finally (1c) concerns the different behavior with respect to so-called reconstruction effects. As seen in (4) reconstruction effects are observed only in topic constructions but not in contrastive constructions.

- (4) a. *zibun_i-wa Naomi_i-ga ϕ_i home-ta
 self-TOP Naomi-NOM praise-PAST
 “Herself, Naomi praised.”
- b. zibun_i-no heya-kara-wa Naomi_i-ga ϕ_j syuppatusi-ta-ga betu-no
 self-GEN room-from-CON Naomi-NOM leave-PAST-but another-GEN
 heya-kara-wa George-ga ...
 room-from-CON George-NOM ...
 “From her own room Naomi left, while from another room George ...”

There have been only a few analyses concerning topicalization within an HPSG framework (Gunji, 1987; Fukushima, 1999) but they don't offer any proposal to account for the differences in (1). I will show how the differences are accounted for by the HPSG analysis presented here. In the next section I present some basic assumptions. In the third and fourth section I show the analyses of topicalization and contrastivization. The last section concludes this paper, mentioning some remaining problems.

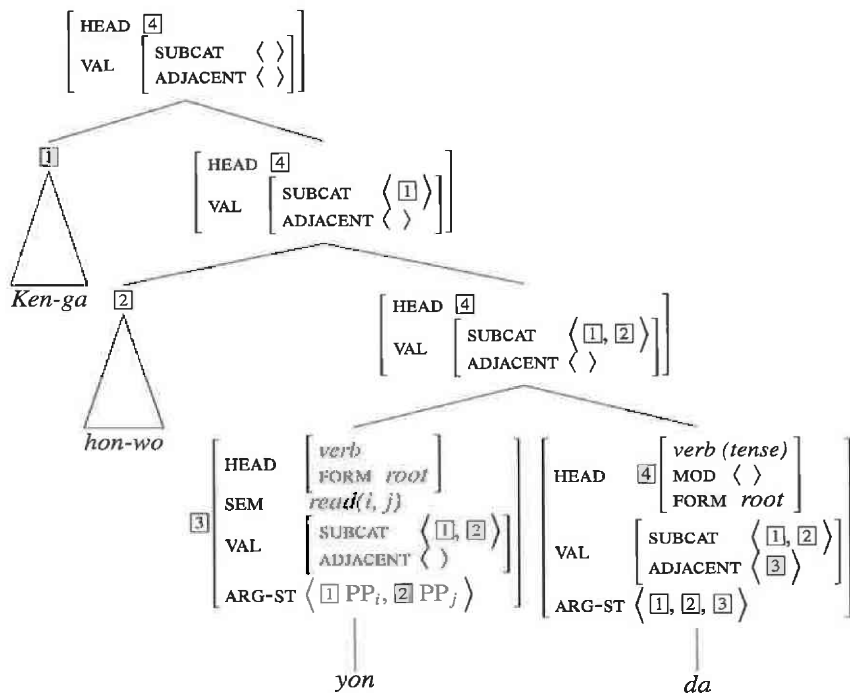
2. Theoretical Background

2.1 Semantic Binding and Unbounded Dependency

I analyze the tense morpheme as a raising verb following Sirai and Gunji (1998). In (5), the tense morpheme *da*² raises the arguments (1) and (2) from its adjacent stem verb *yon*.

- (5) a. Ken-ga hon-wo yon-da
 Ken-NOM book-ACC read-PAST
 "Ken read a book."

b.

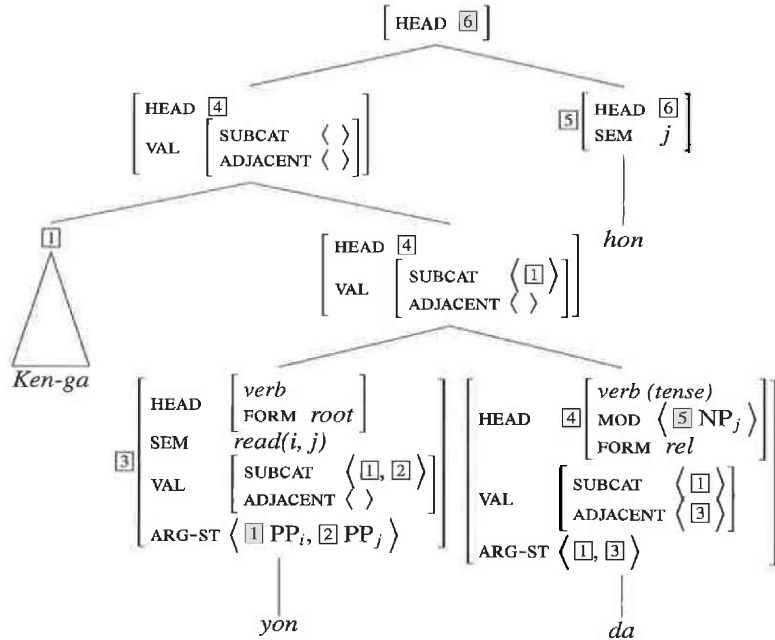


This approach makes it possible to analyze relative clause formation — one of the constructions showing unbounded dependency — without SLASH. In (6), relative head *hon* (5) and the second argument of *yon* (2) are co-indexed. In that case, raising of the argument by the tense morpheme *da* is blocked due to the co-indexing mediated by the tense morpheme's MOD value. This is what Sirai and Gunji call *direct binding*. But in this paper I call this *semantic binding*, as opposed to syntactic filler-gap binding, which is the approach that has been usually

²assertive and prenominal tense forms are indicated by [FORM root] and [FORM rel] respectively. Sirai and Gunji's [DEF {core}, MOD +] is replaced with [MOD {core}] in this paper for simplicity.

taken in the literature. Notice that co-indexed arguments don't share any syntactic-semantic information, except for their index values j , as indicated by the different tags [2] and [5].

- (6) a. Ken-ga yon-da hon
 Ken-NOM read-PAST book
 "the book Ken read"
 b.



This approach has several advantages, one which I discuss here, among other things, is that it predicts the possibility that a resumptive pronouns can appear in a relative clause. Since tense morphemes can semantically bind only the arguments of an adjacent stem verb, then they will be prevented from binding arguments inside an embedded clause within a relative clause.

- (7) a. [Ken-ga [Naomi-ga ϕ_i yon-da]-to omo-tta] hon_i
 [Ken-NOM [Naomi-NOM (ACC) read-PAST]-COMP think-PAST] book
 "the book Ken thought Naomi read"
 b. [[ϕ_j ϕ_i yon-da] hito_j-ga zisatusi-ta] hon_i
 [(NOM) (ACC) read-PAST] person-NOM commit suicide-PAST] book
 "the book the person committed suicide after reading it"

In (7a), the tense morpheme *tta* can't bind the accusative argument of *yon*. Similarly, *ta* can't bind the accusative argument of *yon* in (7b). One might think that the semantic binding approach would incorrectly predict that (7a) and (7b) are ungrammatical. But this is not the case. As Sirai and Gunji claim, in the positions occupied with ϕ_i in (7a) and (7b), which are the deeper positions relative to *tta* and *ta*, there are phonetically null pronouns (*pros*). And this correctly predicts that resumptive pronouns can appear in such positions.³

³In Hoji and Ueyama (2003) it is argued that resumptive pronouns can appear in 'local' contexts such as relativization, topicalization and (Deep OS-type) scrambling. Following are some examples (judgements are theirs).

- (8) a. [Ken-ga [Naomi-ga *pro* / ?sore-wo yon-da]-to omo-tta]
 [Ken-NOM [Naomi-NOM *pro* / RES-ACC read-PAST]-COMP think-PAST]
 hon_i
 book
 “the book Ken thought Naomi read”
- b. [[ϕ_j *pro* / ?sore-wo yon-da] hito_j-ga zisatusi-ta]
 [(NOM) *pro* / RES-ACC read-PAST] person-NOM commit suicide-PAST]
 hon_i
 book
 “the book the person committed suicide after reading it”

Sirai and Gunji argue that with some pragmatic preference, these pronouns are co-indexed with the outer antecedents, *hon_i*, in (8a) and (8b).

2.2 Raising Verb and its ARG-ST

Uda (1996) analyzes the Japanese resultative *te-ar* construction has a raising structure, with the auxiliary verb *ar* being the raising verb. Furthermore she claims, following Grover (1995), that an raised argument doesn't appear in the ARG-ST of a raising verb, since the argument doesn't bear a semantic role with respect to the raising verb. Her raising analysis would look like the

- (i) a. Relativization :
 [John-ga [so-ko-ni]₁ Mary-o tureteitta] mise₁-wa moo tubureteiru
 John-NOM that-place-to Mary-ACC took restaurant-TOP already went:bankrupt
 “The restaurant₁ [that John took Mary there₁] has already gone bankrupt.”
- b. Topicalization :
 [Daietto to onsen-wa]₁ [syuukansi-ga] [neta-ni tumaru to] yoku [so-re-o]₁ tokusyuusuru
 diet and spa-TOP magazine-NOM topic-DAT stuck if often that-thing-ACC feature
 “[As for diet and hot spa]₁, [magazines often feature [it/them]₁] [when they stuck with topics]].”
- c. (Deep OS-type) Scrambling :
 [Toyota-ni-sae]₁ Nissan-ga [so-ko-ni]₁ syatyoo-to-no mendan-o
 Toyota-DAT-even Nissan-NOM that-place-DAT president-with-GEN appointment-ACC
 moosiiretekita
 requested
 “[Even to Toyota]₁, Nissan applied [to it]₁ for an appointment with the president.”

The approach taken here rules out (ia) and (ib), and actually, they sound odd to me. Here are some more examples which contain resumptive pronouns in a ‘local’ context (judgements are mine).

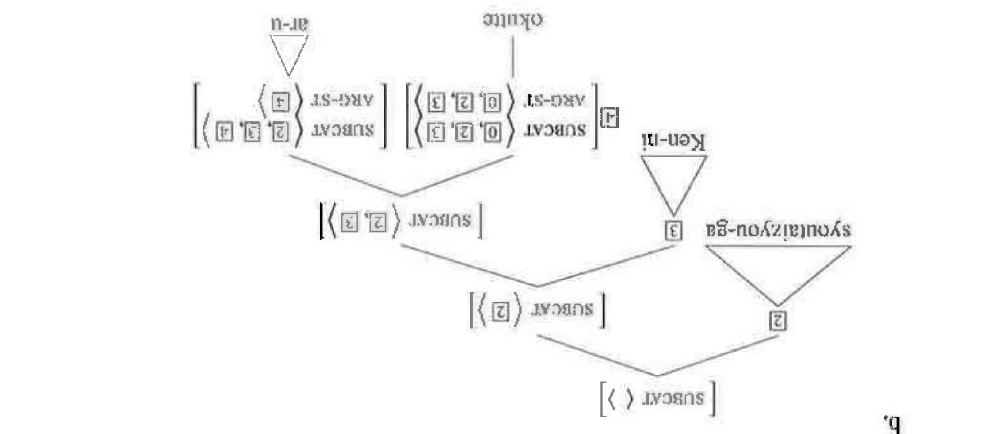
- (ii) a. Relativization :
 [ϕ_1 / * [so-itu-ga]₁ hon-wo yon-da] seito₁
 (NOM) / that-guy-NOM book-ACC read-PAST student
 “A student who read a book.”
- b. Topicalization :
 sono-seito₁-wa ϕ_1 / * [so-itu-ga]₁ hon-wo yon-da
 that-student-TOP (NOM) / that-guy-NOM book-ACC read-PAST
 “As for the student he read a book.”

These examples are certainly ungrammatical, as my analysis predicts.

In section 4., I will argue that contrastivization involves scrambling, and resumptive pronouns are prohibited from appearing in the construction. Note that the type of scrambling in this paper is equivalent to Surface OS-type scrambling of Hoji and Ueyama. They think that Deep OS-type scrambling allows resumption, as in (ic), while Surface OS-type doesn't. My account of contrastivization and the predictions it makes concerning the occurrence of resumptive pronouns is, then, consistent with Hoji and Ueyama's analysis as long as Surface OS-type concerned.

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- (9) a. Syoulaizyou-ga Ken-ni okute aru
invitation-NOM Ken-DAT send RESULT-PRES
‘The invitation card is in the state of being sent to Ken.’



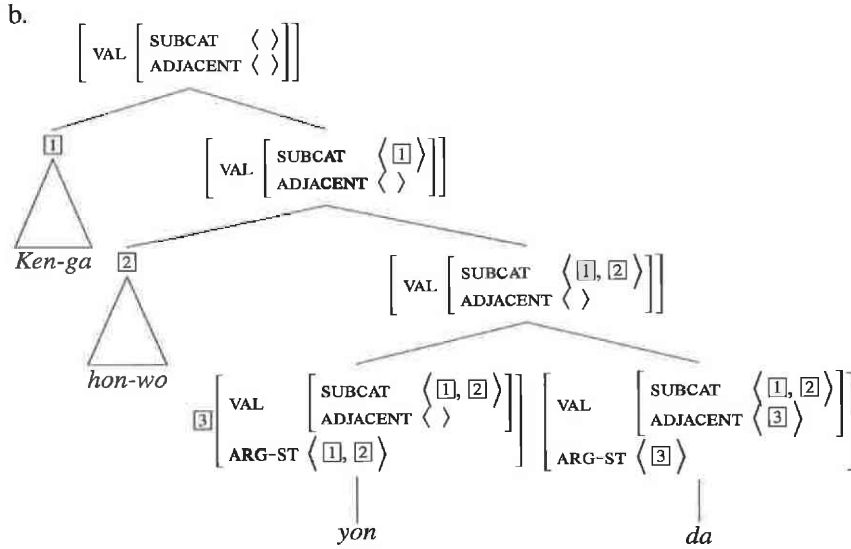
Notice that the raised arguments [2] and [3] don't appear in the arg-st of the raising verb *ar*. As demonstrated in Uda (1996), this analysis is also useful when accounting for direct and indirect passives in Japanese.

Adopting her analysis, (10a) (=5a) has the structure in (10b). Notice again that the raised arguments (1) and (2) don't appear in the ARG-ST of the raising verb *da*.

- (10) a. Ken-ga hon-wo yon-da
Ken-NOM book-ACC read-PAST
"Ken read a book."

⁴ Adopting her treatment of raising, the raising verbs, the raising verbs, Argument Realization Principle should be something like (1).

$$(1) \quad \left[\begin{array}{c} \text{ARG-ST} \\ \text{SUBCAT} \end{array} \left[\begin{array}{c} \boxed{1} \\ \boxed{2}, \boxed{1} \end{array} \right] \left[\begin{array}{c} \langle \boxed{b} \rangle \\ \langle \boxed{b} \rangle \end{array} \right] \right] \cdot \left[\begin{array}{c} \text{ARG-ST} \\ \text{SUBCAT} \end{array} \left[\begin{array}{c} \boxed{a} \\ \boxed{a}, \boxed{1} \end{array} \right] \left[\begin{array}{c} \langle \boxed{b} \rangle \\ \langle \boxed{b} \rangle \end{array} \right] \right]$$

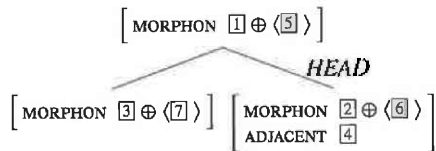


2.3 Word Order and Syntactic-Semantic Structure

In Gunji (1999), it is assumed, together with Kathol (1995) and Reape (1996) among others, that the constituent structure of a sentence doesn't determine the word order of the sentence. This amounts to saying that scrambling doesn't affect the syntactic-semantic structure of a sentence. Then he proposes the following principle involving word order, which he calls the MORPHONOLOGICAL PRINCIPLE.⁵

(11) MORPHONOLOGICAL PRINCIPLE

In a headed structure of the form:



- a. if $4 = \langle \rangle$,
 $\text{union}([3 \oplus \langle 7 \rangle], [2, 1]), [5] = [6]$.
 (The last MORPHON of the phrase 5 is the last MORPHON of the head 6 . All the other MORPHONS are obtained by union.)
- b. otherwise,
 $\text{union}([3, 2, 1]), [5] = [7 \cdot 6]$.
 (The last MORPHON of the phrase 5 is the last MORPHON of the adjacent dependent 7 followed by the last MORPHON of the head 6 . All the other MORPHONS are obtained by union.)

(11b) says that 7 and 6 are 'frozen' to form 5 , so to speak, and it is no longer referred to by the union relation (as indicated by ' \cdot '). The union relation corresponds to *sequence union* in Reape (1996), which is defined in the following way.

⁵The final version of this principle in Gunji (1999) is a bit more complicated.

- (12) a. $\text{union}(\langle \rangle, \langle \rangle, \langle \rangle)$.
 b. $\text{union}(\langle A|X \rangle, Y, \langle A|Z \rangle)$ if $\text{union}(X, Y, Z)$.
 c. $\text{union}(X, \langle A|Y \rangle, \langle A|Z \rangle)$ if $\text{union}(X, Y, Z)$.

This means that Z is a list obtained by merging X and Y with the condition that the relative order of elements in X and Y is preserved in Z .

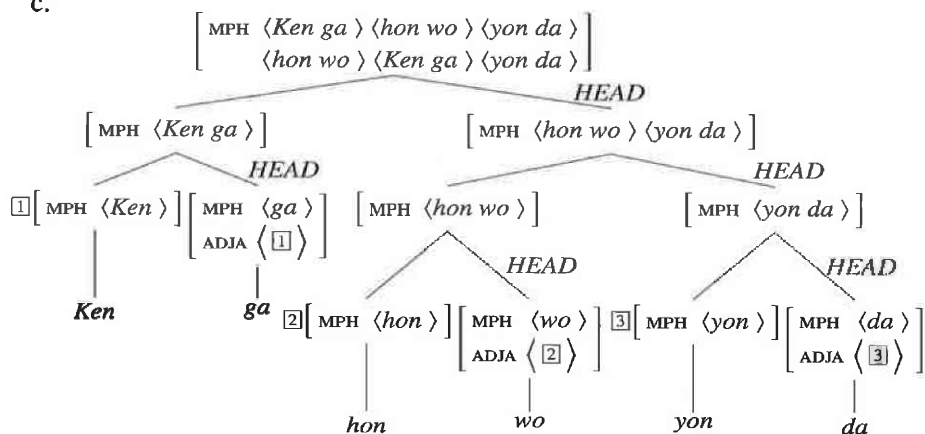
As for the ADJACENT feature, he encodes onto the ADJACENT FEATURE PRINCIPLE the fact that a lexical head with nonempty ADJACENT value is a bound morpheme and cannot be free.

(13) ADJACENT FEATURE PRINCIPLE

- a. The ADJACENT feature of a phrase is empty.
 b. In a complement-head structure, the ADJACENT feature of the (lexical) head, if nonempty, is a singleton list consisting of a feature structure that is identical to the SYNSEM value of the complement.

Gunji's analysis of word order assigns the same syntactic-semantic structure in (14c) to the sentence (14a) and its scrambled counterpart (14b).⁶

- (14) a. Ken-ga hon-wo yon-da
 Ken-NOM book-ACC read-PAST
 "Ken read a book."
 b. hon-wo Ken-ga yon-da
 book-ACC Ken-NOM read-PAST
 "Ken read a book."
 c.



Since the postpositions *ga* and *wo* are required to be ADJACENT to the preceding noun phrase, *Ken* 'attaches' to *ga* and *Ken ga* is 'frozen' by virtue of (11b). This also holds both between *hon* and *wo*. *yon* and *da* must be adjacent to each other and be 'frozen', too. Note that since neither *Ken-ga* nor *hon-wo* are the head of the sentence, they can be scrambled in accord with the union relation, so that we can get (14a) and (14b) as the final MORPHON value of the sentence.

Gunji's treatment of word order provides us with a successful explanation of Japanese causatives which exhibit morphological and phonological monoclausality on the one hand and syntactic-semantic biclausality on the other.

⁶In (14), MORPHON and ADJACENT are abbreviated as MPH and ADJA, respectively.

3. The Analysis of Topicalization

I claim that topic *wa* phrase is licensed by a tense morpheme which has the special characteristics below.

- (15) a. It must be in the assertive form ([FORM *root*]).
 b. It introduces a VALENCE feature TOPIC, and it must subcategorize for a topic *wa* phrase in sentence initial position.
 c. It must not raise the argument that has the same index value as its TOPIC value.

Remember that Sirai and Gunji's prenominal tense morpheme doesn't raise the argument that has the same index value as its MOD value. The assertive tense morpheme which introduces the TOPIC feature and subcategorizes for the topic *wa* phrase (henceforth topic tense morpheme) is analogous to the prenominal tense morpheme. I assume here that the TOPIC feature has a value which has a single item list, as the ADJACENT feature does. This will allow only one topic argument per sentence.

As for (15a), according to Oono (1993), *wa* phrase was a element dependent on a predicate which was in assertive form in old Japanese. That is, there was a so-called *kakari-musubi* relation between a *wa* phrase and the assertive form predicate in old Japanese.

- (16) *Kakari-Musubi Relation*
-
- ... XP+wa ... V[FORM *root*]

It is possible that the topic tense morpheme is the remnant of the old Japanese *kakari-musubi* relation, in which a *wa* phrase depended on an assertive form predicate.

The topic tense morpheme is derived from a normal assertive tense morpheme by the TOPIC INTRODUCTION LEXICAL RULE in (17).

- (17) TOPIC INTRODUCTION LEXICAL RULE

$$\left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} \textit{verb (tense)} \\ \text{FORM } \textit{root} \end{array} \right] \\ \text{VAL} \left[\begin{array}{l} \text{SUBCAT} \langle \boxed{a} \rangle \\ \text{ADJACENT} \langle \boxed{1} \rangle \end{array} \right] \\ \text{ARG-ST} \langle \boxed{1} [\text{SUBCAT} \langle \boxed{a} \rangle] \rangle \end{array} \right] \Rightarrow \left[\begin{array}{l} \text{HEAD} \left[\begin{array}{l} \textit{verb (tense)} \\ \text{FORM } \textit{root} \end{array} \right] \\ \text{VAL} \left[\begin{array}{l} \text{TOPIC} \langle \langle \text{PFORM } \textit{wa}, \text{SEM } \boxed{2} \rangle \rangle \\ \text{SUBCAT} \langle \langle \boxed{a} \ominus \text{SEM } \boxed{2} \rangle \rangle \\ \text{ADJACENT} \langle \boxed{1} \rangle \end{array} \right] \\ \text{ARG-ST} \langle \boxed{1} [\text{SUBCAT} \langle \boxed{a} \rangle] \rangle \end{array} \right]$$

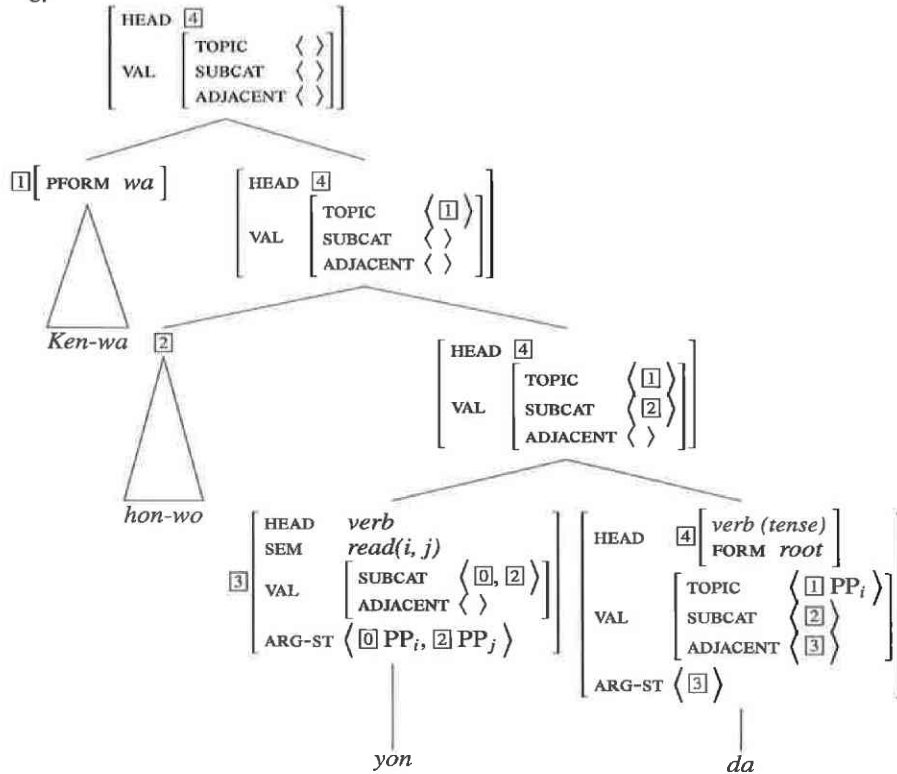
where \boxed{a} is a list of SYNSEM objects, and \ominus represents the list version of the set complement operation.

Notice that the three characteristics in (15) are described in the rule. [FORM *root*] in the output represents (15a), [TOPIC $\langle \langle \text{PFORM } \textit{wa}, \text{SEM } \boxed{2} \rangle \rangle$] and [SUBCAT $\langle \langle \boxed{a} \ominus \text{SEM } \boxed{2} \rangle \rangle$] correspond to (15b) and (15c), respectively.

(18) is an example of topicalization. Since the topic phrase *Ken-wa* $\boxed{1}$ is co-indexed with the first argument $\boxed{0}$ in the ARG-ST of the stem verb *yon*, the argument $\boxed{0}$ is not raised by the tense morpheme. Remember that in (6b) the co-indexed arguments don't share syntactic-semantic information except for their index values. Likewise $\boxed{1}$ and $\boxed{0}$ in (18b) share only their indices, but do not share any syntactic-semantic information as indicated by the different tags $\boxed{1}$ and $\boxed{0}$.

- (18) a. Ken-ga hon-wo yon-da
 Ken-NOM book-ACC read-PAST
 “Ken read a book.”

b.



3.1 *Wa* Phrase in a Relative Clause

The topic *wa* phrase can't appear in a relative clause, as seen in (19) (repeated from (2a)).

- (19) *[Ken-wa kat-ta] hon
 [Ken-TOP buy-PAST] book
 “the book which Ken bought”

In (19) the tense morpheme *ta* should be of the [FORM *rel*], since it heads the relative clause *Ken wa kat ta*. It follows that the tense morpheme can't subcategorize for the topic phrase *Ken wa*. Thus the analysis correctly rules out (19).

3.2 Resumptive Pronoun in an Embedded Clause

Topic constructions allow resumptive pronouns to appear in an embedded clause, as was noted in (3a). (20) repeats (3a) without the resumptive pronoun *sore_i*.

- (20) sono hon_i-wa Ken-ga [Naomi-ga ϕ_i yon-da]-to omo-tta
 the book-TOP Ken-NOM [Naomi-NOM (ACC) read-PAST]-COMP think-PAST
 “As for the book, Ken thought that Naomi read it.”

In section 2. 1, I reviewed Sirai and Gunji's treatment of resumptive pronouns that appear in the embedded clause within the relative clause. Likewise, I claim that in the positions occupied by ϕ_i in (20), which is the position that the tense morpheme *tta* can't semantically bind, there is a phonetically null pronoun (*pro*). Accordingly it should also be possible for an overt pronoun to appear in the position. This prediction is borne out.

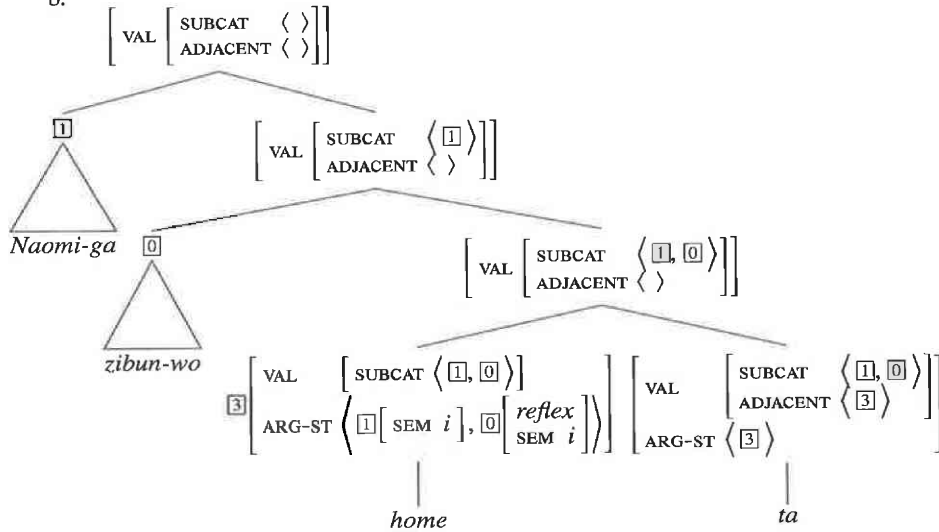
- (21) sono hon_i-wa Ken-ga [Naomi-ga *pro* / ?sore_i-wo yon-da] to
 the book-TOP Ken-NOM [Naomi-NOM *pro* / RES-ACC read-PAST] COMP
 omo-tta
 think-PAST
 "As for the book, Ken thought that Naomi read it."

3.3 Reconstruction Effects

In Japanese, reflexive *zibun* is licensed if a subject binds it. In HPSG terms, if the reflexive argument (*[reflex]* in (22b)) is co-indexed with the least oblique argument in ARG-ST (i.e., the left-most argument of ARG-ST), then the reflexive is licensed.

- (22) a. Naomi_i-ga zibun_i-wo home-ta
 Naomi-NOM self-ACC praise-PAST
 "Naomi praised herself."

b.



Notice that in (22b) in the ARG-ST of the stem verb *home*, the index of the reflexive *zibun* is co-indexed with the index of the least oblique argument *Naomi* ([1]), as indicated by the two *[SEM i]*s. That way the reflexive is construed as having *Naomi* as its antecedent.

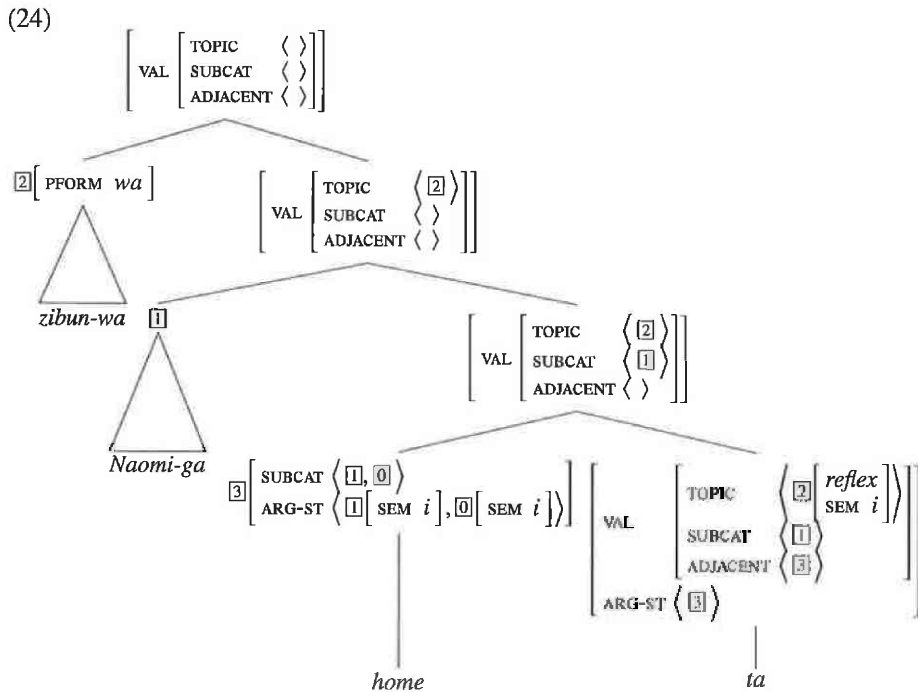
Reconstruction effects are not observed in the topic construction, as shown in (23a) (repeated from (4)), whereas a scrambled constituent does show the effect as demonstrated in (23b).

- (23) a. ?*zibun_i-wa Naomi_i-ga ϕ_i home-ta
 self-TOP Naomi-NOM (ACC) praise-PAST
 "Herself, Naomi praised."

- b. zibun_i-wo Naomi_i-ga ϕ_i home-ta
 self-ACC Naomi-NOM (ACC) praise-PAST
 “Naomi praised herself.”

Remember that in section 2.3 I assume Gunji’s (1999) treatment of word order that claims that scrambling does not affect the syntactic-semantic structure of a sentence. It follows that (23b) has the same structure as its non-scrambled counterpart (22a). The reconstruction effect shown in (23b) is therefore derived automatically.

The absence of the reconstruction effect in topic construction (23a) is accounted for by assuming the analysis of the tense morpheme and topicalization presented so far. (24) is the structure of (23a). Since Naomi [1] and zibun [2] are not in the same ARG-ST, zibun is not interpreted as having Naomi as its antecedent.

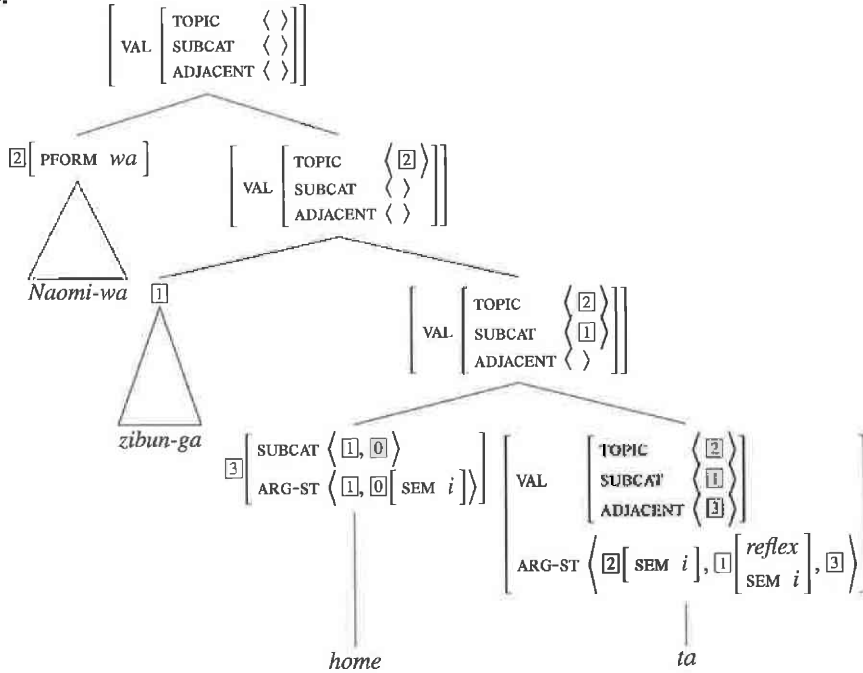


Therefore the analysis of topicalization in this paper correctly predicts that (23a) is not allowed.

Note that without Uda’s analysis of raising it would be impossible to rule out (25a), since Naomi and zibun would be in the same ARG-ST (the ARG-ST of ta) and the former would bind the latter. (25b) illustrates the structure of (25a) which would result without Uda’s raising analysis.

- (25) a. *Naomi_i-wa zibun_i-ga home-ta
 Naomi-TOP self-NOM applaud-PAST
 “Naomi applauded herself.”

b.



4. The Analysis of Contrastivization

I claim that while topic *wa* is subcategorized for by the topic tense morpheme through the value of its TOPIC feature as described in the last section, contrastive *wa* phrase is an ordinary subcategorized argument with its PFORM value being *wa*. Contrastive *wa* is introduced into the SUBCAT of the stem verb by the CONTRAST INTRODUCTION LEXICAL RULE.

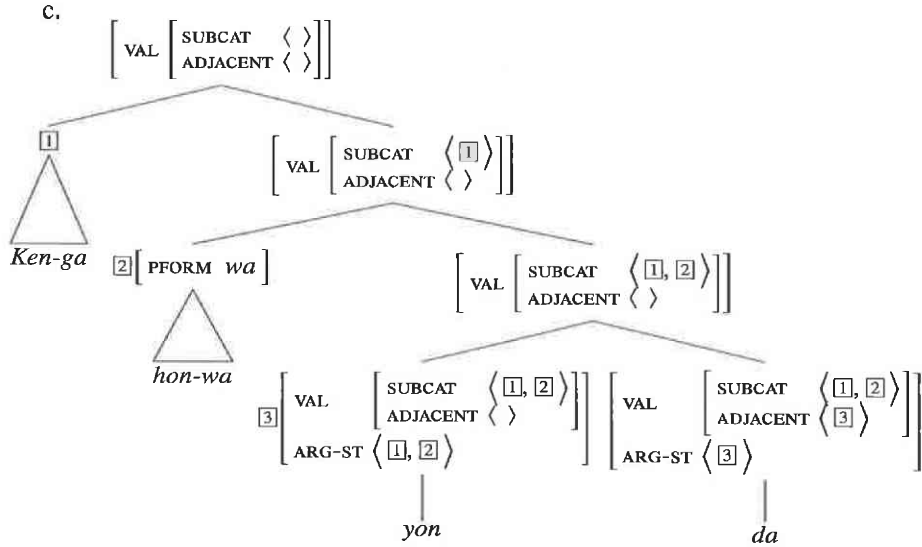
(26) CONTRAST INTRODUCTION LEXICAL RULE

$$\left[\begin{array}{l} \text{HEAD} \quad \textit{verb} \\ \text{SUBCAT} \quad \langle \boxed{a} \oplus \boxed{1} \oplus \boxed{b} \rangle \end{array} \right] \Rightarrow \left[\begin{array}{l} \text{HEAD} \quad \textit{verb} \\ \text{SUBCAT} \quad \langle \boxed{a} \oplus \boxed{2} [\text{PFORM } \textit{wa}] \oplus \boxed{b} \rangle \end{array} \right]$$

where \boxed{a} and \boxed{b} are (possibly empty) lists of SYNSEM objects, and $\boxed{1}$ and $\boxed{2}$ are identical other than their PFORM values. \oplus stands for list concatenation operation.

This states that one of the SUBCAT values is ‘changed’ to a contrastive *wa* phrase, and the phrase is not necessarily in the sentence initial position, unlike topic *wa* phrase. It follows that the contrastive *wa* can be scrambled in the same way as an ordinary argument can.

- (27) a. Ken-ga hon-wa yon-da (ga shinbun-wa yoma-naka-tta)
 Ken-NOM book-ACC read-PAST (but newspaper-CON read-not-PAST)
 “Ken read a book (, but he didn’t read the newspaper).”
 b. hon-wa Ken-ga yon-da (ga shinbun-wa yoma-naka-tta)
 book-ACC Ken-NOM read-PAST (but newspaper-CON read-not-PAST)
 “Ken read a book (, but he didn’t read the newspaper).”



Note that (27a) and (27b) have the same structure (27c), in accord with the treatment of word order presented in 2. 3.

The analysis of contrastive *wa* taken here implies that contrastive *wa* has none of the characteristics of the *kakari-musubi* relation of old Japanese, unlike topic.

4.1 *Wa* Phrase in a Relative Clause

Since topic *wa* must be subcategorized for by the tense morpheme which is of the [FORM *root*], we were able to predict that (2a) is ungrammatical. On the other hand, there is no such restriction on contrastive *wa*, and so it is possible to predict that (2b), repeated here as (28), is grammatical.

- (28) [Naomi-wa kawa-naka-tta-ga Ken-wa kat-ta] hon
 [Naomi-CON buy-not-past-but Ken-CON buy-PAST] book
 “the book which Ken bought but Naomi didn’t”

4.2 Resumptive Pronoun in an Embedded Clause

It is usually the case that scrambling doesn’t allow resumptive pronouns to appear.

- (29) sono hon_i-wo Ken-ga [Naomi-ga ϕ_i / *sore_i-wo yon-da]-to
 that book_i-ACC Ken-NOM [Naomi-NOM (ACC) / it-ACC read-PAST]-COMP
 omo-tta
 think-PAST
 “Ken thought that Naomi read the book.”

This follows from the assumption in 2. 3 that scrambling doesn’t affect any syntactic-semantic structure of a sentence. That is, superficially, there seems to be a gap in a scrambled sentence. But actually the syntactic-semantic structure contains no gap in it, and there is no place for a resumptive pronoun to appear.

According to my analysis, contrastive *wa* phrase is an ordinary argument and can be scrambled. This means that the analysis for a sentence such as (3b) (repeated in (30a)) explains the

contrastive *wa* phrase *sono mati kara wa* as having been scrambled to the sentence initial position. (30b) is the sentence where the ordinary postpositional phrase *sono mati kara* is scrambled. This sentence does not allow the resumptive pronoun *soko kara* to appear.

- (30) a. sono mati_i-kara-wa Ken-ga [Naomi-ga ϕ_i / * soko_i-kara
the city-from-CON Ken-NOM [Naomi-NOM (ACC) / RES-from
syuppatusi-ta]-to omo-tta (ga betsu-no mati-kara-wa ...)
leave-PAST]-COMP think-PAST (but another-GEN city-from-CON ...)
“From the city Ken thought Naomi left (, while from another city ...).”
- b. sono mati_i-kara Ken-ga [Naomi-ga ϕ_i / * soko_i-kara
the city-from Ken-NOM [Naomi-NOM (ACC) / RES-from
syuppatusi-ta]-to omo-tta
leave-PAST]-COMP think-PAST
“Ken thought Naomi left from the city.”

It follows that (3b) is ungrammatical for the same reason that scrambled sentences never allow resumptive pronouns.

4.3 Reconstruction Effects

Since scrambling doesn’t affect the syntactic-semantic structure of a sentence, a scrambled sentence and its non-scrambled counterpart have the same ARG-ST. We, then, predict that the reflexives in a scrambled sentence are construed in the same way as those in a non-scrambled counterpart. And indeed, this prediction is borne out.

- (31) a. Naomi_i-ga zibun_i-no heya-kara syuppatusi-ta
Naomi-NOM self-GEN room-from leave-PAST
“Naomi left from her room.”
- b. [zibun_i-no heya-kara]_i Naomi_i-ga ϕ_j syuppatusi-ta
[self-GEN room-from] Naomi-NOM (FROM) leave-PAST
“Naomi left from her room.”

As before, contrastivization should be thought of as a kind of scrambling. Accordingly it is predicted that (4b) (repeated in (32b)) is grammatical for the same reason (32a), an ordinary scrambled sentence, is grammatical.

- (32) a. [zibun_i-no heya-kara]_i Naomi_i-ga ϕ_j syuppatusi-ta
[self-GEN room-from] Naomi-NOM (FROM) leave-PAST
“Naomi left from her room.”
- b. [zibun_i-no heya-kara-wa]_j Naomi_i-ga ϕ_j syuppatusi-ta
[self-GEN room-from-CON] Naomi-NOM (FROM) leave-PAST
(ga betu-no heya-kara-wa George-ga ...)
(but another-GEN room-from-CON George-NOM ...)
“From her own room Naomi left (, while from another room George ...).”

5. Concluding Remarks

I have shown in this paper that adopting Sirai and Gunji's (1998) *semantic binding* approach, together with Uda's (1996) analysis of raising and Gunji's (1999) treatment of word order, it is possible to account adequately for the phenomena involving topicalization and contrastivization, with topic *wa* phrase base-generated in the sentence initial position by topic tense morpheme and contrastive *wa* analyzed as an ordinary argument.

My approach would, however, suffer from some problems, which I will describe in the next two sections.

5.1 Characterization of the Two Constructions

wa phrases have two interpretations, topic and contrastive, and as has been presented, I assume different syntactic structures for each. A similar position is taken in Hoji (1985), where topic *wa* is base-generated while contrastive *wa* is derived via movement. The problem is, however, that the syntactic difference is sometimes not so clear-cut. (33a) is an example of topicalization, which doesn't prohibit resumptive pronouns from appearing. On the other hand (32b) is an example of contrastivization, which does prohibit resumptive pronouns according to my analysis.

- (33) a. ?sono hon_i-wa Ken-ga [Naomi-ga sore_i-wo yon-da]-to
 that book-TOP Ken-NOM [Naomi-NOM RES-ACC read-PAST]-COMP
 omo-tta
 think-PAST
 ‘‘As for the book, Ken thought that Naomi read it.’’
- b. ??sono hon_i-wa Ken-ga [Naomi-ga sore_i-wo yon-da]-to
 that book-CON Ken-NOM [Naomi-NOM RES-ACC read-PAST]-COMP
 omo-tta (ga betu-no hon-wa Ken-ga George-ga ...)
 think-PAST (but another-GEN book-CON Ken-NOM George-NOM ...)
 ‘‘As for the book Ken thought that Naomi read it (, while another book Ken thought that George ...)’’

As was alluded earlier, acceptability judgements for these are a matter of dispute. The same is true for reconstruction effects. On the other hand, the ungrammaticality becomes more prominent when we have a ‘‘PP+*wa*’’ phrase instead of a ‘‘NP+*wa*’’ phrase.

- (34) a. ?sono hon_i-wa Ken-ga [Naomi-ga soko_i-kara syuppatusi-ta]-to
 the book-TOP Ken-NOM [Naomi-NOM RES-ACC read-PAST]-COMP
 omo-tta
 think-PAST
 ‘‘As for the book, Ken thought that Naomi read it.’’
- b. *sono mati_i-kara-wa Ken-ga [Naomi-ga soko_i-kara syuppatusi-ta]-to
 the city-from-COM Ken-NOM [Naomi-NOM RES-from leave-PAST]-COMP
 omo-tta (ga betu-no mati-kara-wa George-ga ...)
 think-PAST (but another-GEN city-from-CON George-NOM ...)
 ‘‘From the city Ken thought Naomi left (, while from another city George ...)’’

This seems to imply that different syntactic structures should be posited not between the two interpretations, namely, topic and contrastive, but between “NP+*wa*” and “PP+*wa*”. Actually some researchers argued along these lines. For instance, the analysis by Shibatani (1990) posits base-generation for all “NP+*wa*” and movement for all “PP+*wa*”. His analysis seems to attribute the two different interpretations of “NP+*wa*”, topic and contrastive, not to syntax but to pragmatic or contextual effects. And Mihara (1994) argues similarly.

There is, however, some evidence that there must be some syntactic differences between the two interpretations. Firstly, as we have seen in (2) only contrastive *wa* phrase can appear in a relative clause. Secondly *wa* phrase which is not in the sentence initial position is obligatorily construed as contrastive.

- (35) a. Ken-ga hon-wa yon-da
 Ken-NOM book-CON /*TOP read-PAST
 b. Ken-wa hon-wa yon-da
 Ken-CON / TOP book-CON /*TOP read-PAST

Thirdly when a *wa* phrase attaches to some WH word, the *wa* phrase must be contrastive.

- (36) dare-wa ki-ta-no
 who-CON /*TOP come-PAST-QUE
 “Who came?”

They all seem to favor distinguishing topic “NP+*wa*” and contrastive “NP+*wa*” syntactically.

The problem is, then, how we characterize the two constructions. Neither purely semantic characterization, topic versus contrastive, nor purely syntactic characterization, “NP+*wa*” versus “PP+*wa*,” would be adequate. Saito’s (1985) analysis is that all “PP+*wa*” and some “NP+*wa*” undergo movement while some other “NP+*wa*” must be base-generated. But it is not clear what distinguishes the two “NP+*wa*”s.

5.2 Topicalization from a VP Complement

In section 3.2 I showed how this analysis, following Sirai and Gunji, correctly predicts that positions which can’t be semantically bound by a topic tense morpheme, such as the positions in an embedded clause, can be occupied by a resumptive pronoun. Since the topic tense morpheme can semantically bind only arguments of its adjacent stem verb, it follows that it should not be possible to semantically bind, for example, the position of arguments within a VP complement of, say, causative construction. Thus according to my analysis, resumptive pronouns should be allowed to appear at the position. However, the prediction turns out to be wrong.

- (37) sono hon_i-wa Ken-ga Naomi-ni [_{VP} ϕ_i /* sore-wo yom]-ase-ta
 that book-TOP Ken-NOM Naomi-DAT [(ACC)/ RES-ACC read]-CAUS-PAST
 “As for that book, Ken made Naomi read it.”

Sirai and Gunji’s analysis of relativization also suffers from this.

Gunji (1999) observes that if the argument within the VP complement is scrambled to sentence initial position, the ARG-ST of the verb which embeds the VP complement seems to be affected, although he claims that scrambling doesn’t affect the sentence’s syntactic-semantic structure. In addition, Gunji (p.c., 2003) points out that not only scrambling but also such

dislocation as relativization and topicalization of the argument within VP complement do affect the ARG-ST of the VP embedding verb. Here are examples of scrambling (38b), relativization (38c) and topicalization (38d). In each case the affected argument is *kare* from within the VP complement *kare-wo mi*.

- (38) a. Ken_i-ga Naomi-ni [_{VP} kare_i-wo mi]-sase-ta
 Ken-NOM Naomi-DAT [he-ACC see]-CAUS-PAST
 "Ken made Naomi see himself."
 b. *kare_i-wo Ken_i-ga Naomi-ni [_{VP} ϕ_i mi]-sase-ta
 he-ACC Ken-NOM Naomi-DAT [(ACC) see]-CAUS-PAST
 "Ken made Naomi see himself."
 c. *[Ken_i-ga Naomi-ni [_{VP} ϕ_i mi]-sase-ta] kare_i
 [Ken-NOM Naomi-DAT [(ACC) see]-CAUS-PAST] he
 "Ken, who made Naomi see himself."
 d. *kare_i-wa Ken_i-ga Naomi-ni [_{VP} ϕ_i mi]-sase-ta
 he-TOP Ken-NOM Naomi-DAT [(ACC) see]-CAUS-PAST
 "Himself, Ken made Naomi see."

The changes in the interpretations of *kare* above indicate that the ARG-ST of the VP embedding verb *sase* changes in the following way.

- (39) a. the ARG-ST of *sase* in (38a)

$$\left[\text{ARG-ST} \left\langle \text{Ken, Naomi, VP} \left[\text{ARG-ST} \left\langle \text{Naomi, kare} \right\rangle \right] \right\rangle \right]$$

 b. the ARG-ST of *sase* in (38b) to (38d)

$$\left[\text{ARG-ST} \left\langle \text{Ken, Naomi, kare, VP} \left[\text{ARG-ST} \left\langle \text{Naomi, kare} \right\rangle \right] \right\rangle \right]$$

To remedy this problem, Gunji (1999) proposed ARGUMENT ATTRACTION LEXICAL RULE, which attracts the argument within the VP complement to the ARG-ST of the VP embedding verb(cf. Hinrichs and Nakazawa (1994) and Pollard (1994), among others). This allows him to reconcile these phenomena with his analysis of word order.

With his lexical rule, it becomes possible for a topic tense morpheme to semantically bind the argument within the VP complement. This is because by the lexical rule, the argument within the VP can be the argument of the VP embedding verb, which the topic tense morpheme would be adjacent to. However, the problem is that the application of the lexical rule must be restricted. Otherwise it would be possible to passivize the argument within the VP complement, since the argument could be the direct argument of the VP embedding verb due to the lexical rule. As has been frequently shown, this is not the case.

- (40) *sono hon-ga Ken-ni(yotte) Naomi-ni yom-ase-rare-ta
 that book-NOM Ken-by Naomi-DAT read-CAUS-PASS-PAST
 "(lit.) That book was made Naomi to read by Ken."

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