

THE SEMANTIC STRUCTURE OF JAPANESE ADJECTIVES WITH *-TAI*  
DERIVATIONAL SUFFIX

AKIRA IKEYA  
TOYO GAKUEN UNIVERSITY  
ikeya @ yk. rim. or. jp

ABSTRACT

This paper treats the Japanese adjective phrase forming derivational suffix *-tai* from a new point of view: firstly it tries to approach from a semantic standpoint by applying the proposal made in Ikeya (1991). It will be shown that adjective phrases formed by *-tai* fits nicely with the semantic structure proposed by Ikeya. Secondly, we attempt to 'derive' *-tai* sentences, by adopting a basic framework of HPSG so that we can 'derive' them without having recourse to transformational operations, that is, in a monostratal way. In tackling the problem we have tried to incorporate many ideas proposed so far on this issue.

**1. Introduction**

In Japanese as well as in Korean there are such expressions as follows.

- (1) watasi wa ringo wo tabetai (Japanese)

I Top. apple Obj. eat-want

I want to eat apples.

- (2) na-nun sagwa rul mukkoship ta. (Korean)

It should be noticed that *-tai* desirative, which is so called by Kuno (1973), is mainly used for the first person singular or plural as a subject. In addition to this expression, there are other expressions which are mainly used for the third person as a subject.

- (3) kare wa ringo wo tabe ta gatteiru (Japanese)

he Top. apple Obj. eat want show the sign of

He shows the sign of wanting to eat apples.

- (4) ku nun sagwa rul mukkoshi phohagoitta. (Korean)

In the tradition of Japanese linguistics the main interest has been mainly focused on the following issues.

- (a) How to derive the type of sentences like (3) from that of (1).

- (b) What is a relationship between the sentence (1) and (5) below, where nominative case *ga* is employed instead of *wo*? That is, under what condition *wo* - *ga* alternation occurs.

- (5) watasi wa ringo ga tabetai

I Top. apple Nom. eat want

I want to eat apples.

- (c) How to derive a sentence like (1) from a sentence like (6) below.

- (6) watasi wa ringo wo taberu.

I Top. apples Obj. eat

So far no serious attempt has been made except Sugioka (1986) to treat *-tai* suffix as a complex adjective forming suffix by combining with an intransitive or a transitive verb and to make an inquiry into the semantic structure of such an adjective.

**1. The Theoretical Framework**

**1.1. The Semantic Structure of Adjectives**

**1.1.1. Three Dimensions**

In English, as well as in Japanese or Korean, there is a group of the so called degree adjectives whose semantic meaning is greatly dependent on linguistic or non-linguistic contexts. One such contextual factor is called Thematic Dimension by Bartsch (1986/ 87). In addition to this dimension, it was proposed in Ikeya (1991, 1992, 1996) that it is necessary to set up two other such dimensions, which are termed Comparative / Contrastive Dimension and Degree Dimension. Only after these three vectors are specified is

it possible to determine the truth condition of a sentence which contains a degree adjective. We also claim that this will provide a general framework applicable not only to English but also to Japanese and Korean.

When we say *he is good*, the sentence has to be specified in what respect *he is good*, as compared or contrasted with whom *he is good at*, and to what degree *he is good*. For example, in *he is very good at basketball for a short Japanese* all these dimensions are expressed: *at basketball* is what we call THEMATIC DIMENSION (TD), *for a short Japanese* is our so called COMPARATIVE / CONTRASTIVE DIMENSION (CD), and *very* is our DEGREE DIMENSION. (DD).

### 1.1.2. TD in English Adjectives

In English TDs have the following varieties.

- (7) a. John is good *at tennis*.  
 b. John is fine *healthwise*.  
 c. John is fine *in terms of health*.  
 d. John is fine *in regards to health*.  
 e. John is blind *in one eye*.

As these examples show, in English TDs are expressed by such expressions as *in terms of*, *as regards*, or other prepositional phrases headed by *of*, *in* etc. All these expressions give specification to adjectives in what respect *John is good* or *fine*. It should be noticed that all these expressions grammatically correspond to an adverbial. It should also be remarked that TD is not obligatory. In such a sentence as *the business is very slow* no TD is expressed.

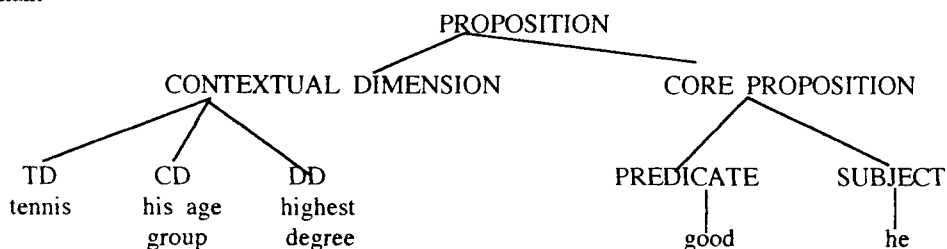
### 1.1.3. CD in English Adjectives

A degree adjective like *tall* implicitly encodes a comparison dimension like *taller than X*, with *X* being specified either by a linguistic or non-linguistic context. Take for example, the following sentences.

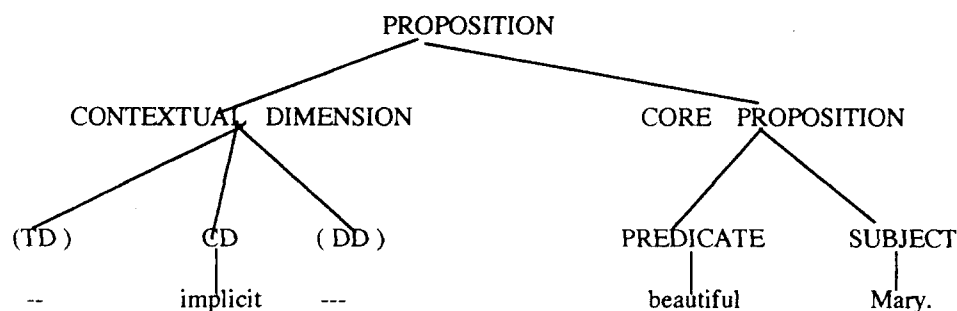
- (8) a. He is tall.  
 b. For a Japanese, he is tall.

In (8) a, size "tallness" is always relative to some implicit measure such as the height of an average person and it is nonsense to talk of tallness except relative to such a comparison class. On the other hand, in (8) b a comparison class is explicitly encoded in the form of *for a Japanese*. This is the case of a linguistic specification of a comparison dimension, while (8) a is a case of non-linguistic contextual specification of a comparison dimension. The core part of the sentence (9) below is *he is good*, which we call a core proposition consisting of a core predicate and a subject, the rest being contextual dimensions: TD, CD, and DD.

(9) He is very good at tennis for his age. In terms of a tree diagram, (9) has the following semant



On the other hand, the sentence *Mary is beautiful* there is neither TD nor DD which is explicitly expressed, though there is an implicit CD. Thus the semantic structure of the sentence can be represented as follows:



The contextual dimensions TD and DD are optional but CD is either explicit or implicit. In the sentence above the CD is implicitly encoded. In what follows we will stipulate that the semantic structure above is the basic one and therefore unmarked one and the one corresponding to *He is very good at tennis for his age* is marked whose semantic structure has all the three dimensions.

## 2. *Tai* as an Adjective Phrase Forming Suffix

According to a dictionary the suffix *-tai* is classified as an auxiliary verb having a declension similar to adjectives<sup>1)</sup> but this is only half of the truth. It is pointed in Kuno (1973) that the suffix has [+stative] as a semantic feature. This gives us a support for our treatment of *-tai*. As is pointed out in Sugioka (1984), *-tai* is followed by a noun forming suffix *-sa*, which usually occurs after an adjective word, not a phrase to form a noun.

(10) Taroo wa [tesuto de ii ten o tori-ta]-sa no amari kanningu o sita.

Top. exam Loc good mark Acc. get-want Gen. excess cunning Acc. did

Taroo cheated in the exam out of the desire to get good marks.

As is clear from this example, the noun forming suffix *-sa* occurs after a phrase *tesuto de ii en o tori-tai*.

Another evidence to show that *-tai* is an adjective phrase forming suffix is evidenced by the following pairs of sentences.

(11) a. \*watasi wa totemo ringo wo taberu.

I Top. very apples Obj. eat

I eat very much eat apples.

b. watasi wa totemo ringo wo tabetai.

I Top. very apples Obj. eat-want

I want very much to eat apples.

(12) a. \*watasi wa totemo anata ni atte hanasu.

I Top. very you to see-and talk

b. watasi wa totemo anata ni atte hanasitai

I Top. very you to see-and talk want

I want very much to see you and talk with you.

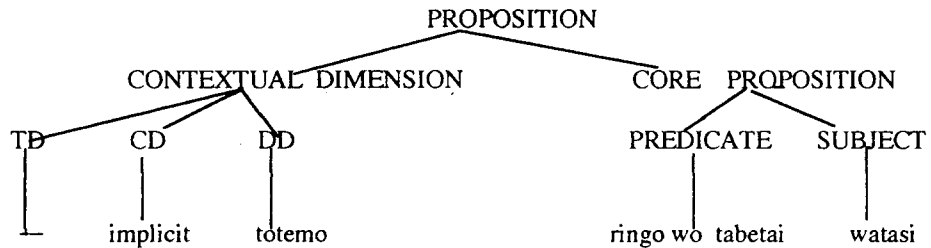
In the sentences (11)a and (12)a *totemo* meaning *very much* makes the sentences ungrammatical, while (11)b and (12)b are acceptable since *totemo* modifies a whole phrase *ringo wo abetai* 'want to eat apples' or *anata ni atte hanasitai* 'want to see you and talk with you'.

So far we have given two pieces of evidence to show that *-tai* is an adjective phrase forming suffix. But the most convincing evidence to support my claim that *-tai* is an adjective phrase forming suffix is the fact that the sentences with *-tai* fit nicely with a semantic structure of adjectives which I propose above in section 1. For example, the semantic structure of the sentence (13) is given below as follows.

(13) watasi wa totemo ringo wo tabetai.

I Top. extremely apples Obj. eat-wan

I want very much to eat apples.



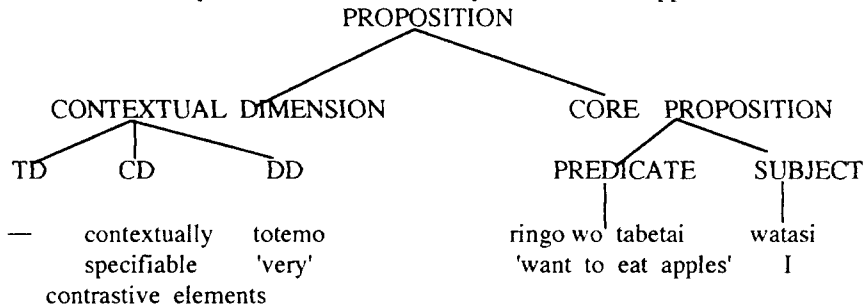
This sentence has no TD as shown above, which is an unmarked case like the sentence *She is beautiful*. CD is implicit, which is contextually specified, e.g. bananas, oranges or peaches. DD is *totemoe* meaning *to a highest degree*.

(14) *watasi ga ringo wo totemo tabetai.*

I Subj. apples Obj. very eat-want

I want very much to eat apples. = It is I that want very much to eat apples.

In this case *I* gets a focus and the sentence means that it is *I* and no any other persons which are contextually defined that want very much to eat apples.



(15) *watasi wa ringo ga totemo tabetai.*

I Top. apples Obj. very eat-want

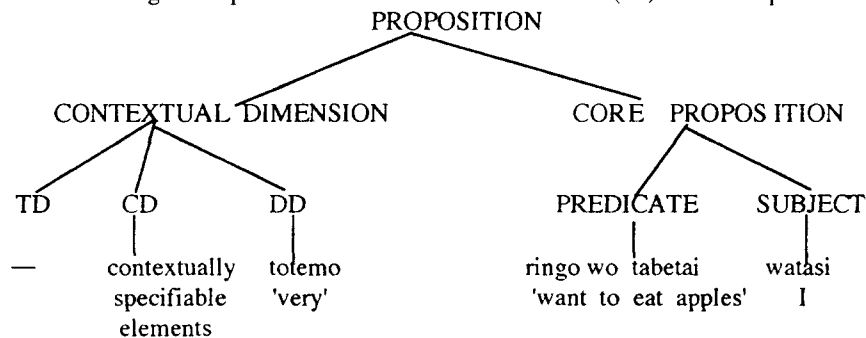
I want very much to eat apples.

The sentence (15) is a case where an objective case is *ga*-marked instead of *o*-marked.

About the difference between the sentence (1), where *-o* marked case is used and (15), where *ga*-marked case employed, it is asserted in Morita (1988) that a *ga*-marked sentence is paraphrasable as a following cleft sentence. This shows that a *ga*-marked noun phrase is contrasted or compared with other objects in the discourse in question.

(16) It is apples that I want very much to eat.

According to our framework *ga*-marked *ringo* is contrasted with contextually specifiable objects like oranges or peaches. The semantic structure of (15) can be represented as follows.



The problem arises as to what difference there is as to the CD in the sentence (13) and (14) since in both sentences the CD is the one which is contextually specifiable. We claim

that in the case of (14) the existence of contrastive elements are more salient although in both sentences the CD's are implicit. This is marked by a particle *ga*.<sup>2)</sup>

It is asserted in Muraki (1975) that when there is a free alternation between *-ga* and *-wo*, *-wo* form is apt to be used if a verb is focused. This can be formalized by our framework in the following way. A predicate adjective, instead of a noun, can become an exponent of CD. Take for example, the following sentence.

(17) *watasi wa hon wo uritai* (no de atte, *kaitai* no de wa nai.)  
 I Top. book Obj. sell ( but buy Nominalizer Top. not  
 I want to buy books not to sell books.

In this context *kaitai*, a part of a predicate *hon wo kaitai* plays a part of CD. This can be easily incorporated into our framework of semantic structure.

### 3. Predicate-Argument Structure of *-tai* Adjectives.

In Shibatani (1978) it is asserted that the deep structure of the sentence (18) is (19).

(18) *boku ga mizu ga/wo nomitai*.  
 I Nom. water Obj. drink-want  
 'I want to drink water.'

(19) [ I [ I water drink] tai ]  
 Subj. Subj. DO Stative Verb

This means that *-tai* is a two place stative verb taking a subject and a sentence.

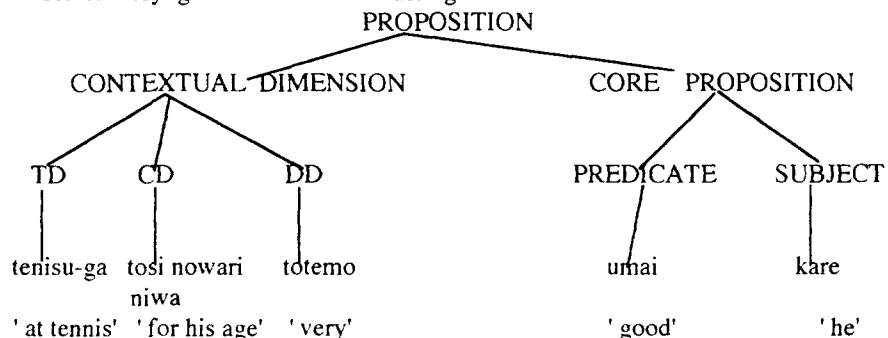
Muraki (1990) is of the same opinion when he states that the semantic representation of (20) is (21).

(20) *sini-tai*. (want die) 'want to die'

(21) *tai* ( *w*, *sin(w)* ), where *w* refers to the speaker.

We claim that *-tai* is an adjective forming derivational suffix combining not with a verb stem but a verb phrase and because of that a resultant phrase is an adjective phrase. The reason is as follows. Firstly, the claim by Shibatani that *-tai* with a specification of a stative verb takes a subject NP and a sentence is wrong. Stative verbs cannot take two objects by definition. Secondly, adjectives in Japanese and possibly in Korean are a one-place predicate.<sup>3)</sup> The seemingly *-ga* marked NP in such sentence as (22) which seemingly takes a nominative case is a case of our TD in terms of semantics, and syntactically an adjunct.

(22) *kare wa tennis ga tosino wariniwa totemo umai*  
 He Top. tennis Nom. age for very good  
 He is very good at tennis for his age.



Thirdly, there is a positive reason for taking a phrase, formed by *-tai* as an adjective. In Japanese there is a noun forming derivational suffix *-sa* as shown below.

(23) adjective: *aoi* : 'blue' noun: *aosa* 'blueness'  
 adjective: *takai* : 'high' noun: *takasa* 'height'

Similarly, *-sa* occurs after *-tai* phrase forming an adjective phrase not an adjective word as shown below.

(24) *kare wa [ turi wo sikiwo toosite sitasa ] no amari yamagoya wo tateta.*

- he Top. fishing Obj. through four seasons do-want Gen. excess hut Obj. built  
 He built a mountain hut for wanting too much to go fishing through four seasons.  
 (25) *kare wa [ryoosin ni homeraretasa ]no amari tesuto de kanningu wo sita.*  
 he Top. parents by being praised want Gen. excess exam in cheat Obj. did  
 He cheated in an exam for wanting too much to be praised by his parents.

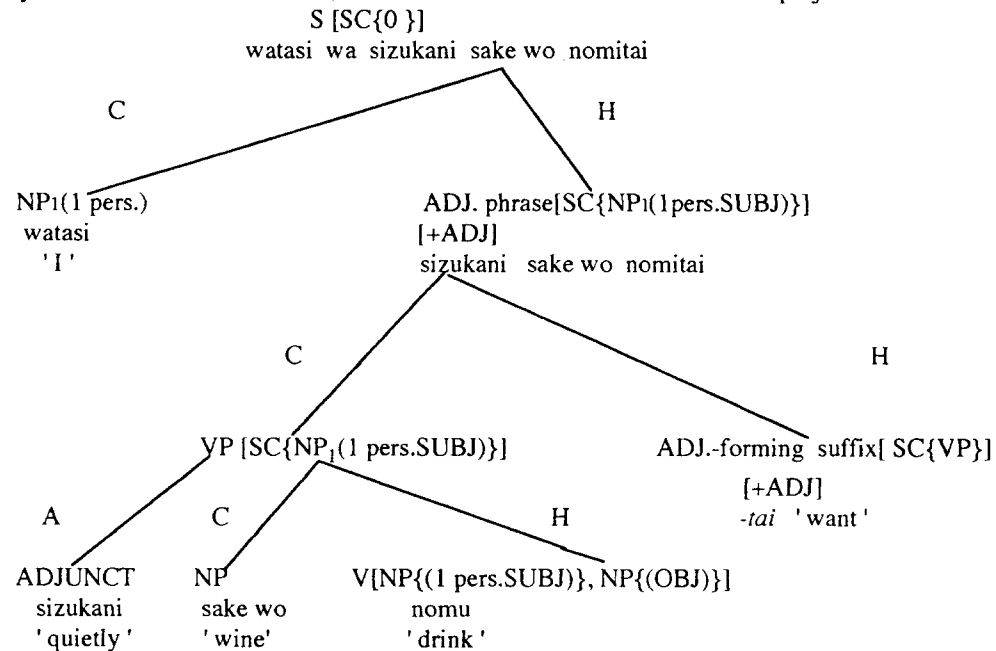
It should be noted that a string *turi wo sikiwo toosite sitasa* consists of a phrase *turi wo sikiwo toosite sitai* followed by a noun forming suffix *-sa*. Because *-sa* is a derivational suffix which follows not only an adjective word but also an adjective phrase, there is no doubt that *-tai* phrase is an adjective phrase. Since we stipulate that adjectives are one-place predicate, the predicate-argument structure of the sentence (1) reproduced as (26) below is (27).

(26) *watasi wa ringo wo tabetai.*

(27) *ringo wo tabetai* <sub>predicate</sub> ( *watasi* ) <sub>argument</sub>

#### 4. Syntactic 'Derivation' of *-tai* Sentences

In what follows we adopt HPSG as a basic framework. Since there is no notion of syntactic derivation in HPSG, we will show how lexical information projects into a sentence.



N.B. A: adjunct; C: complement; H: head; SC: subcategorization; 1 pers.: 1st person

The following points are worthy of note on the representation above.

(a) *-tai* has a Subcat value VP, neither a sentence nor a lexical verb, having [+ADJ] as a head feature. In Japanese there are some bound forms like *-yasui*, 'easy' and *nikui* 'difficult' having [+ADJ] as a syntactic feature which also take a lexical verb, not a VP as a Subcat value. <sup>4)</sup>

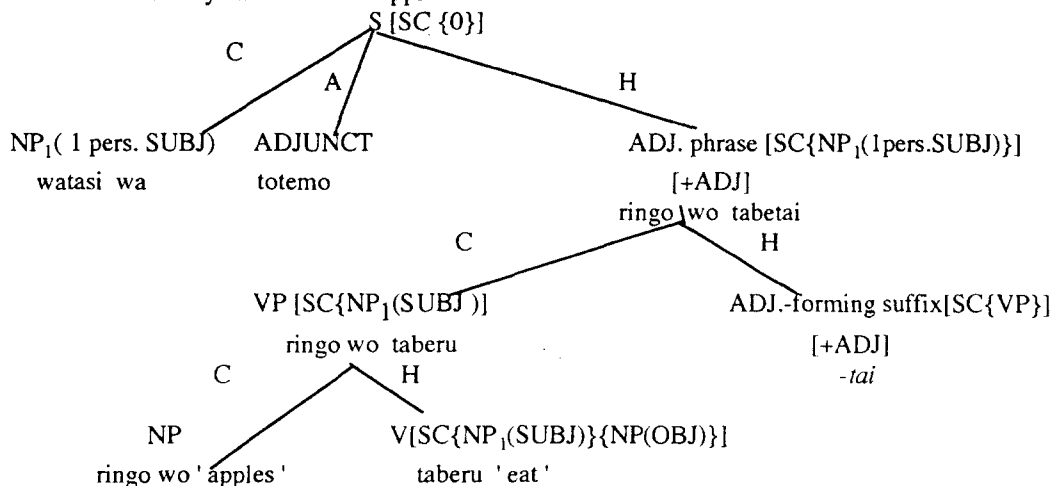
(b) In Muraki (1991) it is asserted that in the sentence like *watasi wa hitoride yukkuri sake wo nomitai* (I want to drink wine alone leisurely) *hitoride yukkuri* (alone leisurely) modifies *nomu* (drink) not *nomitai* (want to drink), which is a correct observation. Our analysis above can capture this observation correctly, for 'quietly' in the sentence above can only modify *sake wo nomu* (drink wine), not *nomitai* (want to drink). There is another piece of evidence to show that our analysis is correct. In the sentence (28) *totemo* meaning 'very' modifies an adjective phrase *ringo ga tabetai* 'want to eat apples' as a whole, not

*tabetai* 'want to eat.'

(28) *watasi wa totemo ringo wo tabetai.*

I Top. very apples Obj. eat want

'I want very much to eat apples.'



In (27) the adjunct *shizukani* 'quietly' is a verb modifier but in (28) *totemo* 'very' is an intensifier of the adjective phrase *ringo wo tabetai* 'want to eat'. This fact is correctly represented in the two representations above.

(c) As mentioned above, Shibatani asserts that the deep structure of (18) *boku ga mizu ga/wo nomitai.* ('I want to drink water.') is (19) [ I [ I water drink ] tai ]. Namely, the subject of an embedded sentence is identical with that of the matrix sentence. In our framework which has no notion of deep structure, an index is employed. The use of an indexed NP means that the referent of a noun phrase, which acts as a subject of *taberu* 'eat' is referentially the same as a subject of an adjective phrase *mizu wo nomitai* 'want to drink'.

(d) The syntactic rule used here are the following ones.

Rule 1. [ SUBCAT < > ] → H [ LEX + ], C \*, A

2. [ SUBCAT < > ] → H [ LEX - ], C, A <sup>5</sup>

The rule 1 will take care of such sentence as *watasi wa sake ga/wo nomu* 'I drink wine.'. The rule 2 will be responsible for such sentence as *watasi wa sake ga/wo nomitai* 'I want very much to drink wine' since *sake ga/wo nomitai* 'want to drink wine' is considered as an adjective phrase, that is, [Lex -] in our framework.

## 5. Previous Studies

### 5.1. Kuno (1973), Shibatani (1978)

They are similar in deriving a surface form from a deep structure having an embedded sentence with an identical subject to a matrix sentence. For example, the deep structure of (29) is asserted to be (30), from which (29) is derived by an array of transformations which are no longer available in the current scene of linguistic theory. The transformational operations employed are: subject marking, object marking, equi-NP deletion, aux deletion, verb raising, subject marking, object marking *galo* deletion.

(29) *boku wa hon wo yomitai.*

I Top. book Obj. read want

I want to read books.

(30) *boku [ boku hon yom-ru ] ta-i.*

*-Tai* is claimed by Shibatani to be stative predicate. Their ideas of an equi subject and stative character of *-tai* are incorporated into our framework as stated above: namely, the idea of an equi subject is represented as a referential identity by the use of an index and the

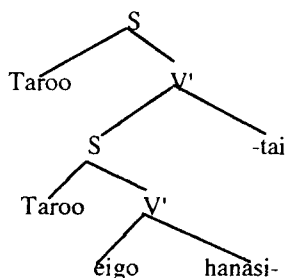
idea of stativeness is rephrased as an adjective forming derivational suffix of *-tai*.

### 5.2. Sugioka (1986)

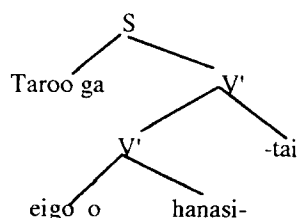
The main points of Sugioka (1986) can be summarized as follows.

- (i) *-Tai* is a case of phrasal suffix which attaches to a lexical verb or verb phrase forming an A', that is, an adjective phrase.
- (ii) The sentence (b) *taroo wa eigo o hanasitai* 'taroo wants to speak English' is asserted to be the result of Equi NP deletion of the sentence (a) below.

a.



b.



- (iii) In the sentence (b) quoted above *taroo wa eigo ga hanasitai* is reanalyzed as follows:

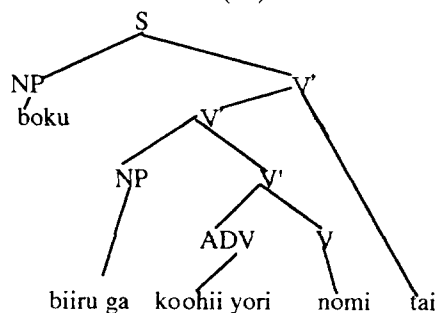
Taroo ga [eigo ga [hanasi-tai]] *Eigo ga* is an argument of a lexical adjective of *hanasitai* and *taroo ga* is an argument of a newly formed an adjective phrase *eigo ga hanasitai*.

- (iv) When *-ga* marked is reanalyzed as the argument of *V-tai*, the NP is brought into focus.

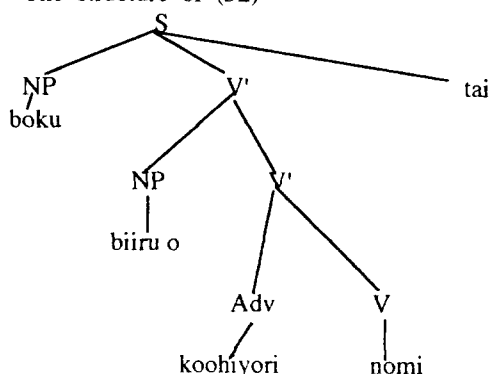
- (31) *boku wa biiru ga koochii yori nomitai*  
 I Top. beer Nom. coffee more than drink want  
 'I want to drink BEER more than coffee.' = It is beer more than coffee that I want to drink.

- (32) *boku wa biiru wo koochii yori nomitai*  
 I Top. beer Nom. coffee more than drink want  
 'I want to drink beer more than coffee.'

The structure of (31)



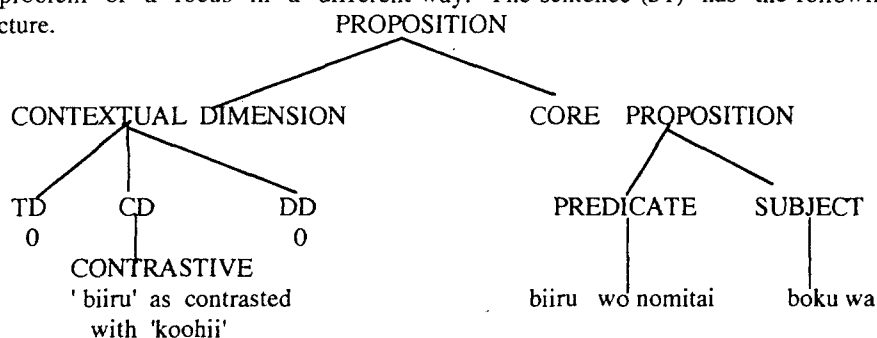
The structure of (32)



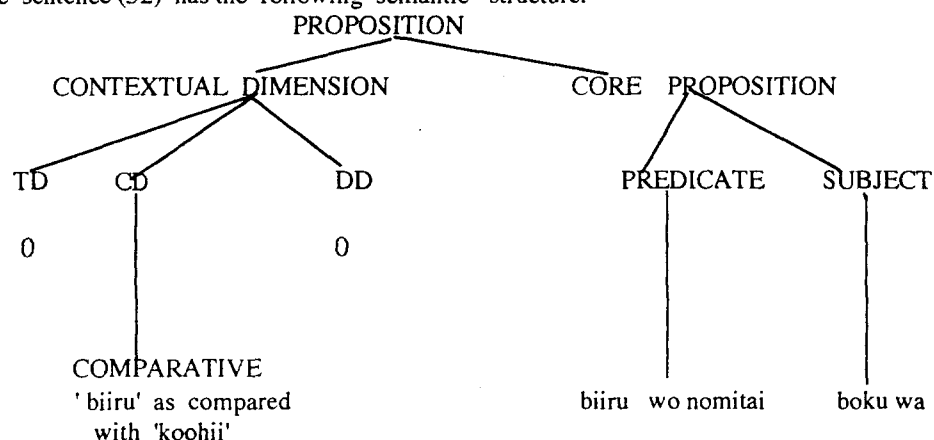
About the first point, we have adopted the same stand as Sugioka. Secondly, the idea of Equi-predicate is incorporated into our framework as we mentioned above. The third point is that an adjective formed by the suffix *-tai* is a one-place predicate, not a two-place predicate, with which we can agree. We claim that *eigo o / ga hanasitai* as a whole constitute a one-place predicate with *taroo ga* constituting an argument. Sugioka asserts that the NP *eigo ga* should be treated as an argument of the stative predicate *hanasitai* as a whole, and hence is assigned the nominative cases marking. But when the NP takes *o* as in *eigo o hanasitai* the *o*-marked NP is not assigned a status of an argument in her



approach, which complicates the matter. In our framework *-tai* is given a status of an AP forming suffix, whether it occurs before a lexical or non-lexical verb. Fourthly, we tackle the problem of a focus in a different way. The sentence (31) has the following semantic structure.



The sentence (32) has the following semantic structure.



In (31) a contrastive not comparative dimension is chosen out of CD so that 'beer' is contrasted with 'coffee'. On the other hand, in (32) comparative dimension, not contrastive dimension is chosen so that 'beer' is compared with 'coffee'. Thus the syntactic approach taken by Sugioka can be rephrased by our semantic approach. In a word the difference between the two sentences is attributed to whether a comparative or contrastive dimension is chosen.

## FOOTNOTES

- (1) Nihongo Kyoiku Jiten (Dictionary of Japanese Language Education), s.v. *Jodooshi*
- (2) This difference between *-wo + tai* and *-ga + tai* is only a part of the whole story. According to Iwori (1995), in addition to my assertion, which can be classified as a semantic one, the following factors seem to be involved with respect to the *ga-wo* alternation of the particle. i) Lexical restriction: (a) verbs of Chinese origin are more 'reluctant' to use *-ga* than those of Japanese counterpart. (b) Idiomatic verbs taking *-wo* do not usually alternate with *-ga*. ii) When an object and a verb are intervened by other constituents, the less easy it becomes for *-ga* to occur. iii) When a verb has an explicit transitive character, the less easy it becomes to use *-ga*.
- (3) As for the details of a predicate-argument structure of Japanese adjectives cf. Ikeya (1991, 1992) and Ikeya (in preparation).
- (4) For details, refer to Ikeya (1996).
- (5) These rules are a modified version of the original rules in Pollard and Sag (1987).

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