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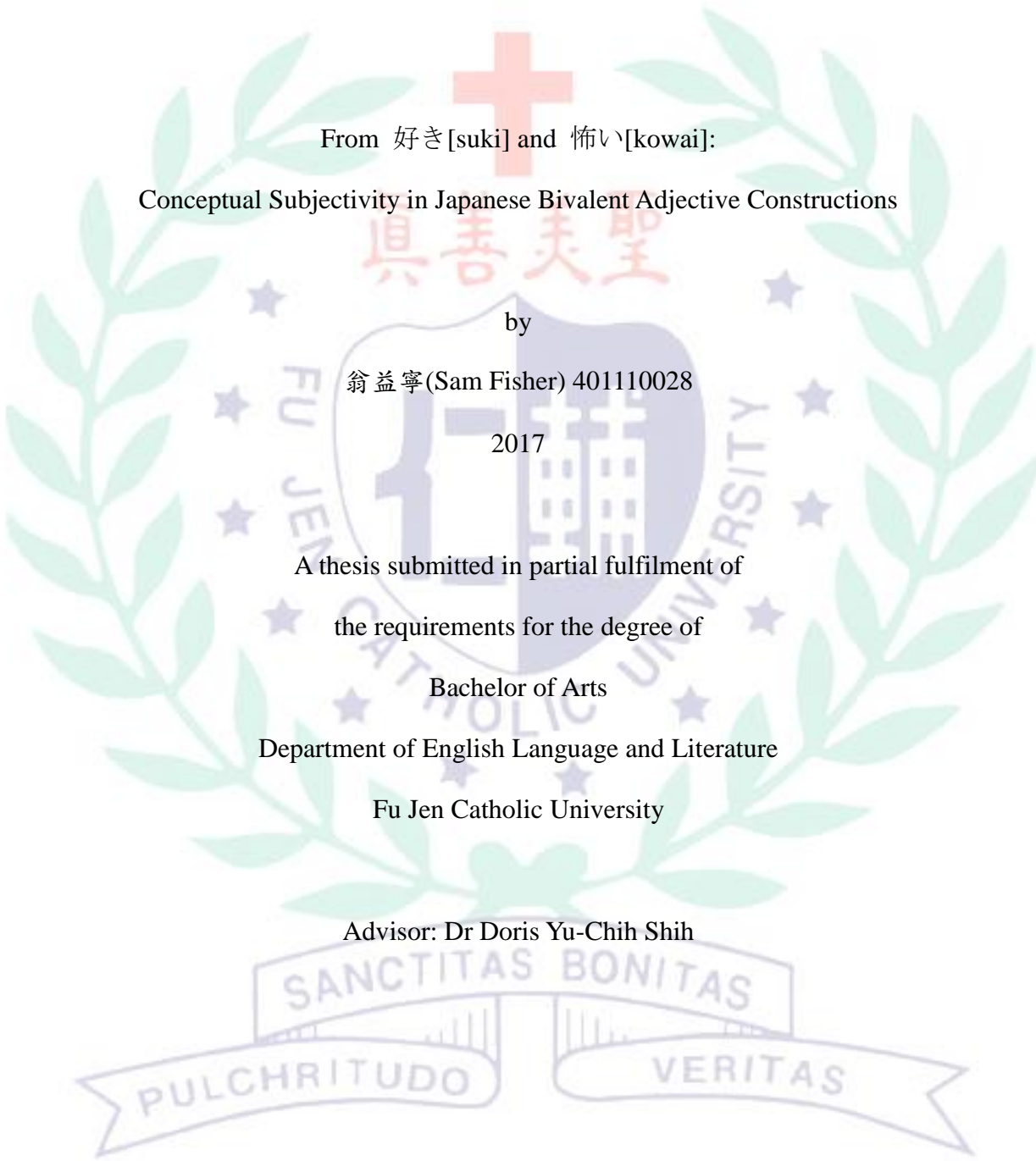
From 好き[suki] and 怖い[kowai]:
Conceptual Subjectivity in Japanese Bivalent Adjective Constructions

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Conceptual Subjectivity in Japanese Bivalent Adjective Constructions

by

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ABSTRACT

This study investigates the complex behaviours of Japanese adjective constructions. In particular, it concerns a special type of BIVALENT adjective constructions where two NP arguments are routinely involved and semantically linked with the adjective. In the first part of the paper I introduce Japanese bivalent adjective constructions in detail. The second part starts by reviewing existing analyses of such constructions in the linguistic literature, followed by my refutation of the treatment of bivalent adjectives as transitive adjectives, then by advancing the concepts of MENTAL STATE, COGNISER, and OBJECT to explain the use of adjective as the syntactic category for bivalent expressions. I propose that the complexity in linguistic behaviours is motivated by the inherent semantics of the adjectives in question, and could be explained by the notion of CONCEPTUAL SUBJECTIVITY, which is a continuum. The last part of the paper is a brief corpus analysis carried out to examine the relationship between conceptual subjectivity, bivalency, and lexical frequency. The results seem to deny the hypothesis that more frequently used adjectives are associated with higher conceptual subjectivity.

Keywords: subjectivity, valency, bivalent, adjective, construction, Japanese, frequency.

1. Introduction

Japanese adjectives display an array of interesting behaviours that are not so readily captured in other languages. While many Japanese adjectives perform the prototypical function of modifying one NP argument, some others are routinely used in constructions that involve two NP arguments, and are semantically linked with both arguments. Furthermore, certain adjectives can be employed in constructions that specify either one or two arguments, and produce different readings depending on the arguments wherewith occur. In this paper I discuss the complex behaviours of Japanese adjectives in detail, terming adjective constructions that involve two arguments as BIVALENT ADJECTIVE CONSTRUCTIONS. I propose that the complexity in linguistic behaviours is motivated by the inherent semantics of the adjectives in question, and could be explained by the notion of CONCEPTUAL SUBJECTIVITY. A brief corpus analysis has been carried out to examine the relationship between conceptual subjectivity, bivalency, and lexical frequency. The results seem to deny the hypothesis that more frequently used adjectives are associated with higher conceptual subjectivity.

1.1. Adjectives and Adjectival Nominals in Japanese

There are two types of adjectives in Japanese. One is termed 形容詞 (literally: adjective) in traditional Japanese literature, the other called 形容動詞 (literally: adjectival verb). The first type—形容詞(adjective)—behaves as an independent syntactic category comparable to adjectives in English, while the construction pattern of the second type—形容動詞(adjectival verb)—in some way resembles that of nouns. For this reason, many grammarians refer to this category as "nominal adjectives", "adjectival nouns", or "adjectival nominals" (Shibatani 1990, 1999). Here I will adopt the term ADJECTIVAL NOMINALS to refer to the second type. However, for the purpose of this study, the difference in the two adjective types is of little importance, and I shall refer to both types collectively as adjectives. The reason being that, both "adjectives" and "adjective nominals" are available for the attributive

use as well as the predicative use[1], and that both types are used in the bivalent construction patterns that I will discuss below. But before that, I shall briefly discuss the prototypical way of constructing adjectival expressions.

1.2. Prototypical Adjective Constructions

The prototypical (unmarked) function of an adjective is modification, and semantically it assigns a certain attribute/property to the modified entity/argument (Croft 1991; Ono et al. 2000). Adjectives typically express a persistent state, unlike verbs, which are capable of encoding different situation types such as STATES, ACTIVITIES, ACCOMPLISHMENTS, and ACHIEVEMENTS (cf. Vendler 1957). The prototypical valency specification of adjectives is 1 (Croft 1991)[2], which means a prototypical adjective is semantically (and perhaps syntactically as well) associated with only one argument; in contrast, verbs could be associated with either one or two arguments. Thus, we would consider adjective constructions such as 'that girl is very *beautiful*' and 'what a *lovely* day' as fulfilling the prototypical role of adjectives. In constructions such as '*colourless green* ideas sleep furiously', two adjectives simultaneously modify an argument (or a cluster of arguments). In 'the *quick brown* fox jumps over the *lazy* dog', even though there are two arguments in the sentence, each adjective still only connects with one argument; that is, "brown" and "quick" only links with "fox", and "lazy" only with "dog", not vice versa.

It is unusual for adjective constructions to involve more than one argument. Some imaginable examples are in the form of 'blue ocean and sky', where "blue" modifies both "ocean" and "sky". But such examples could be analysed in a way so that "ocean" and "sky"

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[1] Attributive uses are those such as 'that *beautiful* girl is looking at you', where the adjective "beautiful" directly modifies the argument, forming a noun phrase. Predicative uses are those such as 'my paper is way too *long*', where the adjective "long" is part of the predication.

[2] This is not what Croft originally wrote. Croft's analysis is that, typologically speaking, adjective as a syntactic category can be defined when the semantic class "property" and the pragmatic function "modification" are unmarkedly correlated. He then explicated the semantic class "property", noting that the valency value for prototypical "properties" is 1. However, here I took the liberty of rephrasing his analysis in a simplified manner, so we do not get carried away by the complexity of his theory (see Croft 1991:65 for the detailed analysis).

could be said to form a cluster of arguments that are collectively modified by the adjective, similar to the case of 'green ideas', where "idea A" and "idea B" (and so on) are collectively modified by "green". In this way, the valency of such adjective constructions is still 1.

1.3. Bivalent Adjective Constructions

There is, however, a type of construction where the adjective is semantically linked with two arguments, and the two arguments fulfil different semantic/thematic roles. Consider this example:

(1)   He is *tired* of his girlfriend.

Here the adjective "tired" simultaneously connects with two arguments: "he" and "his girlfriend". More importantly, the two arguments cannot be treated as a cluster of arguments, for the thing that is *tired* is "he", not "his girlfriend". The two arguments play different semantic roles in this example. We could say that "he" is the experiencer or COGNISER who has a certain feeling, and that "his girlfriend" is the object towards which this feeling is directed. Note that neither argument could be omitted: 'he is tired' has a different meaning, and 'tired of his girlfriends' is ungrammatical, or at best a subordinate clause. Thus, it is safe to say that the valency specification for this type of adjective constructions is 2, that is, such constructions are BIVALENT. I will henceforth refer to this kind of constructions as BIVALENT ADJECTIVE CONSTRUCTIONS.

Here are some more examples of bivalent adjective constructions in English. Note that the second argument is usually a prepositional phrase, which distinguishes them from bivalent verb constructions such as 'he saw a deer yesterday', where the second argument is in accusative case (which is lost in nouns of present-day English).

(2)   I'm not particularly *fond* of generative grammar, you know.
       She says she's not *afraid* of death, she's just *frightened* of losing the people she loves.
       She was *glad* for the darkness so no one could see her.

In fact, Old English could assign cases to the second argument of bivalent adjective constructions, for example, "of+Noun" is expressed with genitive case marking of the noun (Ohkado 1990). This case assignment system is replaced by inserting prepositions in the historical development of English. The use of prepositions in the English examples of bivalent adjective constructions makes them formally quite different from prototypical adjective constructions (English bivalent adjective constructions are thus more marked). This line of formal distinction, however, is more blurred in such constructions in the Japanese language.

1.4. Bivalent Adjective Constructions in Japanese

Consider the following constructed examples in Japanese:

(3) a.   スバルは   エミリアが   好きだ
          Subaru-wa   Emilia-ga   suki-da
          Subaru-TOPIC Emilia-SUBJECT   fond-COPULA
          'Subaru is fond of Emilia.'

     b.   エミリアが   好きだ
                        Emilia-ga   suki-da
                        Emilia-SUBJECT   fond-COPULA
          '(I am) fond of Emilia.'

(4) a.   私は   戦争が   怖い
          watashi-wa   sensoo-ga   kowai
          I-TOPIC   war-SUBJECT   afraid
          'I am afraid of war.'

     b.   戦争が   怖い
                        sensoo-ga   kowai
                        war-SUBJECT   terrifying
          'War is terrifying.'

Note that the particles は[wa] and が[ga] have often been regarded as markers of TOPIC and SUBJECT respectively ever since Li & Thompson (1976), or perhaps even earlier. This analysis, as I shall point out in later sections, is inappropriate. However, here I will provisionally use these two terms to label the particles in the linguistic gloss, for the sake of convenience

before I introduce more construction-specific labels for the functions of the two particles.

Example (3a) is a bivalent adjective construction where the adjective is used predicatively, whose meaning could be roughly captured in the English translation. If we remove the topic "Subaru", the resulting sentence (3b) is still bivalent and grammatical, but becomes elliptic. The meaning of (3b) is different from that of (3a): instead of saying Subaru is fond of Emilia, (3b) implies that I, the speaker, is fond of Emilia, and "I" is omitted because it is supplied elsewhere in the context, and could be readily referred to by the interlocutor.

Examples (4a) and (4b) display a very different pattern in the change of meaning. (4a) is a bivalent adjective construction in predicative use similar to that of (3a), but by removing the topic "I" in (4a), the resulting sentence (4b) becomes a monovalent construction where the predicating adjective is characteristic of prototypical adjective semantics. This change is further exemplified in the following comparison:

(4) b.   戦争が   怖い
                           sensoo-ga   kowai
                           war-SUBJECT   terrifying
        'War is terrifying.'

(5)   エミリアが   きれいだ
                           Emilia-ga   kirei-da
                           Emilia-SUBJECT   beautiful-COPULA
        'Emilia is beautiful.'

Both (4b) and (5) are monovalent constructions of predicative adjective use; they describe that "entity X has the property φ"; they are also formally comparable to each other. This is very different from the construction of (3b), which, though also formally comparable to (4b) and (5), is bivalent and has an elliptic reading.

The situation is further complicated if we take (5) and attempt to insert a topic, making it formally comparable to (3a) and (4a). However, the resulting sentence (6) is ungrammatical and ill-formed, and cannot be translated into English. Compare (4a) with (6):

(4) a.
私は	戦争が	怖い
watashi-wa	sensoo-ga	kowai
I-TOPIC	war-SUBJECT	afraid

'I am afraid of war.'

(6)
*私は	エミリアが	きれいだ
*watashi-wa	Emilia-ga	kirei-da
*I-TOPIC	Emilia-SUBJECT	beautiful-COPULA

'***....'

But the ill-formed example (6) can be made grammatical if it is made into a subordinate

clause, specifying the complement of a thought or a claim, as in the following:

(7) a.
私は	エミリアが	きれいだと	想う
watashi-wa	Emilia-ga	kirei-da-to	omou
I-TOPIC	Emilia-SUBJECT	beautiful-COPULA-COMP[3]	think

'I think that Emilia is beautiful.'

b.
スバルは	エミリアが	きれいだと	言った
Subaru-wa	Emilia-ga	kirei-da-to	i-tta
Subaru-TOPIC	Emilia-SUBJECT	beautiful-COPULA-COMP	say-PAST

'Subaru said that Emilia is beautiful.'

The above examples illustrate several interesting behaviours of Japanese adjectives that

deserve further investigation: First, when only one argument is explicitly specified, adjective

construction in (3b) has an elliptic bivalent reading, while (4b) and (5) have a monovalent

reading. Second, even though (4b) and (5) are formally comparable to each other and parallel

in meaning, (4b) allows insertion of a topic to become a bivalent construction, but (5) does

not allow such insertion, and cannot be made bivalent whatsoever. What (5) does allow is the

transformation into a subordinate clause, which functions as the complement to a thought or a

claim, as in (7a) and (7b).

Before we proceed, I shall also note that bivalent adjective constructions in the form of

(3a) and (4a) are not only very natural ways of expression in Japanese, but also pervasive in

the daily use of the language, so much so that sometimes a single word 好きだ[suki-da] is

enough to express the meaning 'I love you'. To give a few more typical examples of bivalent

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[3] COMP is the abbreviation of COMPLEMENTISER.

adjective use in Japanese, here are some sentences extracted from corpus data, modified for easier translation. For the sake of brevity, only the English translations are given.

(8)　この子は独りで遊ぶことが好きだ
　　　　　'This kid is fond of playing alone.'
　　ぼくは誰かに食べられちゃうのが恐い
　　　　　'I am afraid of being eaten by someone.'
　　スバルはエミリアに誘われるのが嬉しい
　　　　　'Subaru is happy about being invited by Emilia.'

The complexity in Japanese adjective constructions invokes several questions that need to be addressed:

1) What motivates adjectives to be used in constructions involving two arguments?

2) What accounts for the difference in linguistic behaviour that some adjectives can be used to form bivalent constructions, while some others do not allow such constructions? (Compare (4a-b) to (5) and (6).)

3) What accounts for the difference in the semantics of bivalent adjective constructions that, when the topic is removed, some become elliptic and remain bivalent, while some others become monovalent? (Compare (3a-b) to (4a-b).)

In the following sections I attempt to answer these questions. First I review existing analyses of bivalent constructions in the Japanese literature of linguistics; then I discuss the treatment of bivalent adjectives as transitive adjectives. By introducing the concept of MENTAL STATE, COGNISER, and OBJECT, I advance a theory of CONCEPTUAL SUBJECTIVITY to explain the underlying basis of bivalent adjective constructions. Lastly, a brief corpus analysis is carried out.

2. The Underlying Basis for Bivalent Adjective Constructions

2.1. Existing Analyses of Japanese Bivalent Adjectives in the Literature

Analysis of Japanese bivalent adjective constructions appears to be scarce in the English literature of linguistics. To my knowledge, there are no studies written in English that

specifically discuss such constructions. In the Japanese literature of linguistics, however, at least several studies could be found. One of the most comprehensive and influential ones are Toraya Nishio's treatise in 1972.

Nishio (1972) claimed that Japanese adjectives can be exhaustively divided into two categories: 感情形容詞(EMOTION ADJECTIVES) and 属性形容詞(ATTRIBUTE ADJECTIVES). Emotion adjectives are those that express human's subjective sensation, feeling, emotion; attribute adjectives express the objective property or status of some entity. Emotion adjectives can be further divided into those that express emotive feeling and those that express sensory experience (such as *painful*). In Nishio's analysis, only emotion adjectives can take an experiencer, which he calls 感情·感覚の主体("subject[4]" of emotion/sensation); attribute adjectives cannot take this element. This strongly suggests that only emotion adjectives can be used in bivalent constructions, which accords with my observation. Nishio also discussed the limitations in the "subject" assignment of emotion adjectives, and treated が[ga] marked arguments as "objects" of emotion and sensation. Some borderline adjectives that could express both subjective feelings and objective attributes have also been noted, including 怖い*(afraid/terrifying)*, 憎らしい*(hate/hateful)*, 寂しい*(feeling-lonely/lonely)*, 暑い *(feeling-hot/hot)*, すごい*(dread/dreadful)*, and 面白い*(interested/interesting)*. There are also certain emotion adjectives such as 好き*(fond)*, 嫌い*(dislike)*, and 欲しい*(want)*, that perhaps always require an experiencer of emotion in order to be interpretable. Thus, when the experiencer is not explicitly stated, it is easily imagined to be omitted and elliptic.

Nishio's distinction of emotion adjectives and attribute adjectives will prove to be an important one in my later discussions, so will his characterisation of emotion adjectives as expressing subjective feelings and attribute adjectives as expressing objective properties. But before I go further into the analysis of emotion adjectives and subjective feeling, I want to divert to the discussion of whether bivalent adjective constructions are transitive or not.

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[4] Note that the "subject" here is different from the SUBJECT I used in section 1.4.

2.2. Transitivity of Bivalent Adjective Constructions

It may be tempting to label bivalent adjectives such as 好き(*fond of)* as "transitive

adjectives", as did Ohkado (1990) in his formal analysis of similar phenomena in Old English

and German (to use Ohkado's examples translated from OE: 'They were *glad* of it.' and 'It is

known to few men.'). However, I shall point out that such analyses are inappropriate, if we

take a more contemporary approach to the concept of transitivity.

Transitivity is the measure of how much an action is transferred from one participant to

another, affecting the receiving end in the process of the action. Traditionally, a construction

is considered to be either transitive or intransitive, as in the case of English verbs. But in a

more recent and influential study regarding transitivity and grounding, Hopper and

Thompson (1980) proposed that it is better to treat transitivity as a continuum that ranges

from high to low, instead of in a dichotomy. They listed ten parameters that could be used to

measure the transitivity of a clause, which I reproduce below:

PARAMETER	HIGH	LOW
Participants	2 or more participants, A and O	1 participant
Kinesis	action	non-action
Aspect	telic	atelic
Punctuality	punctual	non-punctual
Volitionality	volitional	non-volitional
Affirmation	affirmative	negative
Mode	realis	irrealis
Agency	Agent high in potency	Agent low in potency
Affectedness of Object	Object totally affected	Object not affected
Individuation of Object	Object highly individuated	Object non-individuated

(10 Parameters of Transitivity, from Hopper and Thompson 1980:252)

If we adopt Hopper and Thompson's parameters, an analysis will show that bivalent

adjectives such as 好き(*fond of)* are in fact lower in transitivity than traditionally transitive

verbs. Compare the following examples, which have parameters in high transitivity listed out:

(9)   a. Subaru *hugged* Emilia.

        Participants: 2 or more participants, Agent and Object

        Kinesis: action

        Aspect: telic

        Punctuality: punctual

        Volitionality: volitional

        Affirmation: affirmative

        Mode: realis

        Agency: Agent high in potency

        Affectedness of Object: Object totally affected

        Individuation of Object: Object highly individuated

            Number of parameters in HIGH: 10

  b. Subaru is *fond* of Emilia.

        Participants: 2 or more participants

        Volitionality: volitional

        Affirmation: affirmative

        Mode: realis

        Agency: Agent high in potency

        Individuation of Object: Object highly individuated

            Number of parameters in HIGH: 6

  c. Emilia is *beautiful*.

        Affirmation: affirmative

        Mode: realis

        Number of parameters in HIGH: 2

Here (9a) contains a traditionally transitive verb, and it is more transitive than the bivalent

adjective construction in (9b). In comparison, (9b) has the following parameters in low

transitivity:

        Kinesis: non-action

        Aspect: atelic

        Punctuality: non-punctual

        Affectedness of Object: Object not affected

This means that the state-of-affairs expressed by 'Subaru is fond of Emilia' is not an action

but a state; it has no explicit end point; it is inherently on-going; and the Object (which is

Emilia) is not affected. It should be apparent that such bivalent adjective constructions are not

very high in transitivity, as the most important aspect in the concept of transitivity—the effect

of an action—is missing.

However, (9b) is still higher in transitivity when compared to the "attribute adjective" construction in (9c), because (9c) has the following more parameters in low transitivity:

> Participants: 1 participant
> Volitionality: non-volitional
> Agency: Agent low in potency (there is no Agent)
> Individuation of Object: Object not individuated[5]

At this point, it should be clear that even though bivalent adjective constructions have higher transitivity than "attribute adjective" constructions, they are still less transitive than traditionally transitive verbs. In fact, it is highly doubtful whether it is possible at all for any adjectives to be used in a cardinally transitive manner.

Analysing transitivity with Hopper and Thompson's method leads to an interesting consequence: some traditionally transitive verbs will be re-analysed as not very high in transitivity. For example, 'Subaru likes Emilia', which is semantically analogous to 'Subaru is fond of Emilia', has six parameters in high transitivity—exactly the same as its bivalent adjective counterpart. Hopper and Thompson also recognised this consequence, noting that sentences of two participants may rate lower than those with a single participant such as 'Susan left' (1980:254), which has 7 parameters in high transitivity.

The analysis so far has shown that bivalent adjectives should not be considered as transitive adjectives, and even though bivalent adjective constructions rank higher in the transitivity continuum than attribute adjective constructions, "it remains true that many two participant sentences are very low in Transitivity" (Hopper and Thompson 1980:254), because they do not express the effect of an action.

2.3. Mental State

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[5] Here in (9c) there is no Object in the sense of traditional Agent-Object distinction. However, in later sections I will treat "Emilia" as an "object" in the sense that it specifies an "objective entity" which possesses some attribute or property.

Nishio's (1972) analysis of Japanese adjectives suggests that only emotion adjectives can take an experiencer, and thus only emotion adjectives are used in bivalent constructions. This generalisation accords with my own observation of Japanese, and to a large extent accords with my observation of English.

Examples of bivalent adjectives I have mentioned so far include 好き*(fond of)*, 怖い *(afraid of)*, 嬉しい*(happy about)*, 嫌い*(dislike)*, 欲しい*(want)*, *tired of*, *frightened of*, *glad for/of*, all of which are indeed expressions of emotion or feeling. Emotions are not activities or actions or processes in the typical sense, but are states of the mind, that is, emotions are MENTAL STATES. A state necessarily entails a set of attributes that are characteristic of it, thus there are "properties" that could be talked about. Since the expression of states is the typical semantic specification of adjectives, it would come as no surprise that mental states could be selectively expressed by adjectives.

Furthermore, it is perhaps reasonable to infer that adjectives are in fact the more prototypical form for expressing emotions, since, even though an emotion could involve two arguments, it does not involve any action, nor any marked effect on the "receiving end" (it is doubtful whether there is any receiving end at all). Emotions exist merely in the mind of the cogniser (the person who has such emotions), unknown to anyone else unless explicitly revealed to others. The other argument in a bivalent emotion construction is not a PATIENT or an object in the traditional sense, only an "objective entity" towards which the emotion is directed, or a STIMULUS that incurred such an emotion. Hopper and Thompson also noted that, "although English codes clauses like 'Jerry likes beer' as transitive, such clauses with less than ideal patients are coded in many other languages with various of the trappings found in intransitive clauses"(1980:254). This is exactly the case in Japanese, where, even though there is a verb 好く (like) for the expression of fondness, it is rarely used compared to the adjective equivalent 好き(fond).

Another example of bivalent adjectives from Ohkado (1990) is *known to* in 'it is *known*

to few men'. Though knowing is not an emotion, it is nevertheless a mental state, and can thus be expressed by an adjective. Although verbs are also used to encode states (thus mental states), the selection of adjectives instead of verbs for the expression of mental states perhaps emphasises the stative aspect of the situation in concern, whereas the selection of verbs emphasises the dynamic aspect.

2.4. Cogniser and Object of Mental State

Analysing bivalent adjective constructions as expressions of mental states explains why there could be two arguments in such constructions. A mental state is a state-of-affairs that "cannot be considered universally true"; it is a "cognitive state whose realisation is dependent upon a particular cogniser" (Shibatani 1999:63). Thus, the COGNISER of a mental state is of particular importance, because a mental state is a subjective experience that holds true only to a certain cogniser. In the sentence 'Subaru is fond of Emilia', "Subaru" is the cogniser of the feeling of fondness. Even if Emilia is a witch who is detested by everyone else, it is still true to Subaru that Emilia is lovely, though others may disagree. If we compare 'Subaru is fond of Emilia' to 'Emilia is beautiful', it becomes clear why we cannot insert a cogniser to the second sentence: beautifulness is a property that has a more objective basis, which can be appreciated and agreed to by many observers. The insertion of a cogniser is thus redundant, and is forbidden by the grammar of Japanese unless further "subjectified" by some syntactic manipulation. I will discuss this issue in greater detail in later sections. For now it suffices to say that a cogniser is necessary for expressions of mental states.

The other argument in a bivalent adjective construction—if I have to term it with a specific word—is the OBJECT. Here I borrow Nishio's (1972) use of the word to describe the role of this argument. The term "object" is ambiguous, and that is exactly what I intend. I shall say that this term is more appropriate for the description of Japanese bivalent adjective constructions. The term object here has two senses: one in that it specifies the object of

certain cognition, of certain mental state; the other in that it specifies an objective entity which possesses some attribute or property. Recall example (4a-b), which I reproduce below:

(4) a. 私は　　　　戦争が　　　怖い
watashi-wa　sensoo-ga　kowai
I-TOPIC　　　war-SUBJECT　afraid
'I am afraid of war.'

b.　　　　　　戦争が　　　怖い
sensoo-ga　　kowai
war-SUBJECT　terrifying
'War is terrifying.'

Recall how (4a) is a bivalent construction expressing some subjective feeling towards "war", but by removing the cogniser (which I provisionally labelled as TOPIC), it turns into a monovalent construction in (4b) expressing some objective property of "war". Recall also that (4b) is formally analogous to example (5), that they both say something like "entity X has the property φ". The fact that the arguments marked by が[ga] could be either the possessor of an objective property or the object of a subjective feeling implies that they share some connections, and the ambiguity in the term "object" accurately captures this connection.

With the two new terms COGNISER and OBJECT, I can now use construction specific labels in the gloss. Example (4) is re-written as the following:

(10) a. 私は　　　　戦争が　　　怖い
watashi-wa　sensoo-ga　kowai
I-COGNISER　war-OBJECT　afraid
'I am afraid of war.'

b.　　　　　　戦争が　　　怖い
sensoo-ga　　kowai
war-OBJECT　terrifying
'War is terrifying.'

In later discussions, I will adhere to using the two terms when referring to the two arguments in bivalent adjective constructions as well as monovalent adjective constructions.

2.4.1. は[wa] and が[ga] as Markers of Cogniser and Object

I mentioned in section 1.4 that は[wa] and が[ga] are traditionally seen as markers of TOPIC and SUBJECT, which I regard as inappropriate labels for bivalent adjective constructions. My reasons run as follows.

In the same symposium with Li & Thompson (1976), Chafe (1976) discussed the distinction of given information versus new information. He stated that some languages use different particles to distinguish between given and new information, and cited Kuno's (1972) analysis of Japanese as an example, claiming that は[wa] marks given information, and が[ga] marks new information. This view provides support for my claim that は[wa] marks the cogniser in bivalent adjective constructions, because the cogniser not only tends to be given information, but also tends to be the speaker himself, which is always identified in any discourse. In fact, many Japanese emotion adjectives have so-called 主語の制限(limitation of "subject"), which forbids anything other than singular first person pronoun (i.e. the speaker) to take the position of the cogniser (Nishio 1972:25). From this we can establish a link connecting the syntactic form with the semantic content: は[wa]—given information—cogniser/speaker, which accounts for the role that は[wa] plays in bivalent adjective constructions. I do not intent to say that "topic" is a wrong label for the function of は[wa], only that it is not specific and not appropriate for the analysis of bivalent adjective constructions.

The situation is different regarding が[ga]. More recent researches show that even though が[ga] is well related to new information, it cannot be treated as a marker of grammatical subject. Hinds (1983) studied the continuity of topic in Japanese discourse, finding that "noun phrases marked by the particle *ga* exhibit the least amount of topic continuity", which is "consistent with their role as indicator of new information in discourse" (1983:84). Ono, Thompson, and Suzuki (2000) carried out an analysis of が[ga] in Japanese conversation, reporting that at least from conversational data, が[ga] is a pragmatically motivated nominal particle marking a "participant" of the predicate, not a marker of

grammatical subject (2000:61).

Ono et al. (2000) also reviewed Kuno's (1972, 1973) distinction of three types of が[ga]: "descriptive *ga*", "exhaustive listing *ga*", and "objective *ga*". They noted that the use of "objective *ga*" goes against the hypothesis that が[ga] marks grammatical subject. I believe their view supports my claim that SUBJECT is not an appropriate label for the function of が[ga].

In my discussion of bivalent adjective constructions, the use of が[ga] perhaps falls into the third type "objective *ga*" in Kuno's categorisation. However, as I have elaborated in section 2.2, the transitivity of constructions involving so-called "objective *ga*" is rather low (also see Sugamoto 1982). Thus, the use of が[ga] in bivalent adjective constructions do not mark a subject-object distinction; it only marks the participant as an "object of cognition". This, combined with the fact that が[ga] also marks objective entities in monovalent adjective constructions, leads to my belief that OBJECT is the appropriate label for the function of が[ga].

Note that using COGNISER to label は[wa] and using OBJECT to label が[ga] does not equate to saying that the cogniser is always marked by は[wa], or that the object is always marked by が[ga]. Japanese appears to be a highly pragmatically motivated language, which is partly reflected in the use of its particles. The が[ga] in the sentence エミリア-が-きれいだ(Emilia is beautiful) could be readily replaced with は[wa], with very little change to meaning. The resulting sentence, however, does have different implicatures. While エミリア-が-きれいだ(Emilia is beautiful) sounds like an answer to 'who is beautiful?', エミリア-は-きれいだ(Emilia is beautiful) is more like an answer to 'what do you think of Emilia?'. This, of course, also corresponds to the distinction of given versus new information marked by が[ga] and は[wa]. But in both エミリア-が-きれいだ and エミリア-は-きれいだ, "Emilia" is undoubtedly the OBJECT, not the COGNISER. The important notion here is that the meanings expressed by Japanese adjective constructions are determined not only by the

particles and the relevant arguments, but also by the construction form and the discourse

context.

2.4.2. Cogniser+Object+ADJ vs. Domain+Object+ADJ

Monovalent adjectives in Japanese can form a special type of construction that

syntactically resembles bivalent constructions, but has very different semantic content.

Consider the following examples, in comparison with example (10a):

(11) a.　象は　　　　　　　　　　鼻が　　　　　　長い
zoo-wa　　　　　　　　　　hana-ga　　　　　nagai
elephant-DOMAIN　　　　　　nose-OBJECT　　　long
'(Talking of) Elephants, the nose is long.'　　　(from Shibatani 1999:75)

　　　b.　王選候補者は　　　　　　エミリアが　　　一番美しい
oo-sen-koohosha-wa　　　　Emilia-ga　　　　ichiban-utsukushii
king-election-candidate-DOMAIN　Emilia-OBJECT　　most-beautiful
'(Among) The candidates of king election, Emilia is the most beautiful.'

(10) a.　私は　　　　　　　　　　戦争が　　　　　怖い
watashi-wa　　　　　　　　sensoo-ga　　　　kowai
I-COGNISER　　　　　　　　war-OBJECT　　　afraid
'I am afraid of war.'

In the monovalent examples (11a-b), there are also two arguments in each sentence, one

marked by は[wa], the other by が[ga]. This construction appears similar to bivalent

constructions such as (10a). However, whereas the adjective in (10a) semantically connects

with both arguments of the sentence, adjectives in the monovalent examples (11a-b) only

connects with the latter argument. To elaborate: the "nose" of the "elephant" is *long*, but the

"elephant" itself is not *long*; "Emilia" is the most *beautiful*, but "the candidates of king

election" as a group of people is not the most *beautiful*. Nishio (1972:31) also briefly

discussed this type construction in relation to emotion adjectives. He pointed out that while

emotion adjectives such as 私は…怖い(I…afraid) expresses a subject-predicate relationship,

there is no direct connection between the は[wa] marked argument 象(elephant) and the

adjective 長い(long) in the type of construction in (11a-b).

Shibatani (1999:61) referred to this type of construction as "double subject construction", and termed the first argument as the "domain of application". In Shibatani's analysis, the first argument in such constructions provides a domain where the stated proposition could be judged as true, that is, the statement 'nose is long' is only true when applied to the domain of "elephants", and 'Emilia is the most beautiful' is only true when limited to the domain of "candidates of king election". Shibatani developed from this observation and proposed that dative constructions (which include bivalent adjective constructions) are variants of double subject constructions, which I disagree. I believe the semantic difference between bivalent adjective constructions and double subject constructions are too obvious to categorise them as the same type. However, I will borrow Shibatani's use of "domain" as a label for the function of は[wa] in such monovalent constructions.

2.5. Conceptual Subjectivity

I believe the discussion so far has addressed the first question of this study: what motivates adjectives to be used in constructions involving two arguments? I answer that bivalent adjective constructions are mostly expressions of mental states, therefore adjectives can be used to express these states; a mental state requires a cogniser to whom the predicated state-of-affairs is true, as well as an object which is the focus of cognition. But I have not yet fully addressed the second and the third question: why some adjectives do not allow bivalent constructions? and why when the cogniser is removed, some constructions remain bivalent while some others become monovalent?

To answer these questions, I propose the notion of CONCEPTUAL SUBJECTIVITY. Conceptual subjectivity can perhaps be defined as the subjectivity inherent in the conceptualisation of an adjective, and should be seen as a continuum ranking from high to low. Conceptual subjectivity specifies how dependent the state-of-affairs predicated by an

adjective is on a particular cogniser. For adjectives that express subjective emotions, feelings, sensations etc., a cogniser is required to make the predication hold true; the conceptual subjectivity for this kind of adjectives is higher. For adjectives that encode objective properties, attributes etc., no particular cogniser is needed because the predication is judged as universally true; the conceptual subjectivity for this kind of adjectives is lower. Thus, constructions such as エミリアがきれいだ(Emilia is beautiful) expresses something that has a more objective basis of judgement; the insertion of a cogniser is not allowed because it is redundant to say that the predication is true to a certain cogniser, unless the speaker wishes to stress that it is true only to that cogniser, under which circumstance some syntactic manipulation will be needed.

To illustrate, I reproduce some previous examples below, with necessary changes in the linguistic gloss made:

(12) a.   エミリアが   きれいだ
             Emilia-ga   kirei-da
             Emilia-OBJECT   beautiful-COPULA
     'Emilia is beautiful.'

   b. *私は   エミリアが   きれいだ
       *watashi-wa Emilia-ga   kirei-da
       *I-COGNISER Emilia-OBJECT   beautiful-COPULA
       '***....'

   c. 私は   エミリアが   きれいだと   想う
       watashi-wa   Emilia-ga   kirei-da-to   omou
       I-COGNISER   Emilia-OBJECT   beautiful-COPULA-COMP think
       'I think that Emilia is beautiful.'

(12a) states something like "entity X has the property φ", and the "property φ" has an objective basis of judgement. Thus, the insertion of a cogniser as in (12b) is forbidden, unless this expression is further "subjectified" into (12c), by making it into a subordinate clause stating the content of some subjective thought or claim. In comparison, a conceptually more subjective expression such as エミリアが好きだ((I am) fond of Emilia) not only allows a cogniser, but also demands the specification of a particular cogniser because the predicated

state-of-affairs cannot be universally true to everyone. Thus, when the cogniser is not explicitly provided, it is easily imagined to be in ellipsis, and the cogniser is to be the speaker himself.

Summarising the discussion above, the following generalisation could be drawn:

Higher conceptual subjectivity

|

Lower conceptual subjectivity

Highly subjective adjectives: specification of cogniser is mandatory, thus elliptical when cogniser is omitted.

Highly objective adjectives: specification of cogniser is forbidden, unless overtly subjectified by syntactic manipulation.

Some may disagree with my view, thinking that adjectives such as *beautiful* cannot really be regarded as expressing objective properties, because 'beauty is in the eye of the beholder'. Indeed, Anscombre and Ducrot (1989) have noted, as cited in Verhagen (1995:115), that "everyday expressions like *expensive*, *tall*, etc., have some particular argumentational force, and are never 'purely' informative". The speaker is always (maybe unconsciously) trying to persuade the interlocutor to believe what the speaker believes; such argumentational orientation, as Verhagen indicated, is perhaps the "default situation in natural language, 'pure' informativity being the exception" (1995:116). Bybee and Hopper (2001) also made similar comments in the introduction to their edited symposium, noting that natural discourse is "preeminently subjective" (2001:7).

Following this line of argument, what differs objective adjectives from subjective adjectives is then not the absense of subjectivity, but the presence of objectivity. Verhagen proposed that the objective use of language contains subjective and objective elements of meaning, while the subjective use contains only the subjective element, that is, "a certain descriptive objectivity is absent in the subjective use" (1995:114). I believe this

characterisation is parallel to the case of Japanese adjectives. Thus, objective adjectives such as きれい(*beautiful*) contains both a subjective evaluation as well as an objective description. In Verhagen's words, the objective element of meaning serves to justify the argumentational orientation. In comparison, in more subjective adjectives such as 好き(*fond of*), the objective element of meaning is much weaker. There are also adjectives where the objective element almost does not exist. I will cover these cases shortly after.

2.5.1. Epistemic Subjectivity and Conceptual Subjectivity

Discussing conceptual subjectivity under the influence of the studies mentioned above links my characterisation of subjectivity to a wider background in the linguistics literature. The notion of subjectivity is nothing new in the field of linguistics. Many scholars have addressed subjectivity in language use from various perspectives. One of the most influential ones is perhaps Elizabeth Traugott's study of epistemic subjectivity, as well as the semanticisation of epistemic subjectivity as a diachronic process, which she terms "subjectification" (cf. Traugott 1995, 2010). Arie Verhagen (1995) also discussed the synchronic variation of epistemic subjectivity.

Epistemic subjectivity is mainly about the expression of subjective evaluation in language use, about how a speaker uses language to signal what he knows and believes. Here I borrow Verhagen's (1995) examples for easier explanation:

(13) a. He *promised* to defend the constitution.
     b. Tomorrow *promises* to be a fine day.

(from Verhagen 1995:104)

In the proposition 'he *promised* to defend the constitution', "he" did carry out an action of promising, but in 'tomorrow *promises* to be a fine day', "tomorrow" did not promise anything, nor does it have anything to do with the action of promising. Instead, the word "promise" in the latter proposition expresses a positive evaluation by the speaker, conveying his belief of

how "tomorrow" is going to be.

I do not deny that my characterisation of conceptual subjectivity is very closely associated with epistemic subjectivity, but I shall also stress their difference. Epistemic subjectivity is in fact semanticised epistemic modality, while conceptual subjectivity is rooted in the conceptualisation of adjectives. Some adjectives simply cannot be used in the subjective manner. Expressions like 私は赤い(I am red) makes very little sense (unless in a very specific interpretation), and 私はあの花が赤い(I am red of that flower) is simply ungrammatical. Regarding Japanese adjective constructions I have discussed so far, the only type of construction that could be categorised under epistemic subjectivity is perhaps the type of 私はエミリアがきれいだと想う(I think that Emilia is beautiful), which is an un-semanticised form of syntactic manipulation to achieve subjectification. But this also shows the inherent restrictions in the conceptualisation of certain objective adjectives: adjectives such as *beautiful* simply cannot have semantic specification in the form of "object X is beautiful to cogniser Y", that is to say, the inherent relationality simply does not involve more than one argument, at least not in Japanese, English and Mandarin Chinese.

2.5.2. The Conceptual Subjectivity Scale

Since conceptual subjectivity should be treated as a continuum, I could perhaps propose a scale of conceptual subjectivity, whose semantic specification looks like this:

(14) Conceptual Subjectivity   Semantic Specification

    Highly Subjective —————   Only true to the cogniser/speaker.

         |

    More Subjective —————   Holds true to a small group of people

         | who share the same view with the cogniser.

    More Objective —————   Holds true to the majority of people.

         |

    Highly Objective —————   Propositional and strictly corresponds

                                     to real world situations.

Note that the more subjective an adjective is, the more heavily it implies the cogniser to be the speaker. This is a feature also shared by epistemic subjectivity, as in Traugott (1995), where constructions of higher epistemic subjectivity gradually limits their syntactic subject to be the speaking subject, and the expression form becomes bonded in the process of grammaticalisation.

Using conceptual subjectivity to characterise bivalent adjective constructions can lead to some interesting consequences. For example, bivalent adjectives are in fact not the highest in subjectivity. As a bivalent adjective moves higher up the continuum of conceptual subjectivity, it starts to disconnect with the object. Nishio (1972) noticed this phenomenon. He noted that while emotion adjectives such as 好き*(fond of)* and 嫌い*(dislike)* always require an object of cognition, adjectives such as 楽しい*(happy)* and 寂しい *(lonely)*—which also encode subjective emotions—do not necessarily require an object. Furthermore, he reported that for sensory adjectives such as 眠い*(sleepy)* and だるい *(listless)*, there are no cases where these adjectives directly take an object. This suggests that at the lower end of conceptual subjectivity, the object is the argument of major concern; at the higher end, the cogniser becomes the major concern; whereas in the middle of the continuum, both the object and the cogniser are required, which leads to bivalent constructions.

Regarding adjective constructions in Japanese, I propose the following scale to characterise their construction form, ranked from high subjectivity to low subjectivity:

(15)

<COG+ADJ>	(sensory adjective) so subjective that it does not allow any object. E.g. 眠い *(sleepy)*, だるい *(listless)*
<COG+(OBJ)+ADJ>[6]	(emotion/sensory adjective) more subjective that it starts to disconnect from the object. E.g. 楽しい *(happy)*, 寂しい *(lonely)*, 怖い *(afraid)*
<COG+OBJ+ADJ>	(emotion/sensory adjective) subjective and requires a cogniser to be true of the object. E.g. 好き *(fond of)*, 欲しい *(want)*, 怖い *(afraid of)*
<(COG)+OBJ+ADJ>	(emotion adjective) more objective but allows a cogniser. E.g. 怖い *(terrifying)*, 懐かしい *(nostalgic)*
<OBJ+ADJ>	(attribute adjective) so objective that it does not allow a cogniser. E.g. きれい *(beautiful)*, 赤い *(red)*

There is one point that should be called under attention: in this characterisation, some particular adjectives can span across a wide range in the subjectivity continuum, that is, they can be used, synchronically, in different constructions of varying degrees of subjectivity (e.g. 怖い *(terrifying)* can express a subjective feeling without a particular object, or a subjective feeling towards an object, or an objective property of some entity; I have tried to capture this feature with the English translation). This reflects the internal variability in the adjectives' conceptual subjectivity, which deserves some further investigation. The interest in this variability, then, leads to the corpus analysis carried out in the next section.

3. Corpus Analysis of Japanese Adjective Constructions

The variability in the conceptual subjectivity of certain adjectives requires further investigation. Here I reproduce examples (3a-b) and (4a-b), with necessary changes made and new examples added:

(16) a.　スバルは　　　　　　　　　好きだ

　　　Subaru-wa　　　　　　　　suki-da

　　　Subaru-COGNISER　　　　　fond-COPULA

　　　'Subaru is fond (of someone).'

---

[6] When an element is in parenthesis, it means the specification of this element is selective. For example, <(COG)+OBJ+ADJ> means the cogniser is not always explicitly specified, and can sometimes be omitted.

b.　スバルは　　　　エミリアが　　　好きだ

Subaru-wa　　　　Emilia-ga　　　　suki-da

Subaru-COGNISER　Emilia-OBJECT　　fond-COPULA

'Subaru is fond of Emilia.'

c.　　　　　　　　エミリアが　　　好きだ

Emilia-ga　　　　suki-da

Emilia-OBJECT　　fond-COPULA

'(I am) fond of Emilia.'

(17) a.　私は　　　　　　　　　　怖い

watashi-wa　　　　　　　　　kowai

I-COGNISER　　　　　　　　　afraid

'I am afraid.'

b.　私は　　　　戦争が　　　怖い

watashi-wa　　　sensoo-ga　　kowai

I-COGNISER　　　war-OBJECT　　afraid

'I am afraid of war.'

c.　　　　　　　戦争が　　　怖い

sensoo-ga　　kowai

war-OBJECT　　terrifying

'War is terrifying.'

Here (16a) and (17a) have the object removed, (16b) and (17b) specifies both the cogniser
and the object, (16c) and (17c) have the cogniser removed. Although both 好き*(fond of)* and
怖い*(afraid)* are adjectives that allow bivalent construction, when an argument is removed,
the resulting expressions are very different. (16a) and (16c) still produce elliptic readings.
(16a) feels like an answer to the question 'who is fond of Emilia?'; (16c) could be interpreted
as an answer to 'who is Subaru fond of?'. On the other hand, the readings of (17a) and (17c)
are rather independent, and do not necessarily require another argument to be interpretable.

What accounts for the variability in the conceptual subjectivity of 怖い*(afraid)*? In
particular, I wish to know whether lexical frequency plays a part in conceptual subjectivity,
whether more frequently used adjectives are associated with higher conceptual subjectivity.
In order to investigate, I carried out a brief corpus analysis.

3.1. Purpose

3.1.1. Frequency Effect on Subjectivity

Lexical frequency has been reported to have some effect on epistemic subjectivity and grammaticalisation. Scheibman's (2001) findings suggest that frequently occurring structures are associated with semantic/pragmatic expressions of epistemic subjectivity; Traugott (2010) also noted that frequency is often seen as a contributing factor in the mechanisms of grammaticalisation. Epistemic subjectification and grammaticalisation are closely associated processes (cf. Traugott 1995). And, even though conceptual subjectivity does differ from epistemic subjectivity, they do share quite some similarities. It would perhaps be reasonable to hypothesise that the more often a subjective adjective is used, the more likely it will undergo "conceptual subjectification": a process in which the cogniser becomes mandatory.

3.1.2. Variables

The independent variable is lexical frequency, which is represented by the word count in a specific corpus. The dependent variables are "Conceptual Subjectivity Index" and "Bivalency", which are defined as follows:

Conceptual Subjectivity Index: the average score of conceptual subjectivity for each adjective. Occurrences of adjectives in certain constructions are given a score from 1 to 5, in accordance with the Conceptual Subjectivity Scale proposed in section 2.5.2 (15), with 5 being the score for the most subjective construction. The average score for a set amount of entries is calculated.

Bivalency: the percentage of occurrences in bivalent constructions for each adjective. For a set amount of entries, this represents how many of them are in constructions that semantically involve two arguments: the cogniser and the object.

A more detailed description of the method is given in section 3.2.3 where the method for data analysis is described.

3.2. Methodology

3.2.1. BCCWJ Corpus

For this analysis I used the Balanced Corpus of Contemporary Written Japanese (abbr. as BCCWJ) developed by the National Institute for Japanese Language and Linguistics. BCCWJ has a total word count of 104,911,460 words, excluding punctuation and empty space. The time period for samples recorded in the corpus ranges from 1971 to 2008. BCCWJ allows exporting the search result into an Excel file. The analysis of data is carried out in exported files.

3.2.2. Selected Adjectives

The following eleven adjectives are selected for the analysis:

1. 早い [hayai] (quick/early)
2. 親切 [shinsetsu] (kind)
3. 美しい [utsukushii] (beautiful)
4. 好き [suki] (fond)
5. 憎い [nikui] (hate/hateful)
6. 怖い [kowai] (afraid/terrifying)
7. 切ない [setsunai] (painful)
8. 嬉しい [ureshii] (happy)
9. 懐かしい [natsukashii] (nostalgic)
10. 眠い [nemui] (sleepy)
11. 怠い [darui] (listless)

Adjective 1, 2 and 3 are attribute adjectives which do not take cogniser; adjective 10 and 11 are sensory adjectives and were reported to take no object. The selection of adjectives is mainly based on Nishio (1972).

3.2.3. Data Analysis

For each adjective, the following procedure is carried out:

The entire corpus (including all genres, all years) is selected as the database for search. The adjective is searched with the 語彙素検索(search by lexeme) function provided by BCCWJ web application, which ensures maximum hit rate. Lexical frequency for the adjective is represented by the hit count report after a search is completed, which is automatically shown in BCCWJ web application. The entirety of the search result for the adjective (including relevant information of all types, and a surrounding context of up to 400 words for each occurrence) is exported into an Excel file. Each entry/occurrence is given a random number using the =RAND() function in Microsoft Excel. All entries are then ranked according to this random number. After randomisation, the top 50 entries of the adjective are selected for further analysis.

Each entry is rated from 1 to 5 depending on the conceptual subjectivity of the construction where the adjective occurred, based on the following rules:

1: OBJ specified, no COG is required in order to interpret the sentence.
2: OBJ specified, COG not specified in the same sentence, but is required in order to interpret the sentence, or can be inferred from the surrounding context.
3: OBJ and COG are both specified (including cases of anaphora and cataphora) in the same sentence.
4: COG specified, OBJ not specified in the same sentence, but is required in order to interpret the sentence, or can be inferred from the surrounding context.
5: COG specified, no OBJ is required in order to interpret the sentence.

When an entry is rated as 2, 3, or 4, it is automatically counted as a bivalent occurrence, and receives a bivalency rating of 1. Entries that are rated as 1 or 5 are counted as monovalent occurrences and have a bivalency rating of 0.

When an entry is rated as 3, it is also marked as "explicitly 2 arguments". The percentage of such occurrences is reported in the final tabulation as well.

There are cases where an entry is so ambiguous that its conceptual subjectivity has to be rated with intermediate decimals. When an entry is rated as 1.5 or 4.5, its bivalency is counted as 0.5; but when it is rated as 2.5 or 3.5, it is not marked as "explicitly 2 arguments".

In the final tabulation in Table 1, "Subjectivity Index" is calculated by adding the rated scores of conceptual subjectivity of all entries for an adjective, then divided by the number of entries analysed. "Bivalency" is calculated by adding the rated scores of bivalency of all entries for an adjective, divided by the number of entries analysed, then multiplied by 100. "Explicitly 2 Arguments" is calculated with the same method as bivalency.

3.3. Results

The final tabulation of results is reported in the following table:

TABLE 1. Results of corpus analysis.

Lexeme	Frequency	Subjectivity Index	Bivalency	Explicitly 2 Arguments
早い(quick/early)	24,334	1.06	6	0
親切(kind)	1,709	1.14	10	0
美しい(beautiful)	10,417	1.07	6	0
好き(fond)	24,502	2.77	100	16
憎い(hate/hateful)	335	2.22	82	8
怖い(afraid/terrifying)	7,858	2.335	49.5	5
切ない(painful)	874	2.94	46	4
嬉しい(happy)	11,155	3.25	90	8
懐かしい(nostalgic)	2,580	2.2	86	4
眠い(sleepy)	1,011	4.2	30	0
怠い(listless)	479	4.76	8	0

Using these data, the Spearman's rank correlation coefficient (Spearman's rho) could be calculated to give an indication of how well any two variables are correlated. Spearman's rho is chosen over Pearson's r due to the small sample size of this analysis. The correlation coefficients are reported below with the scatter diagrams.

3.3.1. Conceptual Subjectivity

By setting lexical frequency as X and conceptual subjectivity index as Y, the following scatter diagram can be drawn to show the relationship of the two variables:

FIGURE 1. Lexical frequency and conceptual subjectivity index.
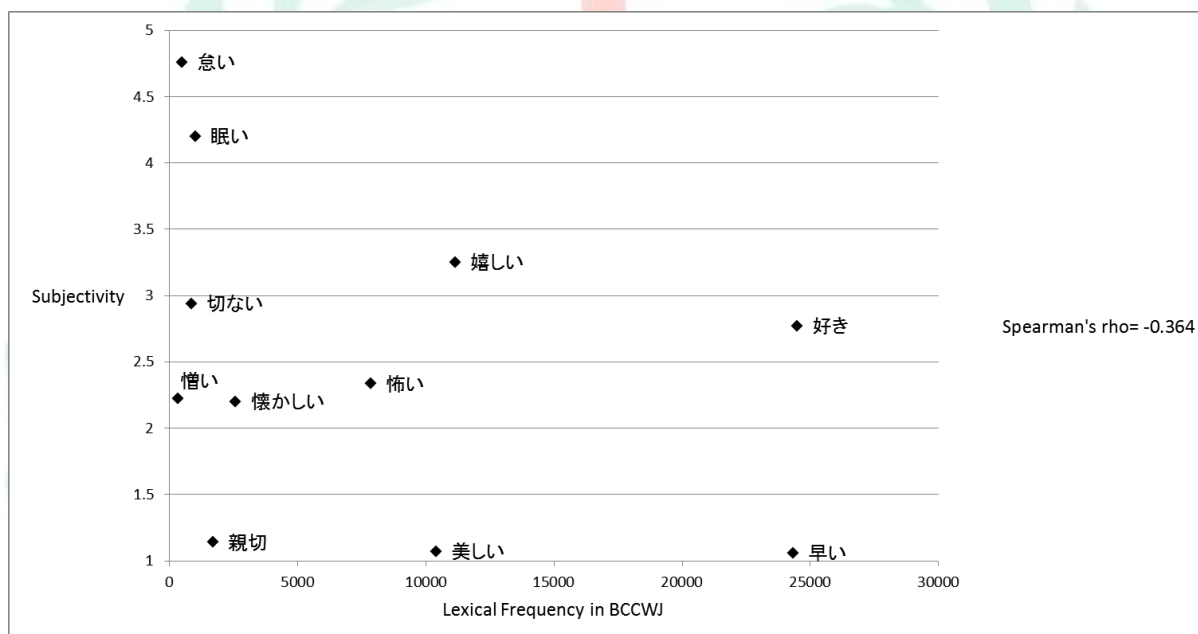
For lexical frequency and conceptual subjectivity, the Spearman's rho is -0.364. There appears to be almost no correlation between the two variables.

3.3.2. Bivalency

By setting lexical frequency as X and bivalency as Y, the following scatter diagram can be drawn:
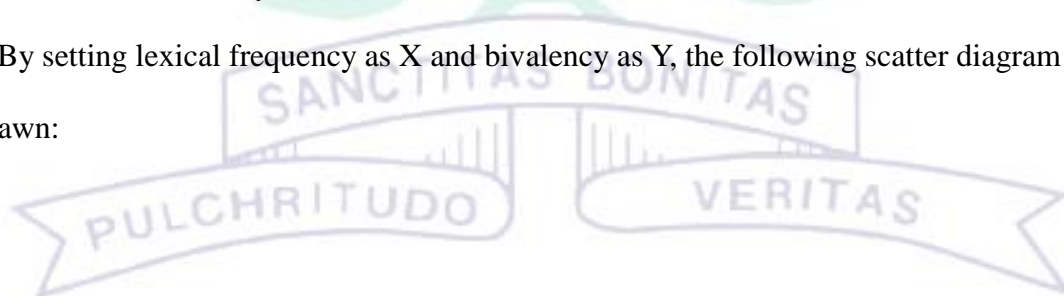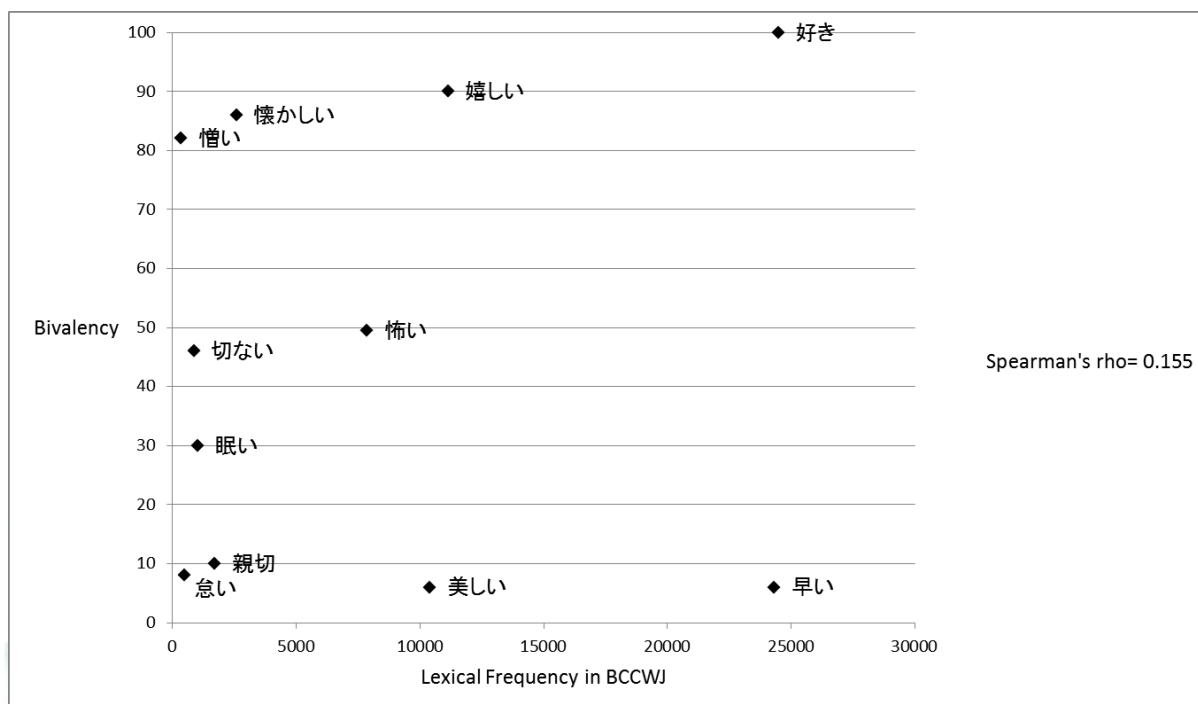
FIGURE 2. Lexical frequency and bivalency.

For lexical frequency and bivalency, the Spearman's rho is 0.155. Still, there appears to be no correlation between the two variables.

If the three attribute adjectives 早い(*quick/early*), 親切(*kind*), and 美しい(*beautiful*) are removed from the diagram, leaving only adjectives that express subjective emotions and sensations, the result changes substantially for lexical frequency and bivalency:

FIGURE 3. Lexical frequency and bivalency for subjective adjectives.
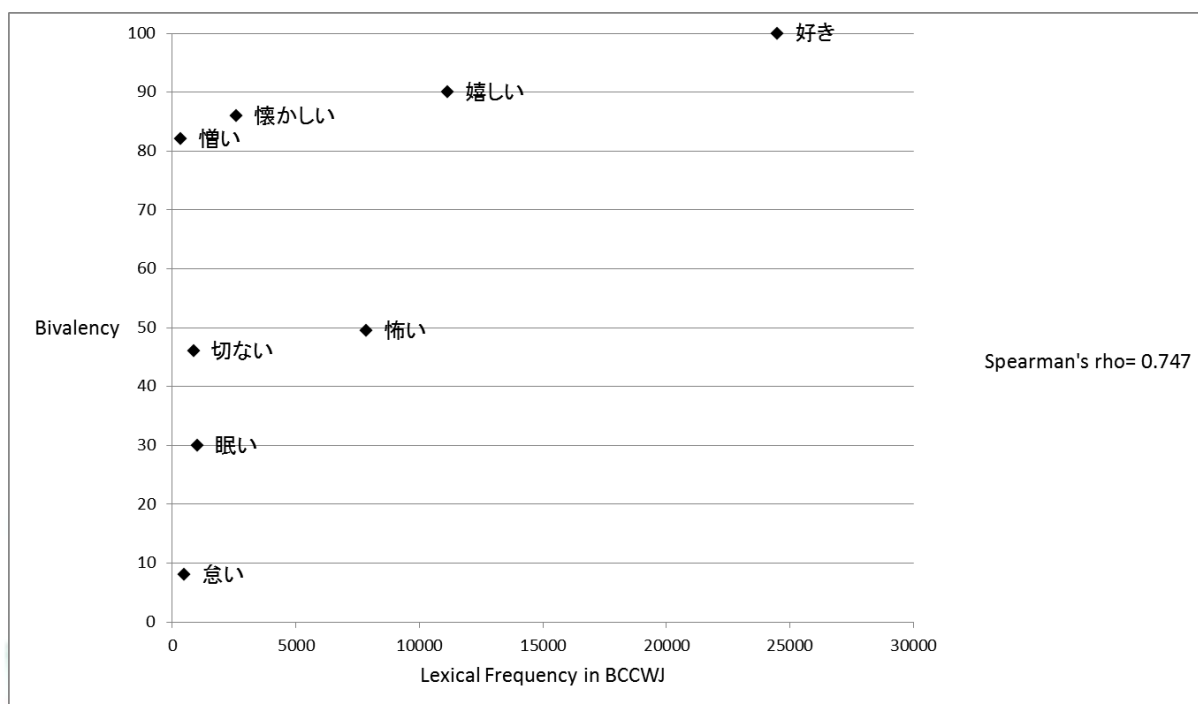
The Spearman's rho increases to 0.747. This indicates the bivalency for subjective adjectives may be positively correlated to lexical frequency. However, the amount of data here is not sufficient for drawing a definitive conclusion.

3.4. Discussion of Results

The corpus analysis carried out indicates that, for adjectives in general, there are no correlations between lexical frequency and conceptual subjectivity, or between lexical frequency and bivalency. Thus, the hypothesis that more frequently used adjectives are associated with higher conceptual subjectivity is denied. It seems frequency could only be seen as one of the contributing factors in conceptual subjectivity and bivalency. For subjective (emotion and sensation) adjectives, it is possible that lexical frequency and bivalency are correlated; this direction of investigation could be pursued further with a larger scale analysis.

The result that conceptual subjectivity is not correlated with lexical frequency hardly comes as a surprise, since I already characterised conceptual subjectivity as inherent in the

conceptualisation of adjectives, which entails that it is unlikely to be affected by extralinguistic factors such as lexical frequency. However, the reliability of the corpus analysis in this study could be called into question concerning the small sample size. To give a more comprehensive analysis, the amount of adjectives investigated should reach at least 50, more attributive adjectives and sensory adjectives of higher frequency (approaching or over 20,000) also need to be included. Additionally, it would be desirable to focus the analysis on adjectives that exhibit high variability in conceptual subjectivity, such as 怖い *(afraid/terrifying)*, 憎らしい*(hate/hateful)*, 寂しい*(feeling-lonely/lonely)*, etc.. I wish to improve on these aspects in future studies.

4. Concluding Remarks

I believe the notion of conceptual subjectivity provides satisfactory answers to the first two questions that this study set out to address: 1) that some adjectives can form bivalent constructions because their conceptual subjectivity requires both a cogniser and an object, and 2) that some other adjectives cannot form bivalent constructions because their low conceptual subjectivity forbids the specification of a cogniser, or their high conceptual subjectivity forbids the specification of an object. Regarding the third question, however, I can only give a partial response: that some adjectives have higher variability in their conceptual subjectivity because the conceptualisation of the state-of-affairs expressed by these adjectives is less bound, and allows the forming of more varied construction types. This explanation is ultimately circular and not self-evident. However, currently I am unable to provide more insightful accounts.

Since subjectivity is inherent in the conceptualisation of adjectives and that all adjectival expressions are subjective to a degree, I may infer that ordinary adjective use is also pragmatically motivated. The variability in natural language provides a powerful tool: we can choose to use monovalent adjectives to "package" a subjective perception/cognition as

objective description, or to use bivalent adjectives to stress the "subjectivity" of such perception. In this sense, monovalent adjective use seems to put the cogniser on the background, while bivalent adjective use relatively highlights the role of the cogniser, as well as the relation between the cogniser and the object. Considering the complexity of bivalent adjective constructions in Japanese, it would not be unreasonable to say that these phenomena are under-researched among linguists of the Anglosphere (at least to my knowledge). A more comprehensive cross-linguistic analysis of such constructions can undoubtedly provide valuable insights to the fundamental questions of linguistics.
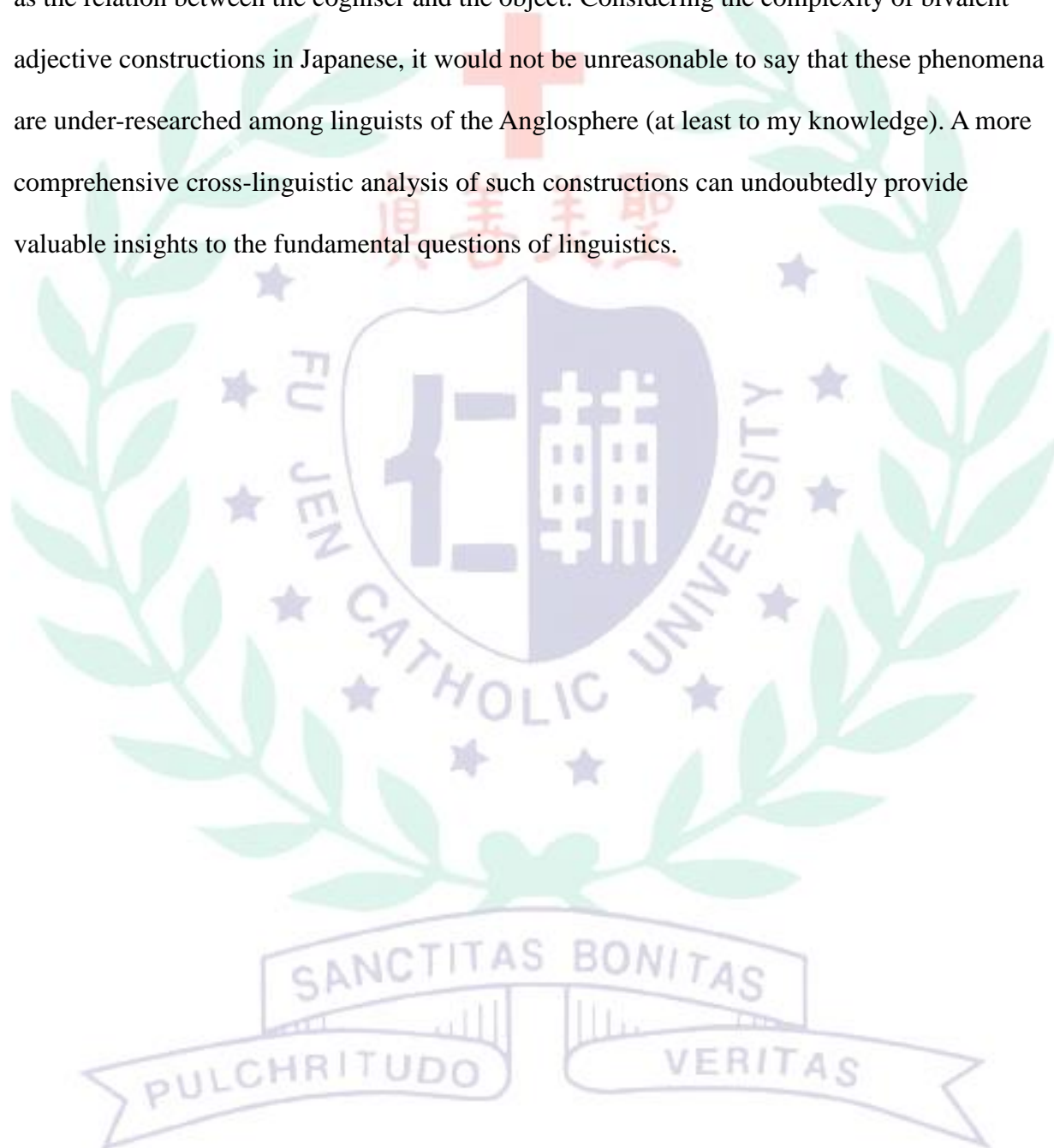
REFERENCES

BYBEE, JOAN L. and PAUL J. HOPPER (eds.) 2001. *Frequency and the emergence of linguistic structure*. Amsterdam/Philadelphia: John Benjamins.

CHAFE, WALLACE L. 1976. Giveness, contrastiveness, definiteness, subjects, topics, and point of view. In Li, 25-55.

CROFT, WILLIAM. 1991. The cross-linguistic basis for syntactic categories. In William Croft, *Syntactic categories and grammatical relations: The cognitive organization of information*, 36-95. University of Chicago Press.

HINDS, JOHN. 1983. Topic continuity in Japanese. In Talmy Givon (ed.), *Topic continuity in discourse: A quantitative cross-language study*, Volume 3, 43-94. Amsterdam/Philadelphia: John Benjamins.

HOPPER, PAUL J. and SANDRA A. THOMPSON. 1980. Transitivity in grammar and discourse. *Language* 56:2.251-299.

KUNO, SUSUMU. 1972. Functional sentence perspective: a case study from Japanese and English. *Linguistic Inquiry* 3.269-320.

KUNO, SUSUMU. 1973. *The structure of the Japanese language*. Cambridge, MA: MIT Press.

LI, CHARLES N. (ed.) 1976. *Subject and topic*. New York: Academic Press.

LI, CHARLES N. and SANDRA A. THOMPSON. 1976. Subject and topic: A new typology of language. In Li, 457-489.

NISHIO, TORAYA (西尾寅弥). 1972. *A descriptive study of the meaning and uses of Japanese adjectives (形容詞の意味・用法の記述的研究). Report of the National Institute for Japanese Language and Linguistics (国立国語研究所報告)* 44. 秀英出版.

OHKADO, MASAYUKI. 1990. Transitive adjectives and the theory of case. *Lingua* 81.241-264.

ONO, TSUYOSHI, SANDRA A. THOMPSON, and RYOKO SUZUKI. 2000. The pragmatic nature of the so-called subject marker ga in Japanese: evidence from conversation. *Discourse Studies* 2:1.55-84.

SCHEIBMAN, JOANNE. 2001. Local patterns of subjectivity in person and verb type in American English conversation. In Bybee & Hopper, 61-90.

SHIBATANI, MASAYOSHI. 1990. *The languages of Japan.* Cambridge: Cambridge University Press.

SHIBATANI, MASAYOSHI. 1999. Dative subject constructions twenty-two years later. *Studies in the Linguistic Sciences* 29:2.45-76.

STEIN, DIETER and SUSAN WRIGHT (eds.) 1995. *Subjectivity and subjectivisation: linguistic perspectives*. New York: Cambridge University Press.

SUGAMOTO, NOBUKO. 1982. Transitivity and objecthood in Japanese. In Paul Hopper and Sandra A. Thompson (eds.), *Studies in transitivity*, 423-447. New York: Academic Press.

TRAUGOTT, ELIZABETH CLOSS. 1995. Subjectification in grammaticalization. In Stein & Wright, 31-54.

TRAUGOTT, ELIZABETH CLOSS. 2010. (Inter)subjectivity and (inter)subjectification: a reassessment. In Kristin Davidse, Lieven Vandelanotte, and Hubert Cuyckens (eds.), *Subjectification, intersubjectification and grammaticalization*, 29-71. Berlin: Mouton de Gruyter.

VENDLER, ZENO. 1957. Verbs and times. *The Philosophical Review* 66:2.143-160.

VERHAGEN, ARIE. 1995. Subjectification, syntax, and communication. In Stein & Wright, 103-128.