

THE BOUNDARY BETWEEN SYNTAX AND MORPHOLOGY
WITH ESPECIAL REFERENCE TO JAPANESE

by

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DECLARATION

I, Yasuko Skillen, hereby certify that this thesis which is approximately 50,000 words in length has been written by me, that it is the record of work carried out by me between October, 1984 and January, 1988, and that it has not been submitted in any previous application for a higher degree.

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ABSTRACT

This thesis consists of six chapters. The first chapter focuses on some previous works on the distinction between syntax and morphology. Comments on each work imply my standpoint which is reflected in Chapter 2 and onwards.

Chapter 2 is a theoretical argument on characteristics of syntax and morphology, and relevant notions are introduced. Some are adopted from previous works, and the others are either further developed or originally suggested. These notions are applied to the Japanese language in Chapters 3 and 4.

Chapter 3 is devoted to morphological processes in Japanese. To make the first attempt to imply the syntax-morphology boundary, types of lexical entries are discussed through criteria for 'proper' entries.

Chapter 4 starts with syntactic analysis according to the notions introduced in Chapter 2. Case markers are discussed as to whether they are syntactic or morphological. Criteria of commutations are the focusing point to indicate our boundary issue. Also, some structures unique to Japanese are studied.

Chapter 5 is perhaps the peak of this thesis. Problematic structures in Japanese as to their status in grammar are introduced and solutions are suggested. The method to solve them is consistently derived from the notions expressed in Chapter 2 and criteria of commutations introduced in Chapter 4.

Chapter 6 is a concluding remark on the notion word as the summary of the previous chapters. It is emphasized that instead of giving the definition of 'word', this thesis has tried to provide criteria to identify the word. The criteria are established based on the notions in Chapter 2.

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INTRODUCTION

The aim of this thesis is to investigate the boundary between syntax and morphology. Following the research for my M.Litt. thesis, which focused on Japanese syntax, especially on the classification of structure-patterns according to the types of predicate, I became interested in the borderline between syntax and morphology. As in many other languages, the syntax-morphology boundary in Japanese is very often difficult to draw. This thesis, therefore, attempts to arrive at some methods which enable us to obtain (or judge) what units belong to syntax or morphology.

In order to achieve this aim, firstly, the significant differences between syntax and morphology are discussed. In theory, some differences are introduced as notions (Chapter 2). Some notions are adopted from existing theories: 'Functional dependency' in syntax is originally from Hjelmslev's glossematics and is further developed by Mulder who initiated Axiomatic Functionalism (AF): 'Occurrence dependency' in syntax is an original notion also proposed by Mulder. The other notions in this thesis are either modified or newly introduced (though based on the previous works): The 'head' in syntax is newly defined: 'Underlying structure' is based on the term by AF and further developed and modified to be used in both syntax and morphology: 'Occurrence dependency' in morphology is my idea, although the term was applied by AF in syntax, i.e. I developed this notion to be used in morphology, too. In general, the theory in this thesis is directed towards Functionalism in that dependency-notions are focused, though it also incorporates 'constituency' into 'dependency' with regard to analyses in syntax.

As the application of these notions to Japanese, syntactic and morphological analyses are discussed in Chapters 3 and 4. Although in Chapter 3, word formation in Japanese is discussed as a comparison with sentence formation in Chapter 4, our attention is focused on Chapter 4 where, based on the notions in Chapter 2, the criteria for syntactic units are introduced. These criteria were originally introduced in AF.

Using the criteria, and examining the previous works, Chapter 5 concentrates on some difficult and controversial units in Japanese with regard to their grammatical status, and suggests solutions, within the framework of our theory.

Chapter 6 is a concluding remark, confirming that it is almost impossible to define the word, but that there is a method by which to judge units and to classify them into either syntax or morphology. The method is inevitably derived from the significant differences between syntactic and morphological units.

CHAPTER 1. THE DISTINCTION BETWEEN SYNTAX AND MORPHOLOGY

This chapter reviews some of the recent linguistic theories on syntax and morphology. Through this review, I intend to discuss the necessity of the distinction between syntax and morphology. Although in due course in this thesis, I will clarify what syntax and morphology are like, and what each component deals with, for the time being, these systems are roughly taken as generally accepted: 'Syntax' is the study of sentence structure and 'morphology' is that of word structure. The term 'word' is again problematic, but until its definition is fully developed (the criteria for identifying 'words' or minimum syntactic units are given in Chapter 4; also see Chapter 6 as the summary of the term 'word'.), the word is, by a rule of thumb, to be understood as 'the minimal unit in syntax' or 'the ultimate constituent in syntax' (provided the component of morphology is established). Also, the term 'morpheme' is used in this chapter in its naive sense; it is 'the minimum meaningful unit'.

1.1 American and European Structuralists

1.1.1 Bloomfield's 'word'

American linguistics, pioneered by W.D. Whitney at the end of the 19th century, and inspired by F. Boas' encounter with American Indian languages, has developed its own approach to language, separately from European Structuralism. It was Sapir, Bloomfield and the latter's followers who established the bases of American Descriptive linguistics. Notably, Bloomfield (1933) claimed that 'the only useful generalizations about language are inductive generalizations.' (p.20), and proceeded to objective and even

mechanical methods, which differentiates him from Sapir who was called a Saussurian mentalist.

Among the scholars of this period, we consider first Bloomfield who distinguished between morphology and syntax, and then Harris who took the morpheme as the basic unit in his syntax.

As is well known, Bloomfield was probably the first linguist to provide a general definition of 'word' applicable to all languages in the world. His definition of the word is based on the distinction between free and bound forms. A linguistic form which is never spoken alone is a bound form, and all others are free forms. The word is accordingly defined as 'the minimal free form.' Thus, by syntactic constructions, he meant constructions in which none of the immediate constituents is a bound form. Morphology, on the other hand, is the study of constructions in which bound forms appear among the constituents. Bloomfield's definition is still noteworthy, since, except for a small number of linguistic forms, it covers a good number of forms in various languages. As for those exceptions such as 'the', 'a' in English, Bloomfield gave the grammatically equivalent status to units such as 'this' and 'that' because they appear in the same environments. Because the latter are independent, the former should be considered as independent as well.

However, Lyons (1968) remarks that Bloomfield did not distinguish clearly between phonological and grammatical words. He says that Bloomfield's definition evidently applies to phonological words rather than grammatical words. Since we are primarily concerned with grammatical description, such a definition within a spoken chain is not satisfactory for our purpose. This means that '...as a matter of

empirical fact it may be true that the set of minimal free forms will generally correspond in all languages to the set of phonological units representing grammatical words; but, if so, this fact presumably depends upon and reflects the structural cohesion of the word in sentences, and is of only indirect concern to the grammarian.' (p202)

We also note from another viewpoint that Bloomfield's consideration of 'the' and 'a' is a mechanical method in comparison with the spoken pause for the rest of forms. He required that method because in advance he already wanted those units to be classified as free forms. Intuitively, we feel that it may be reasonable to consider all the determiners in English as words, and our preconceived notions very often cannot be avoided in establishing a theory. This is one of the dangerous pitfalls in the case of inductive surveys. In a sense, Bloomfield's belief in inductivism revealed its awkward dilemma where he coped with those linguistic forms, by giving those two absolutely contrastive methods (one is from speech pauses and the other from distributional equivalence) to identify free forms.

1.1.2 Bloomfield's morphology

We now turn our attention to Bloomfield's morphological processes. He defined the morpheme as 'the minimal meaningful unit'. The term 'meaningful' here is problematic. He defined the meaning of a linguistic form as the situation in which the speaker utters it and the response which it calls forth in the hearer. But obviously, (although this definition itself is problematic,) this does not give any clue how to elicit units from an utterance which are bound forms, not being spoken independently. What he meant by the meaning of a

morpheme was some message possessing a certain information value whether by association or by parallelism. As examples of association, he cited 'Mon-day', 'black-bird', and 'jail-bird' etc. as consisting of two morphemes. As examples of parallelism, he cited 'per-ceive', 're-ceive', 'con-ceive', 'de-ceive' and 'con-tain', 'de-tain', 'per-tain', 're-tain' as consisting of two morphemes. Also, in discussing the structure of 'cranberry', he introduced 'differential meaning'. That is, although 'cran-' in 'cranberry' does not have any meaning on its own, it is this form that differentiates the meaning of the whole from other berries such as 'blackberry', 'gooseberry' and 'strawberry'. Therefore, 'cranberry' has two morphemes. This was later called the 'Cranberry Principle' as a rather exceptional case of morphological processes. In the same way if this principle is applied to other units, 'the', 'this', 'that', 'these' and 'those' will have to be claimed to have at least two morphemes (the last two may have three because of their plurality). For, the Cranberry Principle tells us that they have some common meaning 'indicating something' which may come from the common phonological form /ɔ̃/; then, each of the other phonological forms, though it does not have any meaning on its own, is considered as a morpheme because it differentiates the meaning of the whole unit from the other units.

Dealing with meaning is, as Bloomfield himself admitted, always problematic. Yet, we are expected at least to be consistent in showing how the meaning is involved during the analysis of the word into morphemes. Whatever method is taken into account, it should constantly deal with all morphological processes. If one used various methods which are from entirely different deployments of the language system (such as 'parallelism' in morphology and 'association' from

semantics or pragmatics), we would hardly employ all of them for identifying morphological units. Again, the problem of inductivism; Bloomfield seems to have had some preconception about certain units that he wanted to analyse as morphologically complex. In order to do so, he had to look for another method since one was not enough to obtain more than one morpheme in those units.

1.1.3 Harris' distribution

Bloomfield tried to be objective and inductive in describing languages, and as his 'speech act' shows, he was, as a behaviourist, less concerned with conceptual aspects of 'meaning' which is considered as 'mentalistic'. This behaviourism was inherited by his followers, who took hardly any account of semantics. This attitude was at its peak when Harris (1951) tried to elicit and classify grammatical units by introducing 'distribution'. Unlike Bloomfield, Harris took the morpheme as the basic unit in syntax. What are included under syntax are morphemes and sequences of morphemes. Morpheme classes are established according to the distributional classes of each element. That is, if units appear in the same range of contexts, i.e. they are distributionally equivalent. By this method, Harris excluded meaning from grammatical description. For example, he asserted that 'persist' has two morphemes from the distribution:

persist → pertain, contain, retain, ...
|
consist
↓
resist

'Persist', according to him, is not judged as consisting of two morphemes from the viewpoint of meaning. He remarked that 'Since there is not independently known structure of meaning which exactly parallels linguistic structure, we cannot mix distributional investigations with occasional assists from meaning whenever the going is hard.' (1981: p.9)

On this point, it is interesting that Hjelmslev (1969), using the same distribution technique, contrasts sharply with Harris, in his treatment of linguistic units. Hjelmslev proposed that language is a system of signs. The sign is roughly the conjunction of the 'expression' and 'content' planes. In general, the former is referred to as 'form' and the latter as 'meaning'. In his view of language, therefore, a sign functions, designates and denotes; the sign identification must take into account both 'form' and 'meaning'. The minimal sign is of course what we call 'morpheme'. Hjelmslev realized that the phonological system is differentiated from a sign system (syntax and morphology) because the former is the study of the expression plane of a sign while the latter takes both planes into consideration. In contrast, Harris did not observe the distinction between those two systems. It is true that he considered particular tentatively independent phonemic sequences as morphemic segments only if it turned out that many of these sequences had identical relations to many other tentatively independent phonemic sequences (1951: p.160). However, this distinction is not satisfactory, because phonological forms are always involved in whatever size of a segment of a language.

Furthermore, although in line with Harris it is not easy to prove that 'persist' does not consist of two morphemes, today we tend not to accept this view because there is no point in segmenting this unit into its smaller units in our grammatical description. That is, to store 'persist' as two units, 'per-' and '-sist', in the lexicon is against 'economy' and 'productivity' of language. (See the details of lexical entries discussed in Chapter 3.) Nonetheless, Harris' contribution to today's linguistics is still influential.

1.1.4 Martinet's monemes and syntax

We now turn to European Structuralists. Strictly speaking, the division between European and American Structuralists is not a geographical one. They are related to each other via Saussure's doctrines. Nevertheless, they display different tendencies. That is, while Americans are more interested in descriptions of units, Europeans are more concerned with relations between units. Such relations are very often referred to as 'functional' relations. In this section, I will discuss Martinet's monemes and words.

Martinet (1960) defines language as 'a system with a double articulation'. The first articulation of language is that whereby every fact of experience to be communicated, every need that one wants to make known to another, is analysed into a succession of units each of which is endowed with a vocal form and a meaning (p.22f). The units produced by the first articulation are signs, each of which comprises a significatum, meaning or value, and a significans, vocal form, and the results are all minimal signs. He refers to them as 'monemes'. The second articulation of language is analysis of the

vocal form plane into its smaller segments, phonemes. His double articulation reminds us of Hockett's (1958) duality of language, i.e. the grammatical and phonemic codes, but Martinet and Hockett reach this duality from very different philosophical backgrounds. Martinet is more or less close to Hjelmslev, i.e. adopts a functional approach, and Hockett is, like Bloomfield, inductive and following the notion 'speech act', assumes that language is a set of habits.

Martinet is quite negative in employing the notion 'word'. He says that 'it would be a vain endeavour to seek to define more closely the concept of 'word' in general linguistics.' (1960: p.107) He gives some difficult examples from some languages, and claims that the term 'word' may be useful in certain particular languages such as Latin where the word usually coincides with the accentual unit and the significantia of the component monemes are often inextricably interwoven. But not so useful in English, French and German. The genitive in English, according to him, is difficult to deal with. He also has doubts about certain examples in French whether two or three words are concerned: for instance, borine d'enfant which is usually considered as 'a compound. Because of such difficulties, Martinet prefers the autonomous syntagm to the word as a next higher unit to the moneme. A syntagm is a sequence of monemes, consisting ^{of} more than one moneme.

However, to deny a certain notion in a theory just because there are some examples (out of many) to which it does not apply, is not scientific. It would be more convincing if such a notion were considered as unnecessary in that theory because it is redundant due to the other notion, or because the theory never came across it. For

instance, Harris refused to use 'meaning' in extracting grammatical units. It does not mean, however, that he had difficulties with meaning, but that he did not need it primarily, because of his distributional method.

If the word is hard to identify, so is the morpheme. Consider 'blackbird', 'blackboard' and 'cranberry' in English. Are they two morphemes or one morpheme? How many morphemes are there in the Japanese shutunyuukoku (= lit. going out of and coming back to the country) which is by Japanese Transformationalists considered as the surface structure derived from the deep shukkoku.nyuukoku (See the details in Chapter 3.)? The difficulties certainly exist in many languages. But we would not attempt to deny the notion 'morpheme' simply because of the difficulty in identifying it. We would first ask ourselves whether or not we are required to employ the notion according to the nature of our theory.

Let us now go briefly to Martinet's (1975) syntax. Units elicited through their functional positions are classified into the same labelled categories. For instance, by the same distributional latitude, prepositions in English are named as functional monemes. According to Martinet, a unit such as 'in the auditorium' is called 'an autonomous phrase' whereas 'the President' is 'a non-autonomous phrase'. The difference between them is distinctive with respect to the notion of 'function'. That is, the former designates its function on its own, i.e. it goes into a certain position which could also be occupied by the monemes or phrases of the same class. The preposition in this phrase is functional; it determines the distribution of the whole phrase. On the other hand, 'the President' is not functional in

the sense that 'the' is no indicator of function, and the whole phrase could be used in other functions, as in 'I saw the President.' or 'I spoke with the President.' In other words, 'the President' is a subject function only by its position before 'spoke' in 'The President spoke.'

Perhaps, this distinction would not be necessary insofar as Functionalists know that functional positions are obtained only by oppositional relations between units within certain contexts. On this premise, 'the President' and 'in the auditorium' are both equally functional to designate each position in syntax. Our analysis in grammar is not concerned with only segmented phrases individually, but with minimum to maximum linguistic structures. Function is always considered in the whole range of syntax.

1.2 Transformational Grammar and Other Generative Grammars

In this section, we review some generative models. We start with Chomsky (1965) (Section 1.2.1), and then proceed to the Lexicalists' views after Chomsky (1970) in contrast with the 'Transformationalists' view (Section 1.2.2). After giving a brief account of some generative works, I turn to Hudson's Word Grammar, because his notion of 'dependency' is relevant to the discussion of syntax in Chapter 4. (Section 1.2.3.)

Since the purpose of this chapter is to go through the treatment of syntax and morphology in recent theories of grammar, this section will avoid the controversy between Transformational and non-Transformational generative theories. The philosophical

backgrounds and arguments of those theories are also ignored here, but will be discussed in Chapter 2, where I establish my standpoint.

1.2.1 Chomsky 1965

This section focuses on the standard theory of TG. Chomsky (1965) presents a model with three major components; a syntactic component, a phonological component, and a semantic component. Syntax in this model comprises the base component in which a phrase marker generated by a set of rewrite rules has lexical items inserted into it from the lexicon. Also syntax contains the transformational component in which appropriately formulated transformational rules apply to the phrase marker to generate its surface structure. The semantic and phonological components also interact with syntax, but the details of the inter-relations are of no interest here.

Let us follow Chomsky's methodology. Firstly, rewriting rules. By these rules, a single structural element is rewritten into a string of one or more elements. The former is replaced by the latter, symbolised as $A \rightarrow Z/X_Y$ which means that 'A is rewritten as the string Z when it is in the environment consisting of X to the left and Y to the right.' (1965: p.66). The repeated application of such rules generates derivations ending in a pre-terminal string. Pre-terminal strings have formatives inserted into them from the lexicon. A string into which no further lexical items can be inserted and no elements rewritten by a PS rule is called a 'terminal string'. Up to pre-terminal strings, P-markers are represented by a set of category symbols (S, NP, V, etc.). Formatives are sub-classified into lexical items and grammatical items. In other words, terminal strings

follow up to what we generally call morphological units.

Although rewrite rules, as employed by Chomsky, incorporated primarily Immediate Constituent analysis, they do not require a distinction to be drawn between syntax and morphology and can be applied to word structure just as easily as to sentence structure. Moreover, the application of rewrite rules to English structures can be transferred^r to languages with a very different structure. For example, in Japanese all auxiliaries are labelled as verbal and very often they are on the first sister node of S, together with NP on the left. Note that Japanese auxiliaries are morphological and always attached to verbs or adjectivals (Cf. Chapter 5). Inoue (1976) gives a Phrase-marker in Japanese as follows.

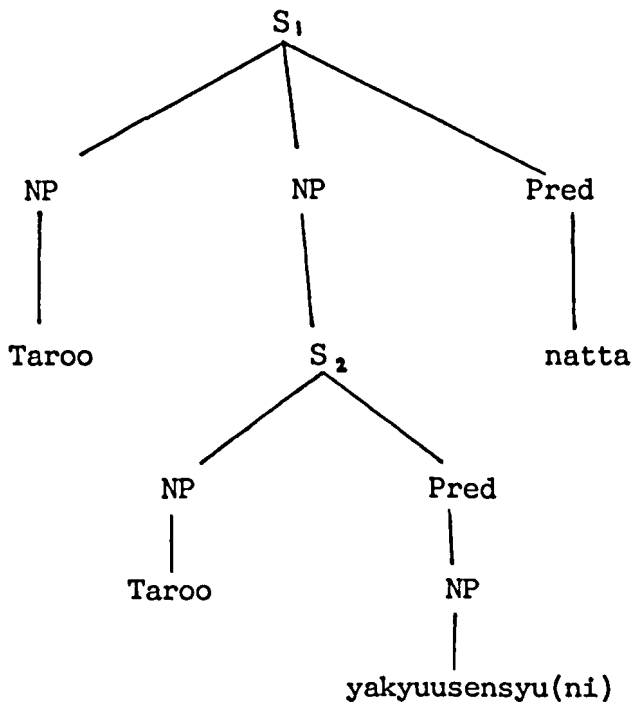
(1-1) S → NP (Adv) (NP) (NP) Pred

(p 269)

in which 'Pred' is occupied by auxiliaries. Let us look at two simple examples from her account.

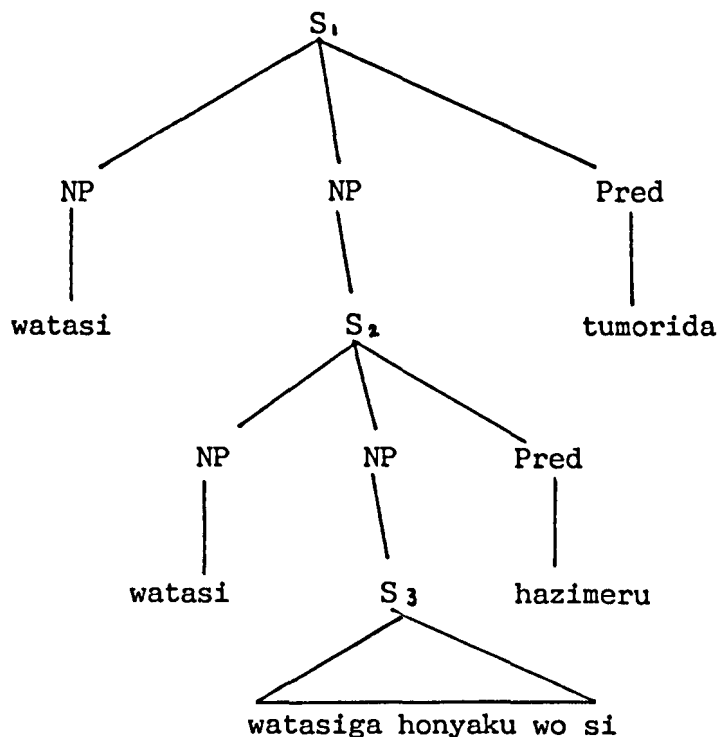
(1-2) Taroo ga yakyuusensyu ni natta.
baseball player became

(Taroo became a baseball player.)



(p39)

(1-3) Watasi wa honyaku wo sihazimeru tumorida.
 I translation do begin intend
 (I intend to start a translation (job).)



The analyses of the above constituents do not correspond to distributional classes of units in a given structure. In spite of the formalization of Japanese structure into (1-1), the grouping of units in the above tree diagrams shows that the analyses are based on the interpretation of sentences. In particular, the constituents under the S₂ node in (1-3), i.e. NP NP Pred, are grouped as such because the English translation indicates that someone (=subject NP) starts (=Pred) something (=object NP). Otherwise, there is no other way to reach such analyses. Despite the fact that auxiliaries are part of inflections of verbs and adjectivals, the analyses above give a heavy burden to auxiliaries, i.e. a predicate position. In fact, the attachment of certain auxiliaries changes the argument structure of a

verb or adjectival. In such cases we will assume here that the stem and the complex (with an auxiliary) are different lexical entries, and are different predicates with different argument structures. The more important thing is that Inoue should give justified criteria for such groupings. If new structures are given to be analyzed, everyone should be able to reach the same resultants through the criteria or methods. (1-1) is not enough because Inoue does not define her categories. 'Pred' could be anything verbal. Only by looking at her numerous examples can we conclude that 'Pred' is occupied by certain auxiliaries, but what types of auxiliary occupy the 'Pred' position is not explained. Or, if there is no auxiliary in a structure, a verb or adjectival is 'Pred'. This means that the P-marker (1-1) ignores the difference between verbs and auxiliaries under the name 'Pred'.

Later, Farmer (1985) suggests from the Lexicalists' view that the auxiliary -sase (=to make someone do..) does not have the status of verb but is merely a verb-affix, and that V+sase is formed before lexical insertion. This means that she also implies an entirely different phrase marker from the P-marker (1-1) although she does not refer to this' since her investigation on auxiliaries is limited to only this case. Therefore, we have not known what Japanese P-markers are like from the view of the lexicalists.

Secondly, category symbols are questioned. Chomsky introduced category symbols as 'substantive universals'. He states that 'a theory of substantive universals claims that items of a particular kind in any language must be drawn from a fixed class of items' (1965: p.28). He says that they provide the general underlying syntactic structure of each language. On the other hand, 'the property of

having a grammar meeting a certain abstract condition might be called a formal linguistic universal.' (p.29) In practice, substantive universals 'concern the vocabulary of the description of language; formal universals involve rather the character of rules that appear in grammars and the ways in which they can be interconnected.' (p.29)

If category symbols are universal, what are their definition(s)? Or in practice how is each category identified in each language? More importantly, we must ask whether those categories are truly universal. If we take Chomsky's statement literally, i.e. that category symbols provide the general syntactic underlying structure of each language, we cannot help assuming that categories are the inherent feature of every language. When we describe a language (not language), we use some terms as descriptive vocabulary. There are two ways to introduce such terms. One way is to define the term we apply to the language of our concern, i.e. a deductive method. The other way is that we observe a certain regularity in our corpus, and give a name to the regular phenomenon, i.e. an inductive method. Grammatical categories have been investigated in the latter way, based on particular languages. By 'units' behaviour in a context, i.e. their occupying regular positions, we give the names, N, V, A, etc. to them. Applying categories is a matter of arbitrary naming in the sense that a certain position in a structure occupied by possibly any unit is called a certain category, but not vice versa, i.e. units themselves do not tell which category they belong to; rather, by the position they occupy in a structure, they are called (or adopt) a certain category. We may assume that the existence of the regularity of positions is a universal feature, but it does not mean that category symbols attached to those positions are universal, or inherent

features of those units. This is because categories are introduced in descriptions of specific languages. Remember that the endeavour by Thrax and Apollonius on parts of speech in Ancient Greece was entirely based on the Greek language. Fortunately, in many European languages a category is known from the form of a unit itself partly because of its rich morphological formation. But this is not so in every language. In Chinese, for example, the form of a given unit conveys no information as to its category, because Chinese morphs have much greater freedom of occurrence than English words. A unit can be any category by its position in a context. Note that here we should not mix 'grammatical' concepts with concepts of 'action', 'something referent', etc.. The former relate only to the behaviour of units in a structure whereas the latter relate to the interpretations of units. In introducing categories we are concerned with the latter, although there may be some affinity between those concepts.

1.2.2 After Chomsky 1970

In the history of TG, Chomsky (1970) is considered as an important contribution since it gave rise to the so-called Lexicalist Theory. As was explained in the previous section, rewriting rules generate terminal strings. Lexical items on these strings come from the lexical component. In the standard model, lexical formations (inflections, derivations and so on) are all handled by transformational rules. For instance, the words 'destruction', 'refusal', etc. will not be entered in the lexicon as such. Rather, 'destroy' and 'refuse' will be entered with a feature specification that determines the phonetic form they will assume (by later

phonological rules) when they appear in nominalized sentences. A nominalization transformation will apply at the appropriate stage of derivation to the generalized Phrase-marker.' (1965: p.184). In other words, it was assumed that what we today call derived words were actually derived from syntactic structure, and also that syntactic relations were detectable in certain types of lexical derivations. Compound nouns, for example, were interestingly syntactically paraphrased, and were claimed to be formed by Transformational rules. But Chomsky (1970) pointed out that nominalizations (in English) create difficulties if they are treated by transformational rules. He states that nominalizations have unpredictable meanings, are not productive, have unpredictable affixations, and may have a variety of nominalized forms in accordance with their various meanings. For instance, with respect to lack of productivity, Chomsky gave the following examples:

- (a) John is certain to win the prize.
- (b) John is easy to please.

in which 'certain' and 'easy' cannot be nominalized:

- (a)' *John's certainty to win the prize.
- (b)' *John's easiness to please.

The reason is that (a) "is derived by extraposition and pronoun replacement from a deep structure in which 'certain' is predicated of the proposition 'John ___ to win the prize.', as is clear from the meaning." and that as for (b), "there is no structure of the form '...easy S' generated by base rules" (1970: p.191). As for unpredictability of meaning, nominalized forms, for example,

`laughter', `marriage', `trial' convey different meanings from those of their V-forms. Finally, `propose' and `proposition', for instance, show their unpredictable affixations.

For these reasons, Chomsky proposed that all nominalizations should be listed independently in the lexicon, except for the English gerund which is treated by the Transformational rule.

This view, which became known as the 'Lexicalist Hypothesis', made word formation a focus of interest in generative grammar as we see today in Bauer (1983), Beard (1981), Kageyama (1982), Lieber (1981), Selkirk (1982), Williams (1981), etc.. Subsequently, the hypothesis was developed into the proposal that all morphology, both derivational and inflectional, should be handled in the lexicon, and only fully-fledged words are inserted into phrase-markers. (e.g. Aronoff (1976), Allen (1978), Lieber (1981) and Williams (1981))

There is one point to be noted here. However much Chomsky (1970) has influenced later work in generative grammar, this paper itself is not particularly convincing because of the minor and exceptional examples. Firstly, his negative opinion on `productivity' of derived nouns. He demonstrates that suffixes such as '-ter' in 'laugh^r_h' and '-age' in 'marriage' are not productive in word formation, because they are attached to only the specific words for nominalization. If only minor and unique units are focused, of course, they do not look productive. But there are much more units which show productivity in derivation. In English nominalization, for instance, '-ness' in `kindness', `tenderness', and `softness' is highly productive; '-ation' in `nominalization', `realization', and `derivation' is equally productive.

Secondly, with respect to the meaning of derived nouns, Chomsky's reasons for excluding nominalization from syntax are not strong enough to justify an autonomous system of word formation. His examples are rather exceptional and minor ones. Whereas, if other units are looked at, they maintain their meaning during the morphological processes. Of course, morphology furnishes to some extent meaning-specialization in the combination of units, (See the details in Chapter 2) but prediction of meaning is possible. For instance, kutumigaki (=shoe-polishing cream) is the combination of kutu (=shoe) and migaki (=polishing). But in this combination, there is some meaning-specialization, i.e. kutumigaki is a type of cream. However, we accept this combination as a morphological process since meaning is predictable. Moreover, once migaki in this process is interpreted as 'cream or powder type for polishing', this unit shows productive combinations with other units; e.g. ha-migaki (=tooth paste), tairu-migaki (=tile-polishing powder), and nabe-migaki (=pot-polishing cream) etc.. However, if there is any entire change in meaning during the process (provided it were considered as a process), the lexicon should recognize it as a different entry. 'Recital', 'trial', and 'receipt', for example, would be separately listed in the lexicon. The motivation for setting forth a new system in a theory should be via the recognition of significant differences between that system and an already existing system, i.e. morphology and syntax; for instance, via differences of grammatical behaviours of units. But not via looking at minor units which show drift in meaning during the process of derivation, which is somewhat difficult to handle in syntax. Even if a separate system of word formation were established, such unique units would still be listed individually because they are


different lexical entries.

In later lexicalist work the above points have been taken into account. The survey of word formation has been developed with the hypothesis that word formation is just as productive as sentence formation. A striking new hypothesis in today's lexicalists' works, however, may be their 'head' notion in word structure which has led them to 'Righthand Head Rule'. This innovation will be discussed in Chapter 2.

1.2.3 Hudson's 'Word Grammar'

This section briefly looks at Hudson's (1984) Word Grammar. Hudson's syntax rests on the concept of units being in a relationship of 'companion' to each other. The relation is usually considered on the word-level, i.e. only individual words are responsible for syntactic relations. For instance, the structure (1-4) is analyzed as follows.

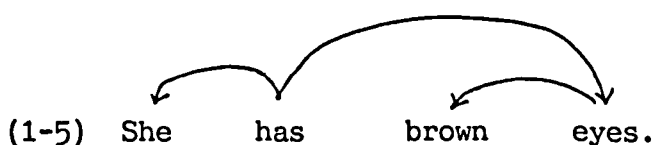
(1-4) She has brown eyes.



(Hudson 1984: p76)

He explains that '...there will be entries in the grammar that specifically allow she and has to co-occur, but none which allows has and brown to co-occur; rather, brown is allowed to occur with words like eyes, and the latter are allowed to occur with words like has, so each of these pairs are companions of one another, but has is not a companion of brown.' (p76)

If companionship is found, the next stage is to distinguish each pair from the viewpoint of 'directionality'. That is, one of the pair is labelled as 'head', and the other is as 'modifier'. In short, dependency relations are companion relations which 'head' and 'modifier' units consist of. The method of recognising the 'head' of a structure is '...it is the head that provides the link between the modifier and the rest of the sentence.' (p77) This statement is compared to a house and its dustbin; '...if you conceptualize the normal position of your dustbin, you see it in relation to your house, but not vice versa.' (p78) The dustbin is a modifier and your house is its head. Then, (1-4) will be presented as:



(p77)

in which 'a → b' means 'a' is the head and 'b' is modifier.

Hudson's dependency theory is based on the relation between two words alone. The example (1-5) shows that he is concerned with the relation between has and eyes, but not with one between has and brown eyes, the latter of which takes into account the hierarchical orders of units, or the distributional class. It could not be denied that there is an asymmetrical relation between has and eyes. This is called a 'direct-nontactic' relation in Axiomatic Functionalism (AF) which means a functional relation between the units which are all nuclei (or heads) of each constituent. (Def.15: Mulder and Hervey 1980: p52). It means that AF admits two types of direct relations here. One is a direct-tactic relation, i.e. a constructional relation in which one unit is, as an immediate constituent, related to

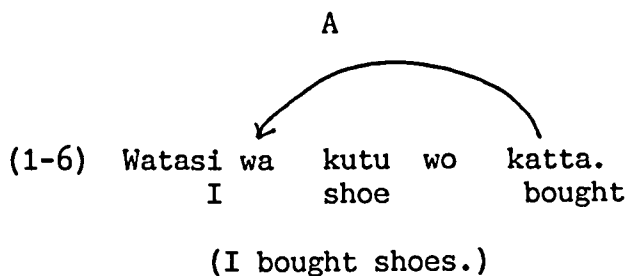
the other no matter how (syntactically) complex they are. For example, in (1-5), a direct-tactic relation lies between has and brown eyes, the latter of which dependent on the former. Whereas, between such immediate constituents, we also obtain a direct-nontactic relation between has and eyes, which are both nuclear positions. The former relation, i.e. a direct-tactic relation, corresponds to constituency in American Structuralism.

I would rather hold with the treatment by AF because of its capacity to present, more neatly and simply, the whole syntactic systems of a language, i.e. the whole patterns of the language. Syntactic analysis means that ultimately we obtain systems or patterns of structures in a given language. Our aim is to present such patterns explicitly in the simplest way. If we obtain an abstract form 'A \longrightarrow B', this pattern may cover a number of units as immediate constituents, i.e. the value of 'A' and 'B' ranges from the simplest syntactic units to entire clauses. This pattern shows, no matter what complex units are included as modifiers to the heads, say, 'a' in 'A' and 'b' in 'B', that 'A' and 'B' show the same distributional class. For example, in a language, a number of nouns to noun phrases are presented by a simple symbol 'B' which is related to 'A' representing all sorts of predicates. In this way, i.e. by employing distribution, we obtain hierarchical orders of units in 'A' and 'B' (if they are complex). Then, although language phenomena are apparently complicated and various, we can reduce them into a certain limited number of patterns. 'A \longrightarrow B' may be one of them, potentially representing a tremendous number of units in a given language. With other information, this pattern may be called a certain relation such as a subject or object relation. Without the

notion of distribution, it would not be easy to describe patterns of structures in a systematic way.

Hudson's companionship relation is plausible when each example is given and relations between two words in each are shown. His dependency theory seems to be applied to many examples from various languages. Theoretically, dependency relations are universal. However, dependency should also be able to grasp all the patterns of each language. By using dependency relations, we should explain what kinds of pattern and how many patterns the language concerned has as its syntactic systems. Hudson's companionship relation is far from covering all the syntactic structures.

Although he uses terms such as 'subject' and 'object' relations which are apparently relevant to certain patterns of structures, a close examination of his terms will reveal that they must be obtained via distributional classes, but not directly from word-to-word relations, unless he gives explicit definitions to those terms. For example, Hudson describes the relation 'A' below as a subject relation. (in personal correspondence: April, 1987)



It means that he considers a word-to-word relation, i.e. the relation between wa and katta, and labels this as a 'subject' relation. Whereas, normally, say, in traditional grammars, linguists have considered a subject relation between watasi wa and katta.

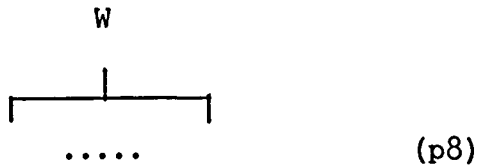
Case markers (wa and wo, for example, in (1-6)) in Japanese are syntactic units. Wa here is the head of the whole constituent watasi wa because it determines the distribution of the whole constituent (See the details in Chapter 2 and 4).

Because Hudson's companionship relation applies on the word level, his subject relation is between wa and katta, but not between watasi wa and katta. Somehow, to consider the relation between wa and katta as a 'subject' relation seems to require some prior explanation of how the term is employed here. Note that case markers in Japanese themselves hardly reveal their 'cases' as in European languages (although European cases are morphological). As is shown in Chapter 4, to reach a subject relation, we need some criteria to test whether the given case marker is a nominative or something else. More importantly, such criteria must apply to the whole constituents concerned; e.g. to prevent ungrammatical structures from occurring during the tests. (e.g. See the structure (4-9) in Chapter 4 which is not the result of valid commutations; for 'valid' commutations, the details are discussed in the same page.) They cannot be applied only by looking at individual case markers. This means, therefore, that Hudson's relation between wa and katta does not directly lead to the label 'subject' relation. The label is obtained through examiningⁿⁱ the whole constituent structures with the criteria of commutations.

Although there is a primary dependency relation between watasi wa and katta, the latter of which is the head, (and we also recognize another relation between wa and katta, which is a relation between heads of each constituent), the dependency does not always directly provide the label 'subject', because on this point the case marker wa

is not unambiguously a nominative. This means that prior to the relation between wa and katta, we must first consider the relation between watasi wa and katta, within which we examine the grammatical status of wa. If these tests establish wa as nominative this relation is called a subject relation. We may afterwards consider the relation between wa and katta, but this relation is rather a minor one when the label 'subject' is appropriately provided. Therefore, the relation between wa and katta does not suffice to establish 'subject' in Japanese. In short, word-to-word relations do not lead the patterns of syntactic structure in a given language.

We now turn our attention to Hudson's treatment of morphology. He does not incorporate word formation into his morphological theory, which is mainly concerned with 'compositions' which relate words to their parts, symbolized as



His morphological analysis is in general obscure. If he does not provide word formation rules or the like, he should at least give the definition of 'composition' more explicitly, or some clues as to what count as instances of composition. For example, he says that 'in some cases the morphological analysis may bear no relation at all to either of the other two (i.e. syntactic and semantic) analyses.' (p43) As an example, he gives the analysis of the word 'understand'. According to him, 'under-' and '-stand' have only a morphological link, but there are no connections between those morphemes and anything else in the structure of this word. He says that some speakers are aware of the

relation between 'understand' and '-stand' (p43), which is his statement of a morphological link.

This explanation is not convincing at all. First, 'awareness' is not a sufficient basis for recognising a morphological link. This awareness appears to be based on Hudson's intuitive assessment of the knowledge available to native speakers. If there are other reasons, Hudson should have stated them and shown how the awareness can be described in linguistic terms. We do not describe morphological aspects (and any other phenomenon) just because native speakers can be aware of something. Morphological relations should be either defined objectively or explained with criteria or methods with which everybody (including non-native speakers) can reach the same results.

Secondly, Hudson admits that there is no corresponding connection between the meanings of the two units (i.e. 'understand' and 'under-' or '-stand'). This implies that he allows further analysis of units as far as forms are recognized. In a similar way, Post-Bloomfieldians' descriptions tend to ignore meaning, but do have criteria for establishing morphemes. By their distributional techniques, for instance, 'persist' is analysed as containing two morphemes, because 'per-' and '-sist' can have productive alternations with other units, and each obtains its distributional class. Whether the analysis of 'persist' is acceptable or not is not our concern here. Their technique shows that we obtain those two morphemes objectively, whereas, Hudson's compositional analysis of 'understand' does not explain anything but its chopping into pieces via the native speakers' awareness. Analysis in linguistic terms should mean something; to show that there is a systematic pattern. Exceptions are

listed, but in many cases, productive patterns can be shown. Otherwise, there is no point of cutting a unit into pieces just because we can be aware of familiar forms in it.

1.3 Japanese grammarians

In this section, we briefly look at traditional Japanese grammarians' (=kokugo gakusya: national language scholars) works on syntax and morphology.

The Japanese writing system was first adopted from Chinese around the second or third century, A.D.. The first written Japanese is said to come from the development of the Chinese characters, and created another two systems, hiragana and katakana in the seventh and eighth centuries. The usage of particles (=case markers in this thesis) was first investigated because of their importance in 31-syllable-poems. The change of one syllable in the poem had crucial consequences for the evaluation of the poem. Until the seventeenth century, however, such descriptions focused on the use of words and particles in poetry, and there were hardly any properly organized 'grammars' which covered the whole systems of the language.

It was during Edo era (1603 - 1867) that the name kokugo gakusha became well known, and the grammar of Japanese started to be further developed, independently of poetry. The eighteenth century produced an outstanding scholar, Norinaga Motoori, who extended and refined earlier work on paradigms of inflections and on parts-of-speech. Up to the 19th century, grammarians described only written Japanese. With Hutabatei Sime'i's gen bun itti (=spoken and written unity:

writing as spoken), the investigation of spoken Japanese started. This century has seen a number of grammars on spoken Japanese (or modern Japanese). They differ mainly with respect to their classification of the parts-of-speech; for instance, whether or not one admits keiyoodoosi (=adjectival verb) in the system (See the discussion in 5.4.3 in this thesis). But on the whole, current Japanese grammars are organized as follows. Japanese is one of ^{the} agglutinative languages, and this is the main reason why firstly grammarians tend to focus on spoken chains. A chain which is uttered without any interruption or breathing space, is called bunsetu (=sentence segment: Daniels (1967) calls this a 'run'). This segment is easily found by inserting an interjection (e.g. ne, sa (= isn't it?). For instance, the example below has four runs.

(1-7) Boku wa (ne) kinoo (ne) hon wo (ne)
 I yesterday book
 katta (ne)
 bought (I bought a book yesterday.)

Perhaps, runs would be equivalent to words in Latin. But Japanese grammarians do not call runs 'words'. Tango (=single unit) are recognized only when it has been determined that a run cannot be further analysed. It means that Japanese 'words' are equivalent to morphological units, i.e. minimum meaningful units. Parts of speech systems are based on classifying these ultimate units. For instance, the example (1-7) is considered as containing seven words; boku(=myself), wa(case marker), kinoo(=yesterday), hon(=book), wo(case marker), kat(=buy) and ta(past tense).

In the same sense of Bloomfield's free form, boku(=myself), kinoo(=yesterday) and hon(=book) are called ziritugo (= independent word). The basic form of kat-(=buy), the affirmative form, kau, is also a free form. Free forms have therefore two types; inflectional and non-inflectional ones. The latter includes 'nouns', their subtypes (pronouns, etc.), and conjunctions, etc. and the former has verbs, adjectives and, if admitted, adjectival-verbs.

Bound forms are also classified into two types; inflectional and non-inflectional ones. The former presents auxiliaries which are attached to verbs, adjectives and adjectival-verbs. The latter includes zyosi (= helping term: including case markers and some of ^{the} interjections in this thesis).

In spite of the elaborate studies on the parts-of-speech system and the usage and paradigms of each word, Japanese grammars in general are quite poor at presenting syntactic structures. In particular, the notion of 'subject', 'object' etc. are somehow described as an additional matter, and very often such notions are stated by borrowing from European grammars. It was a striking statement, therefore, when Mikami (1960) claimed that there is no 'subject' in Japanese. (This is discussed in Chapter 4 in this thesis.) Also, since the Chomskyan revolution, there have been a number of Japanese linguists who call themselves genko gakusya (=linguists), believing that they are different from traditional kokugo gakusya. Of course, the controversy is dying down as time passes and the two groups have begun to cooperate, especially when universities have begun to establish nihongo gakka (Japanese department), the aim of which is different from kokugo gakka (National language department) in that the former

treats Japanese as just one language among the many that require investigation.

The traditional grammars of Japanese take only that language into account, and have not been adopted extended in the light of phenomena from other languages. Moreover, the definitions of terms are quite obscure. 'Runs', which are the starting point for analysis, relate only to spoken chains and established on the basis of meaning alone. There is no logical criterion with which any one can reach the same 'runs'; rather, there are some explanations for the particular analyses of particular grammarians. On the whole, their analyses are similar. But on controversial terms (such as keiyoodoosi), each grammarian insists on his own version with some explanations, but not necessarily with criteria or definitions. This is partly because the poor state of syntactic analysis does not allow disagreements to be removed via investigation of larger units. For example, the controversy on keiyoodoosi is conducted either on the basis of form alone (phonological forms in its inflections are different from those of keiyooosi (=adjectives)), or on the basis of meaning (there is no significant difference in meaning between the two.). But function in larger structures or possible combinability with other units tend to be neglected. (See the discussion on keiyoodoosi in 5.4.3 in this thesis.)

We will also see the grammatical importance of case markers in syntax in this thesis (Chapter 4). But in Japanese grammars in general, they are classified as part of zyosi which also include some of ^{the} interjections, simply because they occur after nouns and do not show inflections. The discussion on case markers is mainly focused on

their usages in individual examples. In general, Japanese grammarians are still interested primarily in the interpretations of each unit in each 'run' rather than structural aspects and functions of units.

1.4 Summary - The Necessity of Distinction between Syntax and Morphology

So far we have reviewed recent linguistic theories with regard to the treatment of the syntax-morphology boundary. According to whether or not they give autonomous status to a morphological component in contrast with a syntactic one, we can classify them roughly into two types. One type (Cf. Harris (1951), Hockett (1958) and Martinet (1960)) does not specify the boundary, and starts with morphemes as basic units in syntax. Syntax here therefore studies the possible combinations of morphemes or sequences of morphemes. The other type, accepted by a large number of linguists, regards morphology as the study of internal word structure, and syntax as the study of combinations of words. In this type, words are the basic units in syntax and the maximum units in morphology. Consequently, the study of the syntax-morphology boundaries relates to words and the definition of 'word' is crucial.

Unfortunately, however, linguistics so far has failed to provide a definition of 'word'. Much current work on morphology, even within a generative grammar, is carried out independently of work on syntax. We are therefore at present content with an approximate identity of a word. The reason for this failure is mentioned by Krámský (1969). That is, 'a different degree of cohesion or closeness of the

components of the word in different languages.' By cohesion he means a connection of the elements of the word which is such that it makes it impossible for any other element to enter between them; this is the highest degree of cohesion.' (p.38) He says that Russian and Latin, for instance, show a higher degree of cohesion whereas English and French show a smaller degree. We can also recognize, within a given language, various degrees of cohesion between units. This phenomenon, as we have seen in the previous section, gives difficulties for Bloomfield (1933) with respect to his free and bound forms.

Perhaps because of this hard task, or because of concentration on methodological aspects (e.g. formulating rules), some theories cannot help cutting across the two components, and bring (traditionally assumed) morphological units into syntax. For instance, TG has recognized terminal strings in Deep structure as involving morphological units. 'Past tense' in English, 'Causative' (-saseru) and 'Passive' (-rareru) elements in Japanese (Cf. Inoue (1975)) are by a general consensus morphological.

No matter how much the existence of a morphological component is emphasized, it will be judged as inconsistent once morphological units appear in syntax, arbitrarily or only for the convenience of transformational rules. Especially in TG descriptions of Japanese, a number of syntactic structures include the smallest morphs that can be isolated by distributional techniques, provided the morphs convey a certain meaning. The motivation for employing them in syntax seems to be based on 'meaning'. One might defend such an approach by stating that TG is not so much interested in the strict boundary. It is indeed entirely arbitrary which units we establish in syntactic

analysis; primary importance is whether statements are consistent with one another, and whether the justification of those units is provided. However, once it is noted that units such as the so-called particles in Japanese, which are more likely to be regarded as syntactic due to their important role in syntactic analysis (See Chapter 4.), are left unanalysed, while other morphemes (e.g. Tense, Aspect) are elaborately analysed, such analyses will be doubted on the basis of their inconsistency or lack of justification.

If we cannot explain, with logical criteria or with some clarified definition, the reason why we accept these units in syntax and those in morphology, but base ourselves on intuitive or semantically-motivated assessments, we do not want such analysis as part of a proper linguistic theory. (Note that Chomsky started his theory as a formal grammar, not as a semantically-oriented one.)

In this respect, I agree with Miller (1985) that by minimising transformations, morphology is confined to the lexicon, and only fully-fledged lexical items (e.g. Xed, Xing, Xs in English where X is a stem; p.3) appear in the phrase marker. At least we can see a consistent division between morphology and syntax in this view, although the problem still remains; which unit is in which component, and what are the criteria for this.

To avoid such controversy, there is an escape hatch: namely to establish morphemes as basic units in syntax as in the first approach to the syntax-morphology boundary. In this viewpoint, the basic unit in syntax is the morpheme, and out of the morphemes can be constructed sequences which lead maximally to sentences. There would be no problem of 'word boundaries', and no need to discuss them in this

thesis. The only problem in this case would be the definition of 'meaning', which is crucial for morphemes. However, this approach is again problematic when all aspects of analysis (relations, hierarchy, semantics, etc.) are considered. Firstly, the component of morphological units will look clumsy. All the morphological rules which alter the abstract form (e.g. 'TENSE') into its realized forms (e.g. '-ed') i.e. allomorphs, and all the forms, whether they are free or bound forms, are contained in this component as the same-level units. Secondly, we will entirely ignore some distinctive differences in the way units are combined, and give the same status to all the units as morphemes or a sequence of them. A sentence does not merely consist of a sequence of units, but represents their combinabilities or their hierarchical orders in its structure. If there is any different type of combination of one with the other, it must be worthwhile distinguishing between them and grouping them into different categories.

Let us take an example of Harris' morpheme classes. He says that morpheme classes are established according to the distribution of each element. This method is indeed very useful for extracting morphemes, but this substitution test will reveal the different privileges of occurrence of morphological and syntactic units, because they combine in different ways. For instance, by substitutions such as

(A) play - ed	(B) the young man
call _____	the old _____
want _____	the good _____

we gain a morpheme 'PAST TENSE' in (A) and 'man' in (B). But if this substitution is made with a more complex unit, it does not work in (A)

but it does in (B).

(A) *play and call -ed

(B) the young and good man

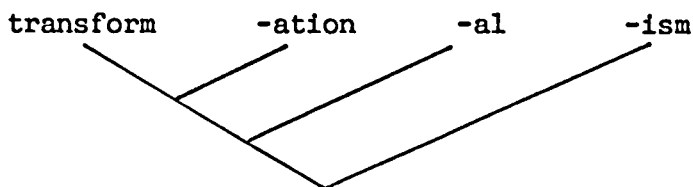
In this case we are tempted to claim that units in (A) are substitutable between only one and the other one, not between one and a sequence of units, whereas units in (B) can be altered by a sequence. We may then conclude that units in (A) should be differentiated from those in (B) because of their different distributional behaviour.

There are two points to be noted, though. Firstly, although the substitution test above seems to imply Bloomfield's distinction between bound and free forms, the converse is not necessarily true. For instance, the English possessive "-s" is a bound form, but its grammatical function, i.e. its behaviour in a structure, is syntactic according to the substitution test. Japanese particles or case markers are also bound forms, but they will be considered as syntactic. (The details will be discussed in Chapter 4.)

The second noteworthy point is that the substitution test above should be made within the same distributional classes; in other words, substitutions should be restricted to the same hierarchical level of analysis. For example, in order to defend Harris' morphemic approach and to state that there is no difference between (A) and (B) as to their distributions, one may give the following examples.

(C) transform | ϕ
 | -ation al ism

in which a sequence of morphemes is substituted. However, this way entirely ignore^{the} _^ distributional classes of units. The structure of 'transformationalism' has its hierarchical orders:



This tree diagram explains that the formation of this unit has a fixed order in its process, and is not done by adding a sequence of morphemes at the same time. That is to say, it will be a valid substitution if one unit is altered with the other without violating different levels of analysis. Then, the test in (C) is not a valid test because the zero (\emptyset) form was altered by the unit (-ationalism) which contains three levels of distributional classes. A full detail of this test is shown in Chapter 4 (the term 'commutation' is introduced in this thesis).

It is now clear that either approach poses problems. Nevertheless, we are obliged to answer the question: Is the distinction between morphology and syntax necessary? The answer is 'Yes.' First, because we are more interested in structural relations between units than just listing units or a sequence of units, it will be worthwhile discussing the distinction in so far as there exist different types of structural relations between two systems, morphology and syntax. As we will see in Chapter 3 and 4, the difference between morphological and syntactic units in structure is so tremendous that any attempt to organize them all in the same system will be clumsy. Although employing two autonomous components might violate the customary doctrine that a theory should be simple (as well

as adequate and consistent), from the viewpoint of its good organization, it is neater and more convenient for applications to particular languages.

Secondly, from the view of productivity in word formation, the morphological component is given an autonomous status. For example, the phenomena of inflections and derivations might be claimed to be the property of syntax (Cf. Anderson (1982)) mainly because derivational and inflectional forms are required by the feature of syntactic structure. But once derivations and inflections of the same class words are organized in systematic paradigms, a separate component from syntax is required to explain how these regularities or systems are formed. Furthermore, when such paradigms are completed, new units are formed by analogy. For instance, in Japanese, there is a regular system in

N-form + -suru → V-form

(a noun form plus '-suru' (= 'do') makes a verb.), and analogous to this regularity, a very large number of new '-suru' forms are produced. This productive phenomenon formulated in a rule is no longer the result demanded by syntactic phenomena, but rather a regularly formed phenomenon produced in another system, i.e. morphology.

On grounds of efficient organization of the grammar and differences in structure, syntax and morphology should be clearly distinguished. In the next chapters, the details of this distinction will be discussed.

Chapter 2: THEORETICAL BACKGROUND

2.1 The Nature of a Theory

2.1.1 Theory is realistic and universal

As linguistics has obtained its status as a 'scientific' study, it has been a common factor that, parallel to other science subjects, in order to describe language phenomena, we need some device or tool on which such descriptions are based, i.e. a theory. However, unlike typical physical-sciences, what a linguistic theory is like is dependent on the point of view that a linguist has. This implies that how one describes objects somehow reflects the philosophical attitude one has. Or, even if one has the least idea of referring to 'philosophy' itself, the method that one establishes will derive from one's philosophical background. As F. de Saussure states, it is the point of view that creates objects. This is perhaps one of the reasons why the 20th century linguistics has seen a flood of theories. How to look at 'language', what relations there are between units, and what definitions are given to all the terms introduced, are all questions to which each theory gives different answers, depending on what method or philosophical background each theory is after.

Let us, then, face the fact that, whether one calls this variety of theories advancement of linguistics or a total mess in today's linguistics, a theory is established, based on the point of view towards objects, and while admitting this fact, we may all agree that the most important requirement in the theory is how appropriately as

well as adequately the description of particular languages is carried out. The objects of description are our language phenomena, and evidence for any theoretical statement should come from these linguistic facts. The theory should be always under scrutiny. Furthermore, it is reasonably claimed that a theory should furnish universal features which can be applied to (potentially) all languages in the world. Descriptions, on the other hand, are implemented by the theory, referring to language phenomena. All descriptions are independent from one another, but all based on one and the same theory. In this respect, dialects, for instance, are independent descriptions of phenomena, however similar they appear to those of their so-called standard languages.

Insofar as a theory is defined as a set of statements about systems of language as universal features, it is not necessarily claimed, in my opinion, to represent the ideal speaker-hearer's competence. Because, if the theory has such an independent status from variety of descriptions, there is no need to introduce the artificially-made concept. The abstract systems in a theory are shown in concrete forms when it comes to each description. Such systems are not the knowledge of the ideal speaker-hearer's competence, but are hypothetically and deductively introduced as notions which are assumed to be more effectively applied to languages. Justification of a theory comes from the success of its applications. If one theory is more effectively applied to languages than another, then, the former is regarded as a better theory.

For a better theory-establishment, we also have to bear in mind that a theory should be capable of showing realistic or empirical aspects in its implementations. What we are dealing with or what we aim at describing are actual language phenomena we use in every day life. Although we admit a certain abstract tendency in theory-establishing, the theory is realistic in the sense that it is always testable by the phenomena, which is the only way to judge how well the theory is formulated.

I do not deny the 'generative' capacity of language, which seems to be one of major concerns in recent linguistics. Whenever a certain system is described, the system inevitably shows such a capacity. A dangerous thing, however, is that by too much emphasis on the generative capacity, linguistic descriptions may go further to become too rule-governed, which may lead to producing unrealistic structures. In many generative grammars today, rule-making seems to be a very popular matter. Of course, a rule can be safely established in a description as far as it does not produce unrealistic structures. But we always have to be careful of how realistically the rule recognizes language phenomena. Let us have an example here.

Many attempts to describe languages, using GPSG (Generalized Phrase Structure Grammar), have a common method that descriptive statements are schematized and numbered as rules. If we ask for <14> in the description of Japanese, we are shown the rule of topicalization,

(2-1) <14, (S NP[+c, +wa] S/NP[+c]...>

(Gunji (1981) : p25)

(The semantic representation is omitted.)

This is his definition of topicalization in Japanese. This rule is explained as follows: 'TOPIC' is 'a one-place predicate' intuitively meaning 'is conspicuous in the context', and every sentence containing 'NP[+wa]' is analysed as

$$S \longrightarrow NP[+c, +wa] \quad S/NP[+c]$$

and a missing NP[+c] is looked for with analogy from an untopicalized sentence'. Although later he claimed another topicalization without a missing NP[+c] (Gunji 1983), what we are more concerned about here is how realistically the rule <14> grasps the language phenomena.

Indeed, the rule <14> explains how the topicalized sentence is formed, and a good number of sentences of topicalization are generated by this single rule. Yet, at the same time, this rule is likely to produce ungrammatical or unacceptable sentences because the rule does not prevent any NP[+c] from being topicalized. As not every NP in English can be topicalized, Japanese is not exceptional. Although NPs with case markers in Japanese have more freedom of their positions in a given structure than in English, not every NP can be topicalized; it depends on how the NP is syntactically related to other arguments (e.g. an NP in an embedded sentence cannot be topicalized). Then, even though an NP with wa indicates 'topic' semantically, there is some restriction on their positions, and sometimes the NP cannot be placed on the top of the sentence.

Gunji presents several examples in his thesis which are claimed to be the result of applying the rule <14>. These examples, according to the 167 informants, are judged as ungrammatical or incomprehensible (See Appendix 1 which shows the result of examination.). Yet, the rule 14 does not prevent these examples from being generated.

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If Gunji claimed that the examples above are results of the rule <14>, the rule is simply refuted by facts. We should never go away from our language phenomena. We are describing them, as we assume that there may be a certain constant system. We are not making rules to make phenomena fit into them or to create unrealistic structures.

Basically, we, whether Generativists or not, share the discipline that linguistic studies mean to search certain systems in linguistic phenomena and to establish them as theoretical statements.

But it does not necessarily mean that language descriptions should be ideally rule-governed ones. For a better theory, empirical aspects are always considered.

To conclude this section, we shall bear in mind throughout this work that a theory is the device which is implemented in mutually-independent descriptions. Theoretical notions are universal concepts whereas descriptive statements are language specific, including dialects which are independent from their standard languages. A theory is empirical and realistic in that its applications must grasp actual language phenomena.

2.1.2 No transformations and no double-structure

Within the framework in which I investigate Japanese syntax and morphology, I do not use transformations in the sense of today's Chomskyan linguistics. Especially in showing structural analyses, I do not use transformations between deep and surface structures. Needless to say, I do not employ the double structure for a single example, either. Transformations may be a useful method when changing the styles of an utterance is focused. For example, Prideaux (1970) describes Japanese honorifics with transformations. The change of styles of an utterance from humble, plain, formal, honorific to supreme honorific, are quite neatly handled by transformations. In this case, by introducing transformations, the number of underlying structures, perhaps in most plain-style ones, will be economically reduced. (The definition of 'underlying structure' is given in details in 2.2: it has nothing to do with a deep structure in TG.)

If transformations are used for this stylistic change, they are a fairly limited method. Note, however, that it is not on this stage certain that such transformations could be universal features, since there is no essential aspect in them that grasps the common feature of all languages. Honorifics in Japanese present quite substantial arrangements, but they seem to remain rather language specific.

How about the transformations in the TG sense? I examine here the TG treatment of case markers in Japanese. This analysis seems quite reasonable; case markers in Japanese, as is fully discussed in Chapter 4, are one of the most important grammatical-units in constructing/analysing structures. 'Grammatical' means syntactic and/or morphological. If a unit plays a grammatical role, it means that the unit contributes some role syntactically and/or morphologically. In syntax, case markers determine the distribution

of the whole structures to which they are postpositioned.

In TG, case marking is generally treated as a transformation, but if it is closely examined, it is very often difficult to decide which case marker is primarily the property of deep structure. It is claimed, for instance, that the structure

(2-9) Taroo ga hasitteimasu.
run -ing polite

is transformed into

(2-9)' Taroo wa hasitteimasu.

(Taroo is running.)

Therefore, (2-9) is a deep structure and (2-2)' is a surface structure. In this transformation, the syntactic structure is not changed, but the meaning is changed. (Here, the definition of 'meaning' is, roughly speaking, 'cognitive meaning' or 'denotation'.) Inoue says that the difference in emphasis (in (2-9)' 'Taroo' is emphasized.) is natural on the surface (Inoue 1976: 107). She assumes that the cognitive meaning is not changed between (2-9) and (2-9)', which is quite coherent with Chomsky's definition of the relation between deep and surface structure. But, then, how shall we treat Kuno's (1973a, b) elaborate investigation of the difference between wa and ga? He says that (2-9), i.e. with ga, is interpreted as:

- (a) exhaustive listing - It is Taroo (not anyone else) who
is running.
- (b) neutral description - (You see that) Taroo is running.

and (2-9)', i.e. with wa, is interpreted as:

(c) theme - Talking of Taroo, he is running.

(d) contrasted - Taroo is running (but Hanako is not.)

The difference in the interpretations designated by wa and ga is too distinctive to be handled as only a matter of 'emphasis'. If Inoue's view were accepted, 'the cognitive meaning' would be understood as 'Someone A is doing something B: A is Taroo and B is an action of running.' This skeleton type of meaning reminds me of the following argument. For instance, Inoue would never accept that the structure

(2-10) Taroo ga kogeta senbei wo tabeteiru.
burnt crackers be eating

(Taroo is eating burnt crackers.)

has a deep structure such as

(2-10)' Taroo ga senbei wo tabeteiru.

Whether senbei(=crackers) is burnt or not, anyhow, 'somebody = Taroo' is doing 'something which is the action of eating something that is crackers.' (2-10) tells us the restricted condition of 'crackers', but (2-10)' does not tell any such constraints. The cognitive meaning following the view of Inoue does not have to be concerned with the condition of crackers. It focuses on only the central (or skeleton) message that specifies 'who is a subject', 'what is his action', and 'what is the object of the action'. Of course, this is a ridiculous argument. Linguistics has never been developed in this way. In the



history of TG in English, for instance, there has been always a reserved position for a modifier in deep structure. Therefore, it is easy to see that (2-10) is not the exact equivalent of (2-10)'. Whereas, in (2-9) => (2-9)', the number of positions is not changed, which seems to disguise the interpretations of wa and ga, which are semantically equivalent to the modifier kogeta(=burnt). If (2-9) and (2-9)' are claimed to be no different in their cognitive meanings, I cannot help having the impression that Inoue is concerned with only the central message mentioned above, and ignores other messages that modify, restrict, give some conditions to the agent A and/or the patient C. If wa is a contrastive marker, this marker restricts the condition of the subject Taroo in that in contrast with Taroo who is running, no other subject such as Hanako is running. In English, meaning difference by stress is contextual, and it is safely claimed that this is not a matter of a cognitive meaning, but that of an associative meaning (Cf. Leech (1974)). On the other hand, in Japanese, wa and ga can contribute to determine a certain context in which each should appear. Therefore, conversely speaking, by commuting from ga to wa, the condition of the subject is changed and a different interpretation is invited, which cannot be equated with stress-meaning in English. If a meta-language is allowed to show cognitive meaning, (2-9) is 'Taroo is running.' as a neutral interpretation, whereas (2-9)' as a contrastive one is 'Not other people, but only Taroo is running.' English speakers would not say that (2-9) and (2-9)' are the same in these meta-language representations. Otherwise, we would fall into the same trap as in the argument of 'crackers' and 'burnt crackers'.

A similar argument on which case marker is prior to another, i.e. which is more deep, is summarized in Kuno (1978: 215 - 218). Kuno claims that 'Aga Bga C' (e.g. 'Taroo ga eigo ga dekiyu. (= Taroo can do English.) Cf. the example (4-15) in Chapter 4) is deep whereas Shibatani (1977) states that 'A ni B ga C.' is deep. Although they both give some reasons for their conclusions, the fundamental problem here is that the nature of deep structure is ambiguous. And because it is ambiguous, there is so much freedom to establish any kind of deep structure. However much Chomsky (1966) and his followers explained about competence, its definition is not explicit enough to enable us to apply it to languages without troubles. If deep structure is such that it cannot be seen, and is imaginably established as representing "mental organ", or the child learning process or the like, then, what it looks like, how it is presented, etc. should be elaborately provided. In this respect, there is no clue to determine which case marker is property of the deep.

Farmer (1985) says that deep structure is something similar to a semantic representation, but this is already problematic. Simply, we cannot tell which case marker is closer to a semantic representation because each case marker makes a significant contribution to meaning. Their difference is not a matter of deep - surface structure, but a matter of the semantic component. It would be more useful to know about the semantic difference between ni and ga in the same syntactic structure rather than to discuss which is situated more deeply in a imaginably-established structure. What's more, as is discussed in Chapter 4, such a difference is used as a criterion to label a syntactic position (such as a subject position) in a given structure.

For the reason mentioned above, unless a full explanation on criteria for choosing the most appropriate structural analysis were given, I would not employ transformations as theoretical notions in this thesis.

So far, we have understood the reality and universality of a theory. To pursue this aim, we will not establish an over-rule-governed or imaginative-structured theory. In this thesis, we will rather go for a tentative method by stating 'notions' with their definitions. Perhaps, this method is traditionally carried out. But it is my belief that because 'language' is viewed differently according to our philosophical backgrounds, we have to define language, i.e. to show explicitly how we view 'language', and show clearly how language is systematized. In order to do so, we have to present well-defined notions in a fair manner. Nothing is new in such a method, but contents of a theory could be different from other theories.

In the next section, relevant notions to the topic of this thesis are introduced. Before plunging into those notions, however, the next sub-section briefly discusses components of language.

2.1.3 Components

To state what 'language' is like is the task of a theory. In today's linguistics, it is an institutional method to divide 'language' into a few components as deployment of its systems. In other words, by assuming that language consists of all information from such components, we investigate characteristics of linguistic units in each component to show the whole systems of language in the end. And as a result, this study is to establish our theory.

Dividing language into a few components, however, does not mean that a certain linguistic unit is completed through one component to another as if it were on a belt conveyor. Rather, we understand that information comes from each component at the same time to compose a linguistic unit. Of course, division of components is based on their distinctive features, i.e. what differentiates one component from another is what characteristic aspects are found in each component. But, basically, we establish the components to show our theory neatly, and ultimately to show how systematically language is described.

Here, we briefly look at the components in our theory. Fig. 2 is a sketch of systems of language.

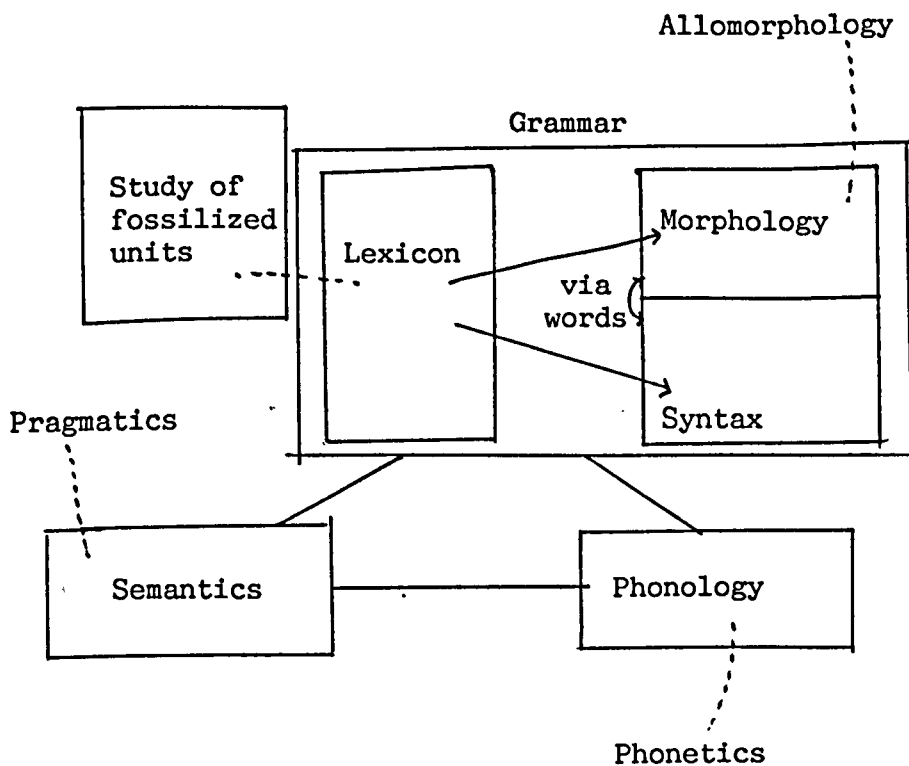


Fig. 2

The major components in our theory are three; grammar, semantics and

phonology. Grammar consists of syntax and morphology which are linked via 'words'. Grammar, semantics and phonology are all related to one another. Because our objects to describe, i.e. linguistic units contain all these three aspects, they are naturally linked.

We have another sub-system in grammar. 'Lexicon' is a component which eliminates linguistic units and stores them in the most convenient and economical forms. Properly conducted linguistic units in Lexicon are called 'lexical entries'. (See the criteria for lexical entries and types of them in 3.1.1.) Lexicon provides lexical entries to syntax and morphology.

In Fig. 2, there are also some systems which are outside the theory. Although they are somehow related to one of the components in our theory (indicated with '----' in Fig. 2), they are rather 'realizational' levels or cannot be dealt with because of their diachronic contents. In the former case, 'allomorphy' is not dealt with in the theory, but in the description of a particular language, systematic patterns of allomorphs are stated. In the latter case, the component which studies formations of fossilized units is outside the theory. Because fossilized units have historical backgrounds in formation (See the definition of fossilized units in Chapter 3, and their formations in Appendix 1.), and such backgrounds are more or less related to sociological or etymological studies, our linguistic theory does not deal with this matter. Fossilized units are stored in Lexicon as they are, and in syntax and morphology each fossilized unit is treated as one lexical entry.

Among the components in Fig. 2, we are particularly interested in the survey of 'grammar' to examine the borderline between syntax and morphology. The next sections, therefore, focus on these components, especially their distinctive natures.

The following sections introduce notions in syntax and morphology. Our theory basically follows Functional approaches which are developed by Dependency Theory, Hjelmslev's Glossematics and other Functionalists' theories.

2.2 Notions in Syntax

In the following sections, notions in syntax and morphology are introduced, and their definitions are provided. Some notions are borrowed from the theory of Axiomatic Functionalism (AF) (Mulder and Hervey, 1980) and its related theories such as Hjelmslev's Glossematics and Martinet's French Functionalism. Functional dependency relations are originally developed in Glossematics, but the names of terms introduced in this thesis are borrowed from AF only for the reason of understandable names (except for the term 'non-interordination': See 2.2.1). The idea of occurrence dependency is from AF (2.2.1), but I have further developed this notion in morphology (2.3.2). The notion 'head' is a well-known one in today's linguistics, but I suggest a new definition of this notion in 2.2.3 after examining other definitions.

2.2.1 Functional dependency in syntax

Syntax is a system in which an object or a linguistic unit is arranged into some composites. Syntactic analysis means that with a certain criterion, our objects are divided into parts. But analysis is not the mere cutting of units into pieces. As Hjelmslev (1969) says, '...the important thing is not the division of an object into parts, but the conduct of the analysis so that it conforms to the mutual dependences between these parts, and permits us to give an adequate account of them.' (p.22) 'A dependence that fulfils the conditions for an analysis we shall call a function.' (p.33) A function is a criterion in our syntactic analysis which enables us to arrange our objects into composites. Such composites, therefore, are always in a certain relation between them, and/or between them with other objects. We call such a relation a 'dependency relation'. Because syntactic analysis requires a functional criterion, syntactic relations are called 'functional dependency relations' (or simply functional dependencies).

Before illustrating types of functional dependencies, there is one point to be noted. When a given structure is to be analyzed in syntax, it is first arranged into its 'immediate constituents' (ICs). Immediate constituents are defined as 'units which are in a certain relation directly, i.e. not via another unit in between.' In structural linguistics, a given unit (unless it is simple, i.e. incapable of further analysis) is assumed to have structural aspects. A unit is not a mere sequence of units, but constructs hierarchical orders between its composites. It is, therefore, ICs which are taken into account in our functional dependencies. (The actual process of

IC analysis is performed within a particular language description. See the examples of IC analysis in Chapter 4.)

Functional dependency relations are considered to hold between ICs, and the hierarchical orders in a given unit reflect these relations on each level of analysis. Hierarchy in syntax in short is obtained through functional dependency relations. (In 2.3, we discuss 'morphological hierarchy', and recognize a difference between syntactic and morphological hierarchy.)

Now, let us look at functional dependencies one by one. The first one is the relation between two units presupposing each other. In other words, both 'a' and 'b' in 'ab' ('a' and 'b' are ICs of 'ab') determine each other, regarding their relation. Both units are necessary for determining the function of the whole. Let us call this relation 'interordination' (Cf. Mulder and Hervey, 1980), symbolized as 'a \longleftrightarrow b'. In English, the examples of interordination are in 'both - and' and 'either - or' phrases. If we have the structure

(2-11) both John and Mary

'both John' and 'and Mary' are in the relation of interordination, since both units are at the same time involved in determining the function of the whole structure, or its distribution in a larger unit.

The second one is 'subordination' symbolized as 'a \longrightarrow b'; 'b' determines the function of the whole 'ab'. In this relation, 'a' is dependent on or subordinated to 'b'. This is an asymmetrical relation and most common in syntactic analysis. In this relation, 'a' is the modifier and 'b' is the head (See the definition of 'head' in 2.2.3.). For instance, in English, a noun in a (complex) nominal is always a head and the rest of the phrase (or clause) are dependent on the noun

as modifiers. In Japanese, the so-called 'particles' or case markers in this thesis always function as the head (See the detailed discussion in Chapter 4). Nominals in Japanese themselves do not indicate their grammatical role in a given structure, but it is case markers attached to nominals which determine the distribution of the whole structure. In English, the role of nominals such as 'my father' and 'the linguist' is indicated by position or by altering them to pronouns reveal their functions (i.e. by the 'case' form) in a given structure. But in Japanese, positions are not so rigidly fixed as in English. Without case markers, the nominals can denote the same, but they are grammatically judged as ambiguous.

(2-12) Watasi kare nagutta.
myself himself hit past

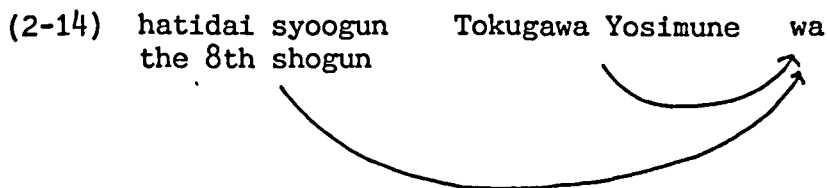
(2-13) Kare watasi nagutta.

Both may mean 'I hit him.', or 'He hit me.', or one of them may mean the former, and the other may mean the latter.

In colloquial conversation which adds contexts, intonations, pauses or extra-linguistic information, speakers and hearers easily understand 'who hit whom' without case markers, i.e. these features resolve the ambiguity. In our general linguistics, however, we must conclude that (2-12) and (2-13) are grammatically ambiguous. The full details of case markers are discussed in Chapter 4. Here, we state only that case markers are one of the examples which play the role of 'head' in the relation of subordination.

The third dependency is 'non-interordination' (Mulder and Hervey (1980) give the name 'coordination' to this type of relation, but this term may be confused with the same term used for the combination of units by some conjunctions). This relation is the converse of 'interordination', symbolized as 'a $\leftarrow\rightarrow$ b'. A typical example is in (2-12) where the units watasi and kare are in the relation of non-interordination. Their functions are not determined by each other; they are independent from each other.

The fourth one is 'apposition' symbolized as 'a — b'. This is in fact not a real relation since there is no dependency. Both 'a' and 'b' do not condition each other, but each is in relation to the other in the same way and at the same time. For example, in Japanese, hatidai syoogun, Tokugawa Yosimune (=Yosimune Tokugawa, the eighth Syogun), hatidai syoogun and Tokugawa Yosimune are in apposition. If there is a case marker attached to this nominal, each unit is dependent on the marker at the same time, as shown in (2-14).



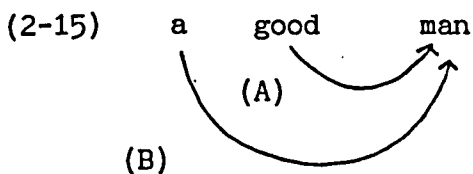
The four dependencies constitute the logical possibilities of syntactic relation. They are notions in our theory, and applicable to particular languages. In language descriptions, we may name each relation for our convenient use. For example, 'a \longrightarrow b' may be labelled a subject relation, according to the criteria we can obtain

from the behaviour of 'a' and 'b' or the relations of 'a' and/or 'b' with other units. However, in theory we have only four relations mentioned above. In the description of Japanese, for instance, as a descriptive statement, we may replace 'a \rightarrow b' into

(2-15) Subject \rightarrow Predicate.

2.2.2 Occurrence dependency in syntax

The term 'occurrence dependency' was introduced by Mulder (Cf. Mulder and Hervey, 1980: p49-50). The notion is obviously relevant to syntax, but its relevance to morphology is not so clear (For occurrence dependency in morphology, see the discussion in 2.2.3.). This notion is concerned with the presence or absence of units which are in a certain functional relation. For example, in the phrase 'a good man', we obtain two subordinations, 'a \rightarrow man' and 'good \rightarrow man'. They are shown as



With respect to occurrence, 'good' is called an expansion because in the relation (A), 'man' can occur without 'good'. It means the presence of 'good' is dependent on that of 'man'. This dependency is symbolized as '[good] man' in which square brackets indicate 'expansion' in occurrence. In underlying structure (See the definition of this term in 2.2.4.), it is symbolized as '[a]b' and called 'unilateral occurrence dependency'.

In contrast, in the relation (B), neither of the units is an expansion. Although 'man' (from a lexical entry /MAN/: See Chapter 3 on lexical entries) determines the function of the structure, and is therefore the 'head', as far as occurrence dependency is concerned, 'man' has to require the presence of 'a' because with the same denotation (= a male adult), 'man' in a singular form cannot occur on its own. This type of occurrence dependency is called 'mutual occurrence dependency', symbolized as 'a man'; in underlying structure as 'ab'. If the nominal is plural such as 'the good men', both 'the' and 'good' are expansions, and symbolized as '[the][good] men'.

In Japanese, in the structure,

(2-16) Watasi wa kare wo nagutta.
 I him hit past
 (I hit him.)

the arguments of the predicate are all optional in occurrence, therefore,

(2-17) [watasi wa] [kare wo] nagutta

(2-17) shows two unilateral dependencies; between watasi wa(=I) and nagutta(=hit) and between kare wo(=him) and nagutta(=hit) after we obtain functional dependency, i.e. subordination, between watasiwa(=I) and nagutta(=hit), and between kare wo(=him) and nagutta(=hit).

In each expansion, the case markers wa and wo cannot occur on their own, whereas watasi(=myself) and kare(=himself) can exist without any complementary units in a given structure. Therefore,

(2-18) watasi [wa]

and

kare [wo]

Occurrence as well as functional dependencies are investigated on units on the same level of analysis, i.e. the units are immediate constituents. That is why (2-17) and (2-18) are shown separately, and only immediate constituents are in question in each relation. (See the details of arranging a unit into immediate constituents in Chapter 4.)

In (2-17), between watasi wa(=I) and kare wo(=him), as immediate constituents, there is 'mutual occurrence independency'. The presence of the one is not dependent on that of the other and vice versa, symbolized as '[a][b]'.

2.2.3 Heads in syntax

In traditional Dependency Theory and its followers, and also French Functionalism, there is no distinction between functional and occurrence dependencies. In Glossematics, Hjelmslev (1969) mentions only 'functional dependencies'. Other dependency theories mention relations which are equivalent to occurrence dependencies in our theory. For instance, Hudson (1984) defines dependency as a companion; which units co-occur in a structure (Cf. 1.2.3). And for Hudson, the dependent unit is optional in the presence of the head. Martinet (1975) defines 'A \rightarrow B' as 'A does not exist without B, but B may exist without A.' (p26) Perhaps, this is the main reason why they give a criterion to the 'head' as 'an obligatory unit in a given structure'.

However, their dependency theory is not applied to all languages. In Japanese, case markers always occupy the head position; nominals are dependent on them. But this functional relation does not always coincide with their occurrences. In colloquial Japanese, case markers tend to be omitted, as is shown in (2-12) and (2-13). They are optional in occurrence. Whereas, nominals can stand on their own without case markers in spite of their modifier-status in functional dependency. Therefore, the matter of occurrence cannot be treated equally to the matter of function. The occurrence of units does not necessarily lead to their grammatical statuses in functional terms. What is suggested in the distinction between functional and occurrence dependencies is that each unit occupies a certain position as a functional relation to another unit while its occurrence is left to a matter of realization. For example, Japanese subjects are optional in occurrence, but their position exists in underlying structure, showing their relation to a predicate as a functional dependency. In the previous sub-sections, the notion 'head' is briefly mentioned. The head is a resultant of functional dependency, not that of occurrence dependency. Therefore, in our theory, the definition of 'head' is 'a position which determines the distribution of the whole unit concerned'.

There is another way to define the head. Robinson (1970) identifies the head item as the one which characterizes a construction. Also, Mulder (Mulder and Hervey, 1980: p50) defines the head ('nucleus' in his term) as 'the identity-element' in the chain in question. The idea of 'identity-element' in the chain applies to many examples. In English, the head element is identical with the distributional class of the whole structure. A noun phrase

is identical with a noun in that phrase as to their characterization, and a verb phrase is the same class as a verb. But there are some units which lack identity-elements. That is, subordinating clauses in English can hardly be replaced by a certain syntactically-simple form. Conjunctions such as 'if' and 'though' are 'heads' in subordinating clauses because they are the functor which determines the grammatical role of the clauses in a given (i.e. larger) structure. On the other hand, I doubt that such conjunctions can represent the same class as the subordinating clauses. Furthermore, there is no other single (or simple) unit either that can characterize those clauses.

Japanese is the same as to subordinating clauses (provided conjunctions in the clauses are syntactic units, since there ^{are} some _^ morphological conjunctions which form subordinating clauses; see the details in 5.4.4.), and also as to case markers. As was earlier discussed, case markers are heads in a given structure, and yet they cannot ^h characterize the whole structure as the same distributional class. Mulder's 'identity-element' is equally difficult to deal with. From the view of occurrence dependency, case markers cannot stand on their own. It means that we cannot claim that case markers are identity-elements with 'NP + a case marker'. The latter phrase cannot be reduced to a case marker as its identity-element. Consequently, we cannot define the head from the viewpoint of sameness of 'distributional class'. Although this idea works in many examples, we cannot use it in our theory since we try to establish a notion which would possibly explain as many languages as possible. To conclude this sub-section, we define the head as follows.

Head: If an element 'a' in an immediately larger

unit 'A' (i.e. 'a' is an immediate constituent (IC) of 'A') determines the distribution of 'A' (or its function) in an immediately larger unit 'B' (i.e. 'A' is an IC of 'B'), then, 'a' is the head of 'A'.

Because relations of dependency are considered between immediate constituents, i.e. syntactic analysis is performed on units on the same level (with regard to structural hierarchy), naturally the head-modifier is concerned with ICs. Suppose we have a structure 'If it rains, I won't go.' On a certain level of analysis, we obtain 'if' and 'it rains' as immediate constituents. Because 'if' determines the distribution of the whole clause A: 'if it rains' in the immediately larger unit, i.e. the whole structure B: 'If it...go.', 'if' is the head of 'A'. 'If' takes the initiative of what status (or grammatical position) the clause 'A' will have in the structure 'B'. It means that 'if' determines the function of the clause 'A'. The definition above explains of the 'functor' of the given structure; the functor is the head in the relation of functional dependency.

2.2.4 Underlying structure

Before we go on to the notions in morphology, we introduce the notion 'underlying structure' which is applied to both syntax and morphology. This notion is defined by Mulder and Hervey (1980) as 'abstract representation of a chain in terms of positions with or without indication of functional dependencies, or occurrence dependencies.' (p51). This means that in structural analyses, abstract forms 'a' and 'b' (as variables) in relations such as 'a \longleftrightarrow b', 'a \longrightarrow b' and 'a \longleftarrow b' (=functional dependencies) or

'[a]b', 'ab' and '[a][b]' (=occurrence dependencies) show 'positions' and these positions represent underlying structures.

In our theory, we adopt this term but in different senses according to syntax and morphology. Especially since in Mulder and Hervey (1980), occurrence dependencies in morphology are not clearly discussed, and underlying structure in morphology is not mentioned, we have to develop the term 'underlying structure' to be clarified in our grammar.

Firstly, by underlying structure in syntax we mean 'a structural representation which is the result of functional dependency'. As mentioned above, the relations, 'a \leftrightarrow b', 'a \rightarrow b' and 'a \leftrightarrow b', are our underlying structures, and 'a' and 'b' are positions. Through functional dependencies, we can eventually present a certain number of patterns or systems in each description. For example, 'subject \rightarrow predicate' is one of the patterns in Japanese, which is a direct application of the relation of subordination, 'a \rightarrow b'. Here, we still mention an underlying structure; there are a subject position and a predicate position. (As far as direct applications of functional dependencies undergo, the structures are underlying structures with positions which are variables, until those positions are replaced by actual linguistic units.) In the underlying structure, no matter what units occur, including an empty unit (i.e. the position is not realized; See 'realization' below.), these positions (i.e. subject and object positions) exist. Actual units such as watasi wa (=I) for the subject position and hasiru (=run) for the predicate position are on a realizational level. Because in Japanese, subjects are optional in occurrence, the position for a

subject can be empty, symbolized as ' ϕ '. We say in this case that the position is not realized. 'Realization' is defined by Hjelmslev (1969) as 'A class is said to be realized if it can be taken as the object of a particular analysis' (a class = an object that is subjected to analysis) (p133). We develop this as 'A position in underlying structure is said to be realized if it is filled by actual linguistic units in a particular language description.' If the position is not filled since it is an expansion in unilateral or mutual occurrence dependencies ('expansion' and 'occurrence dependencies' in 2.2.2), the position is not realized, symbolized by ' ϕ '. We recognize here that realization is closely related to occurrence dependency. If there are optional units as to their occurrence in a given structure (e.g. Japanese subjects and objects, English objects occurring with verbs such as 'eat'), they may or may not be realized. But in underlying structure in which positions are obtained via functional dependencies, each position exists.

Our underlying structure in syntax, therefore, is limited to the result of functional dependency, and its realization by linguistic units is related to occurrence dependency. Also, underlying structure should not be confused with deep structure in TG. Although our underlying structure is an abstract form, unlike deep structure it does not talk about various rules such as raising, Neg-placement, pronoun replacement, or other transformational rules, nor have other heavy burdens to construct grammatical structures. Perhaps, only optional deletion in TG may be somehow similar to our realization, although the latter does not contain any linguistic units, but only variables. Furthermore, our realization is not a rule, but merely a statement which points out that a position in underlying structure is

filled, the evidence of which comes from an occurrence dependency between that position and others.

Now we turn our attention to underlying structure in morphology. It is conceptually the same as that in syntax, i.e. 'abstract representation which shows systematic patterns of structure'. However, because morphology does not deal with functional dependencies but only occurrence dependencies (See the discussion in 2.3.), the construction of underlying structure is different between syntax and morphology. As Mulder and Hervey (1980) defines, underlying structure may involve 'occurrence dependency' in morphology. However, in this definition, we would have to face the following problem.

In the combination 'ab', for instance, 'play-ed', the occurrence dependency is 'play [-ed]' (from 'a[b]'), or unilateral occurrence dependency. If we admit the positions in this combination, i.e. 'a' and 'b' in underlying structure, we have to accept that whether or not /PAST/ ('-ed': /X/ is a lexical entry, Cf. lexical entries in Chapter 3) occurs in reality, the position for /PAST/ as 'b' is reserved when 'a' (occupied by /PLAY/) occurs. It means that if we have a structure 'John plays baseball every Saturday.' which is a structure on the realizational level, we have to assume that although not realized, /PAST/ can occupy the position after 'play' but in this structure its position is empty. This assumption is not useful in our grammatical description. That is, what is the point of reserving a position for /PAST/ just after 'play' which may combine with other units such as /SINGULAR/? In morphology, the matter of combinations is a matter of choice; which unit can combine with which. And when each combination is completed, we examine whether the given units are obligatory or

optional in occurrence, or precisely whether the one unit is dependent on the other as to its occurrence. On this point, there is no point of reserving a 'position' for each unit as underlying structure. Otherwise, in each morphological combination, we would have to list up all possible positions, which is almost impossible to do. Therefore, even in morphology, we would not accept 'occurrence dependencies' to produce underlying structures. In both syntax and morphology, we would exclude occurrence dependency from Mulder and Hervey's definition of underlying structure.

Here, we suggest morphological underlying structure as 'abstract representation which shows patterns of morphological combination'. In Chapter 3, possible morphological procedures are presented in the description of Japanese: ' $a + b \rightarrow ab$ ', ' $(a \rightarrow a') + b \rightarrow a'b'$ ', ' $a + (b \rightarrow b') \rightarrow ab'$ ' and ' $(a \rightarrow a') + (b \rightarrow b') \rightarrow a'b'$ '. (the details in 3.2). These four patterns are our underlying structures in morphology. Replacement by linguistic units in these processes (i.e. a , a' , b , b' are filled by Japanese examples ; e.g. ' $a + b \rightarrow ab$ ' is replaced by 'benkyoo(=studying) + suru(=do) \rightarrow benkyoosuru(=to study)') is realization. Then, in our morphology, realization is not concerned with occurrence dependency, but with replacement of units alone. What is more, because morphological realization is irrelevant to occurrence dependency, morphological underlying structure, unlike syntactic one, does not reserve 'positions'. Abstract forms, a , a' , b and b' in morphological combinations are not positions but merely variables in the four possible combinations (in Japanese here). In short, in morphology underlying structures are abstract formulae which represent possible morphological combination patterns, and their realizations are replacements of abstract forms ' $a...b$ ' by actual

linguistic units.

2.3 Notions in Morphology

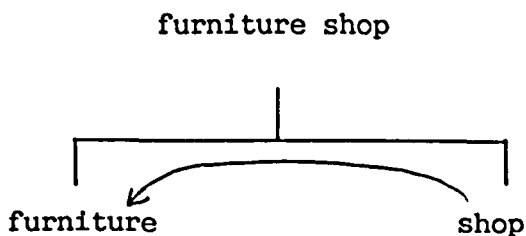
2.3.1 No functional dependency in morphology

Morphology is a system in which a unit, or precisely, a duly justified syntactically-minimum unit, is analyzed into further small composites. How much further it can be analyzed will be discussed in Chapter 3 together with the criteria for morphological units. In this section, we focus our attention on the notions which are relevant to the analysis of morphemes.

In morphology, there is no functional dependency. Because morphology reaches maximally the level of words (at the moment roughly 'the minimum units in syntax'), this system is not concerned with the role of a composite that links the whole unit with another unit in a larger unit. Suppose there is a syntactically minimum unit 'pq' which apparently is to have two composites 'p' and 'q'. A functional dependency has a role that tells a certain relation between 'p' and 'q', such as subordination. And at the same time this relation determines the function of one of the composites in a larger unit, i.e. either 'p' or 'q' (as the head) should determine a certain linking relation between 'pq' and another unit in a larger structure. This is the fundamental nature of functional dependency. And such (functional) structural aspects are the main theme in syntax. This is also related to the notion 'head'. But in morphology, the maximum unit is 'pq' and whatever link (grammatically) this unit has with other units

in syntax, such information is irrelevant to morphology. Morphological information stops at the level of the unit 'pq' (although exceptional examples may occur, i.e. interactions between syntax and morphology. See Japanese ones in Chapter 5.).

Traditional dependency theories do not state dependencies (i.e. functional dependencies in this thesis) in morphology. But Hudson (1985) admits dependency relations in clitics and compounds, because he claims that they are on the boundary of syntax and morphology, and therefore satisfy definitions of both systems. For example, 'furniture shop' is analyzed as



(Symbols are mentioned in 1.2.3: Note that the direction of the arrow is the opposite of ours.)

Because he believes that the unit above is the combination of two 'words', he assigns a syntactic relation (i.e. the head-modifier notion) to compounding. Indeed, because his definition of dependency is based on the co-occurrence of two units (more precisely, words), 'shop' in 'furniture shop' apparently determines the possibility of occurrence of 'furniture', and even semantically, the head, i.e. 'shop' provides a structure into which the modifier, i.e. 'furniture', fits.

However, his claim of two 'words' in compounding seems to be confused between grammatical words and conceptual words. Let us say, words are syntactically minimum units, and Hudson also uses 'words' in this sense throughout his work. Now, when we deal with syntactic units in syntax, we naturally assume that they behave as 'syntactic' units, i.e. they possess the grammatical properties of syntactic units. Of course, the definition of syntactic units may vary according to theories. But at least we all agree that the difference between syntax and morphology rests on the grammatically different nature of syntactic and morphological units. In this respect, the shape of units is basically irrelevant when they are judged to be syntactic or morphological. The recognition of forms which are more familiar in syntax does not mean that they are syntactic units, no matter where they are placed. Or, precisely speaking, they might have been syntactic, but we do not employ diachronic matters in this theory. If they behave as morphological units, they belong to morphology. The compound 'furniture shop' then is not the combination of two 'words' but of two morphological units in grammatical terms. Although the two forms appear to be 'words' because of their familiarity in syntax, and particularly each form can exist on its own, compared with 'pure' morphs such as '-s/-es' and '-ed' in English (/PLURAL/ and /PAST/ respectively as lexical entries, Cf. Chapter 3), the relation between them cannot be one of syntactic relations.

Two forms in compounds (such as 'furniture and 'shop' in 'furniture shop') are in a bound relation, which is one of ^{the} characteristics in morphology. As is discussed in Chapter 4 (criteria for identifying units as syntactic), syntactic units 'a' and 'b' in 'ab' ('a' and 'b' are ICs) are capable of commuting (=altering; see

the procedures in 4.1.2) with other syntactically complex units. But 'furniture' and 'shop' cannot commute with such complex units. This is why they are in a bound relation, and they both are considered as morphological units. Now, we consider compounds as consisting of morphological units. We then have to examine whether the units in compounds can offer functional dependencies.

Functional dependencies inevitably consider a larger unit as well as the units 'ab' between themselves. This is because 'a' and 'b' are firstly immediate constituents which are results of arrangement of distributional classes, and then the relation between 'a' and 'b' is accounted for, via the link of 'ab' with an immediate larger unit. In a simple example, 'Watasi wa taberu.' (= I eat.), watasi wa(=I) is subordinated to taberu(=eat), because in a larger unit, i.e. at a higher level of structure, the predicate determines the distribution of the whole structure. Even in non-interordination ($a \leftrightarrow b$), a subject and an object, for instance, are not dependent on each other, but nonetheless, this kind of relation is considered because they, as immediate constituents, are related to a predicate, i.e. they have a certain link to a larger structure.

On the other hand, morphology does not provide such a hierarchy in functional terms. The maximum unit is a word or a minimum syntactic unit. Then, naturally morphological relations do not refer to the range outside the 'word' level. Therefore, however complex a word-structure is, its composites do not present functional dependencies. Because to know what relations the word has with others in a given structure is the domain of syntax, functional dependencies are presented. The domain of morphological studies is limited up to

the level of words, and, therefore, functional dependencies cannot be presented.

Hudson also mentions a semantic reason on compounds. But this is a mere understanding by our common sense that 'furniture shop' is a type of 'shop' and semantically 'shop' controls the whole unit. This is a semantic 'head', and cannot always coincide with a grammatical 'head'. In English, a preposition is a head in Dependency Theory, but this head does not correspond to that in semantics. A further discussion on 'heads' is made in 2.3.3. Suffice it to say here that morphology does not provide functional dependencies. What is dealt with a morphology, then, is occurrence dependency.

2.3.2 Occurrence dependency in morphology

The definition of occurrence dependency in morphology is the same as in syntax. If the combination 'ab' as immediate constituents shows a relation of occurrence or non-occurrence, this relation is called occurrence dependency. There are three types; a mutual dependency, i.e. 'ab', a mutual independency, i.e. '[a][b]', and a unilateral dependency, i.e. '[a]b' or 'a[b]'. This dependency, unlike the functional one, is only concerned with the inner relation of the unit 'ab', i.e. only between 'a' and 'b'.

In English, the unit 'played' has two units 'play' and '-ed' (as lexical entries, /PLAY/ and /PAST/; See the discussion on lexical entries in Chapter 3.). The relation between them is unilateral, symbolized as 'play[-ed]'. Whereas, 'playground' is in mutual independency, '[play][ground]'. In Japanese, there are many examples

of mutual dependency, e.g. most combinations of Sino-Japanese forms (forms derived from Chinese: See the explanation of them in Chapter 3 on lexical entries.) furnish mutual dependency.

e.g. sin-tai (ahead and back), dan-zyo (men and women),
tei-on (low temperature), kan-dan (cold and warm),
zyoo-ba (riding horse i.e. horse riding), etc.

Neither unit in the combination can exist on its own. (In this respect, such a unit is a 'pure' morphological unit because its corresponding lexical entry is used only for morphology.)

Let us now look at more complex units. As we saw in 1.4, the unit 'transformationalism' has four morphological units; 'transform', '-ation', '-al' and '-ism'. The combination of these four units is not a mere linear order, but there are occurrence dependencies involved which construct a morphological hierarchy. The units which occur as the first formation are 'transform' and '-ation'. They are in the relation of unilateral dependency:

(2-19) transform [-ation]

The occurrence of '-al' is dependent on the existence of the unit 'transformation' (neither 'transform' nor '-ation'; '-al' occurs with 'transformation', i.e. '-al' does not occur without '-ation' and '-ation' does not occur without 'transform'). Therefore,

(2-20) transformation [-al]

In the same way, '-ism' occurs with 'transformational'. So, the unilateral dependency is shown as:

(2-21) transformational [-ism]

If we integrate the relations, (2-19) - (2-21), into one, they are shown as:

(2-22) (((transform[-ation]) [-al]) [-ism])

Round brackets in (2-22) show different steps of occurrence, i.e. which unit is related to which. More neatly, we can show this as follows:

(2-23) transform [-ation] [-al] [-ism]

```
graph TD
    A["transform [-ation] [-al] [-ism]"] --- B["transform [-ation]"]
    A --- C["[-al] [-ism]"]
    B --- D["transform"]
    B --- E["[-ation]"]
    C --- F["[-al]"]
    C --- G["[-ism]"]
```

(2-23) explains how morphological combinations are performed. The unit 'transformationalism' is not formed by the simultaneous addition of the three affixes to the stem, but the hierarchical structure in (2-23) reflects the three separate steps in the process. This is a morphological hierarchy. While syntactic hierarchy is furnished through functional dependencies, morphological hierarchy is provided through occurrence dependencies. The order of occurrence of units construct morphological hierarchy.

We also noticed through (2-19) - (2-21) that morphological combinations are binary, i.e. on the same level of analysis, two units are obtained as immediate constituents. In syntax, immediate constituents are not necessarily binary. (See the details with examples in Chapter 4.) This phenomenon is also a difference between syntax and morphology. This is also true in Japanese. But 'binarism' in morphology is not a notion in our theory. Because this is a by-product through application of the notion 'occurrence dependency'

to particular languages, there may be other languages to which it cannot be applied. Therefore, we cannot list this phenomenon as one of our theoretical notions.

2.3.3 No 'heads' in morphology

In recent generative work, there has been much discussion of the 'head' of a word in morphological processes. Lieber (1981), for instance, says:

"In syntax, the head of a phrase is the element in the phrase that has the same distribution, and belongs to the same category as the phrase itself. The definition of morphological head is meant to be analogous: the head of a word is the element that has the same category and notion of morphological head, and the Righthand Head Rule in fact serves to define the allowable routes along which features can percolate up nodes of a lexical tree. (p55)

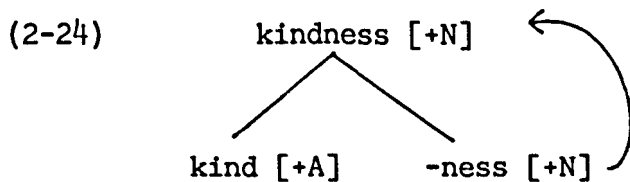
The definition of the head, which is assigned to both syntax and morphology, is formally given by Williams (1981) as follows.

If both X and the head of X are eligible members of Category C, then,

$$X \in C \rightarrow \text{head of } X \in C \quad (\text{p247})$$

As Lieber says, the morphological head is merely an analogy from syntax. This analogy comes from the assumption that if a

(morphologically) complex word manifests a certain grammatical category, then, that category is carried onto one of its constituents (a morpheme) which is to be considered as the head of that word. The reverse is also referred to as valid; the categorial feature of the head is percolated to the whole word. This percolation is called 'Righthand Head Rule' (RHR: Williams, 1981 and Lieber, 1981). A category feature on the righthand node is percolated to the whole word. For example, they believe that the categorial feature of the word 'kindness', namely [+N], is, by percolation, from the feature of the morpheme '-ness' which is on the righthand node. The arrow in (2-24) is this percolation.



In this way, especially Lieber tries to give categorial features to affixes. She says that in English 'enlighten' is rather exceptional since the feature [+V] is percolated from the lefthand node ('en-' has [+V]). But because it is exceptional, and the number of units applied by Lefthand Head Rule (LHR) is very small, she does not give much attention to LHR. Her examples throughout her work are from German which seems to have very few exceptions, too.

Lieber's definition of a morphological head is double-protected or have a double-approach. That is, the unit which determines the feature of the whole word is the head, and at the same time the head is the result of RHR. We look at them one by one. First, in (2-24), because 'kind' is an adjective, we naturally assume that '-ness' is the unit which percolate the categorial feature onto the top,

'kindness', which is a noun. Therefore, the category of '-ness' is N. But on this point, we realize that Lieber uses two types of categories. The one is the type which is derived from syntactic use, and the other from morphological one (if any). The former is 'A' for 'kind' and the latter is 'N' for '-ness'. And 'N' for 'kindness' is from syntax.

Categories in general are obtained via grammatical arrangements in a particular language (Cf. 5.4.1). In English, the category 'A' for the unit 'kind' is obtained from its behaviours in syntactic structures (a modifier for a noun, part of a predicate with a copula, etc.). Then, generally the category 'A' is applied to any unit that behaves as the unit 'kind' does (although there are some exceptions; e.g. 'late' in 'my late father' cannot be part of a predicate). On the other, 'N' for '-ness' cannot be obtained in the same way as 'kind' and 'kindness'. Rather, this category is artificially applied by Lieber during the morphological procedures. It means that Lieber allows categories (obtained from syntax) to be applied down to morphology in the same way. Then, how does she explain the difference between morphological and syntactic categories? Miller (1985) points out that the feature 'N' for the morphological head can never be identical with the category 'N' used in syntax. - Indeed. English categories are, as mentioned above, obtained from syntactic arrangements in structures. Although in practice, we can easily spot that 'kindness' is a noun without contexts, 'N' is applied to this form as a label because of its behaviour in syntax. (That is, a category is a result of grammatical arrangements of a given unit, and 'N', for instance, is merely labelled as such to imply its grammatical arrangements in a given structure; therefore, 'N' is not an inherent

or intrinsic feature of the unit.) But somehow 'N' for '-ness' seems to be artificially adopted simply because the other half 'kind' is 'A' and '-ness' is the key unit which is imagined to affect the category of 'kindness', while in reality, '-ness' itself does not signal a noun as the other syntactic units do in grammar.

Lieber does not go further to explain about double-use of categories nor about how morphological categories are obtained in contrast with syntactic ones which are from syntactic behaviours of units. The aim she has is to define the morphological head, and perhaps this is why she neglects or does not realize the double-usage of categories. Therefore, although we have allowed our argument here to use categories, we cannot allow them to be used on different planes of analysis. Simply, Lieber's categories are naively used.

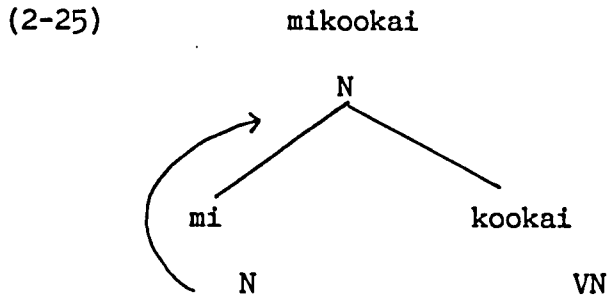
How about morphological heads from the viewpoint of RHR? Although a categorial feature is also introduced, RHR emphasizes a more automatic percolation. It means that a hypothetically-given category to a unit on the righthand node may be claimed to be percolated to the whole word, rather than a morpheme for the head being searched from the features of the word. For instance, when '-ness' in English is seen on the righthand node, it is automatically considered as the head. Then, we hypothesize that this unit has the feature 'N' (this feature is given artificially as a hypothesis.), which is percolated to the whole word, for instance, 'kindness'. If the hypothesis 'N' for '-ness' persists successfully in other examples, the head in morphology could be obtained, since Lefthand Heads (LH) are considered to be exceptional, anyway.

However, in spite of its mechanical method, RHR is valid only in European languages. Kageyama (1982) mentions that there are many examples of lefthand head structures in Japanese. For instance, many prefixes in Japanese determine the category of the whole structure. For example, mu- (=no) is a prefix which is attached to bound morphemes ('morphological units' as one of lexical entries in this thesis: See Chapter 3.1.) and simple words. If we have mu-ryoku (=no power), Kageyama says, this word is an 'AN' because the adjective mu-ryokuna (=powerless) is derived from this word. Ryoku(=power) itself does not function as category-changing since ryokuna does not exist nor ryoku(=power) itself cannot stand on its own. It is mu-(=no) which determines the category 'AN'. A more interesting example is that the word kookai (=publicizing) is a VN which means -suru (=do) can be attached to make the verb kookaisuru (to publicize), whereas, when the prefix mi- (=not yet) is attached to kookai(=publicizing), mikookai(=not-yet-publicizing) is no longer a VN, i.e. -suru cannot be attached, then, mikookaisuru. That is, mi-(=not yet) changes the category VN into N.

Although Japanese percolations seem to have a little detour in order to indicate the category of the whole structure, i.e. we have to examine possible combinations of units with others before and after affixation, Kageyama's argument for LHR in Japanese is plausible since RHR in Japanese should be applied in the same manner.

Since Sino-Japanese forms apparently all look 'Noun' forms, searching 'heads' in morphology should be made via their different uses in syntax. Because many prefixes in Japanese control the grammatical arrangements with other morphemes, they are determined as

'heads', and LHR is applied to these units, say,



Kageyama's argument, therefore, directly refutes Lieber's hypothesis of automatic percolation by RHR.

The definition of morphological heads by Lieber and Williams, therefore, fails to explain the issue of double-use of categories because first we do not know where 'N' for '-ness' comes from, and secondly we cannot accept that morphological categories such as 'N' for '-ness' have the same nature as syntactic categories ('N' for 'kindness' and 'A' for 'kind'); then, they cannot be used on the same plane. Also, Lieber and Williams fail to cover other language phenomena by their percolation-definition. Japanese has substantial examples which are formed by LHR. We therefore do not accept their notion in our theory.

Our definition on syntactic heads cannot be applied to morphology, since this definition is based on 'functional dependency' which, as has been mentioned, is the property of syntax. We now have to ask whether we actually need the notion 'head' in morphology. My answer is 'No.' There is no necessity to discuss the head in morphological processes. There are two reasons. The one is from the categorial viewpoint and the other is from the nature of morphology itself.

First, word-formation in a particular language offers combinability of two or more units (the latter is the case if rules are used recursively), and provides syntactic units ready for syntactic analysis. In this process, there is no urgent requirement to know which constituent is the head of the whole word, i.e. whether the head unit is a noun or a verb (provided we could supply such without causing a problem such as Lieber's above) is not relevant to the morphological process itself.

Secondly, as we have seen, morphological combinability is a matter of occurrence dependency. Because the maximum unit in morphology is strictly the word, functional dependency does not apply to morphology. Morphological hierarchy is a result of occurrence dependency. We saw the phenomenon that in morphological hierarchy (although limited to Japanese and English), always two units are examined at each step for occurrence dependency. In the binary-combination and in the matter of 'occurrence', what is the point of suggesting the 'head' which is to determine some nature of the whole structure? In the combination 'ab', one of them may or may not occur without the other. This is morphological combination in which we cannot pursue the head-type which must function in a certain way. Although we may have some illusion that in English '-ness' seems to have somehow a controlling feature, morphology does not provide 'functional' features in combinations of units, and therefore, a controlling unit is not possibly searched. Or, let us shortly say that the intuitive assessment to 'noun' for '-ness' cannot be led to formulate a theoretical notion or to define a universal term. To conclude this sub-section, we state that in our theory we do not employ the notion 'head' in morphology.

In this chapter, we have looked at theoretical notions for syntax and morphology. The following chapters (especially Chapters 3 and 4) deal with the description of some of fragments of Japanese in syntax and morphology, by applying the notions in this chapter. Note, however, that in a particular description, there are direct applications of notions as well as descriptive statements which are the property of that description, not directly derived from the theory. For example, word formation patterns in Japanese are inevitably characteristic of the description of Japanese (Chapter 3), the criteria for labelling subjects and objects in Japanese are also descriptive statements (Chapter 4). But, of course, the procedure to reach the criteria is from our theoretical background (i.e. the 'function' of units determines a position such as a subject or object). Let us then remember that our theoretical notions are, as premises, (the term by Hjelmslev (1969: p14)) on the top of our linguistic surveys. And, based on them, we investigate further to describe each language which contains its own descriptive statements, too.

Chaper 3 : LEXICAL ENTRIES AND MORPHOLOGY IN JAPANESE

This chapter first examines types of lexical entries which are dealt with in the grammar of this thesis, by giving the criteria for our lexical entries in the lexicon. Secondly, morphological processes are examined, including word formation in Japanese and hierarchical orders in morphology.

Because we are more concerned with the boundary between syntax and morphology, this chapter and chapter 4 are devoted to significant differences between syntax and morphology. Naturally we must first clarify what types of linguistic units are required for morphology and syntax. The first section examines and classifies those units in relation to proper lexical entries.

It is common in current work on the lexicon to show what information each lexical entry possesses. Phonological and semantic information is generally described in today's morphology. Also, many generative grammarians attempt to load into each lexical entry syntactic and morphological features, subcategorizations, and category specifications. Although they are useful and necessary information, this thesis does not go into such feature specifications of lexical entries because all we require in order to discuss the morphology-syntax boundary is what types of lexical entries we deal with. Feature specifications of lexical entries are another matter.

3.1 Lexical Entries

3.1.1 Conditions for lexical entries

As was explained in 2.1.3, the lexicon is introduced as an autonomous component in our theory. Since the lexicon has important tasks before any grammatical arrangements, i.e. the component has to show what are the appropriate lexical entries to be stored, it seems to be quite neat if the lexicon is separated from the component of morphology. Moreover, morphology itself has different tasks already (Cf. 2.2 and this chapter), so that it is also appropriate to deal with them in a different component from the lexicon.

The lexicon is a component which selects proper linguistic units for morphology and syntax. It is a store room, but at the same time, it has the task of storing units in the most appropriate form. 'Appropriate' here means that such linguistic units have the most economical and yet productive potential for morphological and syntactic formations. When the lexicon considers linguistic units as duly-justified, they are called 'lexical entries'. If units are not judged as lexical entries, they are either pre-analysed, which means that they can be further analysed, or over-analysed, which means that the analysis should have been stopped before. Let us consider an example to illustrate our 'lexical entry'. If we have the unit karee raisu (=curry and rice), we first hypothesize that it has two units karee(=curry) and raisu(=rice) perhaps simply because we recognize two forms which exist on their own. We then examine these two units in the morphological processes. The method adopted is that one of these units is replaced with other units which should make sense, while the

other unit is kept as it is. After this, the same method is applied to the other unit. This replacement is called 'commutation'. Commutation is a criterion which was successfully used by the Prague School in identifying phonemes. Thereafter, Hjelmslev and other functionalists have developed this criterion towards other systems of language. In the same way, we adopt it to our morphology as well as syntax (See syntax in Chapter 4). Here are the commutation tests for kareeraisu.

(3-1)	karee		raisu
			udon (noodle)
			tyaahan (fried rice)
			ni (boiling/stewing)
			azi (taste)

(3-2)	karee		raisu
	tikin		(chicken)
	kantorii		(country)
	guratan		(au gratin)
	*omu		

(3-1) shows that karee(=curry) can combine with udon (karee-udon = noodle with curry taste), with tyaahan (karee-tyaahan = fried-rice with curry taste), with ni (karee-ni = curry stew) and azi (karee-azi = curry flavour). (3-2) shows that raisu can combine with tikin (tikin-raisu = rice dish with chicken), with kantorii (kantorii-raisu = country-rice or American rich dish), and with guratan (guratan-raisu = gratin-rice) (but not with omu:- See the discussion below.). In

both commutation tests, the potential two units are productive in combining with other units. The lexicon recognizes these two units as lexical entries, and the unit kareeraisu(=curry and rice) is formed in the morphological component (for the criteria to determine these two units (karee(=curry) and raisu(=rice)) as morphological units, see the discussion below).

Listing karee(=curry) and raisu(=rice) as two lexical entries is more economical than listing kareeraisu(curry and rice) as one. 'Economical' means that the number of lexical entries is reasonably reduced so as to obtain the maximum combinability between entries. However, 'economical' does not necessarily mean that every unit should be subdivided simply because of the association with forms. Economy is restricted by the assumption that commutations should be valid. For example, in (3-2), omu- is not a commutable unit with karee(=curry) because omu- does not occur with any other entry. Omuraisu (=rice dish wrapped with egg paper) exists in Japanese, but omu- does not show productive commutations. In this case, the lexicon stores omuraisu as one lexical entry. This is one morpheme, and cannot be further analysed.

This kind of argument is similar to the question of whether 'cranberry' in English has one or two morphemes. One might argue that 'cranberry', 'strawberry', 'gooseberry' and 'raspberry' are kinds of 'berry', and by agreeing with Bloomfield's differential meaning, would be tempted to defend the two-morpheme analysis. Indeed, from the viewpoint of native speakers' mnemonics or their way of memorizing, they are all associative with one another. But from the viewpoint of grammar, the lexicon does not organize them as two morphemes.

`Cran-', `straw-', `goose-' and `rasp-' do not show valid commutations: `cran-' and `rasp-' do not have any synchronic meaning and cannot have productivities in combining with other units: `straw-' and `goose-', although they themselves have a certain meaning, do not contribute the meaning to constitute the whole meaning of `strawberry' and `gooseberry' respectively.

To formulate the above argument as the criteria to obtain proper lexical entries, there are three conditions which linguistic units should fulfil.

1. productivity in commutations
2. economy
3. consistency in meaning during the commutations,

the third of which is the constraint of productivity.

As the first step to obtain a lexical entry, a selected unit is examined with respect to whether it can be further analysed into smaller units. The potential complex unit `ab' (assuming that there are two units, `a' and `b' as its smaller units), is, then, scrutinized according to the above conditions. If, for instance, `a' is commutable with `x', `y', `z',... and `b' with `c', `d', `e',....

a		b			a	b
x						c
y						d
z						e
.						.
.						.
.						.

which potentially produce new units `xb', `yb', `zb',... and `ac',

`ad', `ae'..., we assume that the units `a' and `b' combine productively with others. In this respect, it is economical to store `a' and `b' as two lexical entries in the lexicon, rather than the unit `ab' itself. For, at some stage, `a' and `b' will enter the lexicon as separate entries; then, the unit `ab' as a lexical entry is redundant. The combination of `a' with `b' will then be discussed in morphology or in syntax.

However, this productivity should not permit every kind of combinability. In morphology, for instance, we deal with properly justified morphological units. The morpheme by nature is not only a matter of `form', but also of the `meaning' which is attached to `form'. Since basically `the meaning of the word will be a function of (i.e. will be uniquely determinable by) the meaning of its parts.' (Samuelsdorff 1982: p389), the meaning of a complex unit must be predictable from its parts. But it does not mean that we accept units as complex simply because there are any (historically) traceable meanings in them. The third condition, `constant meaning', should be considered.

Returning to the discussion of `strawberry', this unit might be assumed to contain two morphemes `straw-' and `-berry'. The latter unit `-berry' can produce alternations without changing the denotation of `-berry'. But `straw-' cannot have constant meaning even though some alternations are possibly operated, such as

(3-3)	straw	berry
		coloured
		flower
		board

In dealing with lexical entries, the meaning of each unit is roughly its 'denotation', or its cognitive meaning. However, to obtain the generalized definition of denotation is already extremely difficult given the complexity of the study of semantics. Nonetheless, although as a rule of thumb, by restricting the range of denotation, we may refine its definition, or at least we may know in what sense it is used. By denotation, we mean to look at the information or message of a unit which is restricted to synchronic, conventionally-fixed and communicative purposes. Individuals' associations as their mnemonic means are not considered. With these ranges of denotation, we may assume that in (3-3), although we might be able to give the denotation 'A' to 'straw-' in 'strawberry', (e.g. the shape, taste and colour which will differentiate 'strawberry' from other berries), the denotation 'A' would be unlikely to be passed on to 'straw-' in 'strawcoloured'; or synchronically, the denotation 'A' cannot coincide with the denotation of 'straw-' in 'strawcoloured'. We then conclude that during the commutations in (3-3), the meaning of 'straw-' in 'strawberry', if any, is not maintained. Therefore, due to the third condition for lexical entries, the hypothesis of two morphemes in 'strawberry' is refuted. 'Strawberry' is, with one morpheme, listed as the whole in the English lexicon.

To summarize this section, lexical entries are to be minimum meaningful units. If lexical entries are in morphology, they should show productive word formations while their meanings are maintained during the processes. Morphological processes should not be operated via association, historical or etymological backgrounds of units. If a unit does not provide a valid commutation from the viewpoint of its constant meaning and its productive combinations, then, it is not a proper lexical entry. Omuraisu (rice-dish wrapped with egg paper), for example, cannot be analysed further, and it is treated as one lexical entry. This type of unit (including 'cranberry', 'blackbird', 'blackboard' in English) is called a 'fossilized' unit. Fossilized units (whether syntactic or morphological; see the details in 3.1.2.) may worth while examining their formations - their historical, etymological or associative backgrounds -.

For the survey of formation of fossilized units, it might be possible to establish a separate component outside the lexical component (as shown in Figure 2, Chapter 2). The formation of fossilized units cannot be handled in morphology nor in syntax, but belongs outside syntactic and morphological analysis. The lexicon should recognize proper lexical entries through the three conditions mentioned above. If they are recognized as 'fossilized', they are stored as a whole in the lexicon without being further analysed, or can be sent to a separate component outside our grammar for investigation of the etymological or historical background of their formations.

3.1.2 Types of lexical entries

When proper lexical entries are selected and stored in the most convenient forms (perhaps, as Matthews (1974) explains, in abstract forms as lexemes), I classify five types of lexical entry.

1. morphological units
2. syntactic units
3. morphologically fossilized units
4. syntactically fossilized units
5. abbreviations

Let us have a look at them one by one.

1. Morphological units: These are minimum meaningful units, and cannot stand on their own. They should be sent to the morphological component to form "words" (minimum units in syntax, or ultimate constituents) with other units in order to be ready for syntax. For example, in English and Japanese, affixes are commonly morphological. In Japanese, there are also unique units which are purely morphological. So-called 'Sino-Japanese' forms are mostly categorized into this type.

Sino-Japanese forms are originally loan words from Chinese, but without any tone systems. Although the combinations of such forms no longer follow the original Chinese pattern, and although their meanings have been changed, their grammatical behaviour still differs significantly from that of native-Japanese forms. In making noun compounds, it is rare to find a mixture of Sino-Japanese with native-Japanese forms. Also, Sino-Japanese forms are in many cases combinations of bound-morphs, whereas native-Japanese forms, except

for affixes and case markers (Cf. Chapter 5), are free-morphs.

2. Syntactic units: These are simple, minimal units in syntax. They can be sent to morphology for word-formation, acting as morphological units. The result of this process is a (morphologically) complex unit, but a minimum unit in syntax, e.g. 'cat' - a simple and minimum syntactic unit, 'cats' - a complex and minimum syntactic unit.

3. Morphologically fossilized units: These consist of only one morpheme, and are not grammatically analysable. They can go directly to syntax as minimum syntactic units, or they can be sent to morphology to participate in word-formation processes. There are two types of morphologically-fossilized units.

1) creativity - This means, as Bauer(1983) explains, 'expansion of the meaning of a unit'. In this type, a unit is morphologically complex, i.e. consists of more than one morpheme, if its constituents maintain their same meanings in their alternations (= commutations) with other constituents. But once there is expansion of meaning, which is often referred to as having 'euphemistic' meaning in general, the unit is no longer capable of offering more than one constituent, and is to be regarded as morphologically fossilized. For instance, in Japanese, nakineiri is complex if its meaning is 'sleeping while crying' because this unit is the combination of two morphemes, naki ('crying') and neiri ('sleep') (neiri can be complex, too, but here we are concerned with the first level of the unit in its hierarchy, i.e. the analysis is (naki + (ne + iri)): See the morphological hierarchy in Chapter 2 and its examples in 3.3.). On the other hand, the same form is considered to be morphologically fossilized if it has the interpretation 'giving up without any efforts'. Other examples of this

type are:

araryoozi	{ complex - (rough medical treatment) fossilized - (a radical improvement)
an-un	{ complex - (black clouds) fossilized - (depressing prospect)
anpi	{ complex - (safe or not) fossilized - (how (someone) is doing)
tansaiboo	{ complex - (single cell) fossilized - (a stupid person)
susizume	{ complex - (susi-dish ^{for} take-away) fossilized - (crowded like sardines)
sinmai	{ complex - (new rice) fossilized - (a new employee)
nomikomi	{ complex - (swallow-in) fossilized - (comprehension)

2) pseudo-complex or opaque - The opaque units look 'complex', but they cannot be analyzed as such synchronically. This means there may be historical, etymological, or associative backgrounds in the formation of a unit, i.e. it might at one time have been complex, but the whole unit is now completely fixed, and is to be analysed as one morpheme. This type very often can have reference to a specific object.

e.g. hakuchoo(swan), asemo(prickly heat), aramaki(salmon),

baishun(prostitution), zyagaimo(potato), kokuban(blackboard), biidama (glass ball), kaaki-iro (bright brown), higuma (a type of bear Cf. araiguma, sirokuma, tukinowaguma - types of kuma (=bear)), handon(half a day work).

See the discussion on formations of these units in Appendix 2. Note that such formations are studied outside the lexicon (Cf. Figure 2 in Chapter 2).

There are also loan words from European languages.

- waisyatu (<-- white shirts: men's shirts in general)
- nekutai (<-- neck tie)
- kondensumiruku (<-- condensed milk)
- nekkuresu (<-- neck lace)
- kuudetaa (<-- coup d'état)
- donmai (<--don't mind)
- porosyatu (<--polo shirts: half-sleeved
buttonless collared shirts)
- masukomi (<-- mass communications)
- sirubaasiito (<-- silver seats: seats for the elderly
in trains)

Miruku(=milk) in kondensumiruku(=condensed milk) is an autonomous word, and is productive in combining with other units such as

- kona-miruku (powdered milk)
- eiwoo-miruku (extra-nutrient milk)
- miruku-nomi (milk-drinking)
- aisu-miruku (iced-milk)

But kondensu does not exist alone and cannot combine with any other units in Japanese. The same phenomenon is found in the case of syatu(=shirt) in waisyatu(=white shirt) and porosyatu(=polo shirt). Syatu can be a productive unit, but waisyatu and porosyatu are fossilized.

4. Syntactically fossilized units: These are not analysed into minimum syntactic or morphological units. Generally, they are recognized as idiomatic expressions. As a whole, this type is stored in the lexicon. In syntactic analysis, these fossilized units are left unanalyzed. They are each one lexical entry, and ultimate constituents in syntax. Of course, if, for example, asi ga deru is interpreted literally as 'Feet come out.', this is syntactically complex. There are three syntactic units, and the lexicon stores asi(=foot), ga and deru(=go out) as lexical entries. However, if this unit is interpreted as 'to go red', it is a syntactically fossilized unit. In some of the following examples, the meaning indicated by 'C' is syntactically complex and that indicated by 'F' is fossilized:

e.g. asi ga deru (C: feet come out, F: go red), asi ga tuku (C: feet reach, F: be traced), me ga nai (C: have not eyes, F: be very fond of), asi wo arau (C: wash one's feet, F: quit being a Yakuza, a Japanese gang), kooya no siro bakama (F: be nosy into other people's business), omae ore no naka (C: the relation in which omae (rude expression for 'you') and ore (rude expression for 'I') can be used in the conversation, F: a close friendship), soo wa kuwana no yakihmaguri (F: They cannot treat the matter so easily as they think.) oni no inu ma ni sentaku (C: washing clothes while the demon is away, F: do something productive while there is no disturbance.)

5. Abbreviations: These units indicate specific objects (whether concrete or abstract), and are accepted as fixed and abbreviated forms. They are considered as minimum syntactic units, ready for syntax, but can be sent to morphology as morphological units.

e.g. anpo - niti bei an zen ho shoo zyoo yaku (the Japan-US Security Treaty)

(po & ho: allomorphs)

seikyoo - sei katu kyoo doo kumi ai (Co-op)

nikkyoo so - ni hon kyoo shoku in kumi ai (Japanese Teachers' Organization)

(So & kumi: They are written as the same character)

kyoodai - Kyoo to dai gaku (Kyoto University)

tandai - tan ki dai gaku (junior college)

settin - sek kekyuu tinkoo soku do (the blood sedimentation rate)

zinken - zin zoo ken si (artificial silk)

kokutetu - koku yuu tetudoo (national railway)

The explanation of these units is shown in Appendix 2.

3.2 Word Formation in Japanese

The morphology component provides various information to enable us to reach the level of words ready for syntax. For example, word formation procedures are the most necessary information. Allomorphy is a useful information which tells us phonological changes of lexical entries during morphological processes. Also, in multi-morphological processes (more than one rule applied or one rule applied several times), there are hierarchical orders in a completed unit. As we saw in Chapter 2, hierarchical orders in morphology are a matter of occurrence dependencies, but not that of functional dependencies. Some examples from Japanese are discussed in this

chapter.

Let us begin with the morphological rules. There are four types of rule:

- (1) $a + b \longrightarrow ab$
- (2) $(a \longrightarrow a') + (b \longrightarrow b') \longrightarrow a'b'$
- (3) $(a \longrightarrow a') + b \longrightarrow a'b$
- (4) $a + (b \longrightarrow b') \longrightarrow ab'$

The symbols used above are defined as follows:

a, b - These may be originally syntactic units, acting as morphological units in the formation. Or, they may be proper morphological units, such as affixes or Sino-Japanese form units

\longrightarrow - This represents a morphological rule which shows such processes of formation as affixation and compounding.

\longrightarrow - 'a \longrightarrow a'' means that 'a' is changed into 'a' either as its stem or derived form.

x + y - combination between 'x' and 'y' in this order.

a', b', - These may be the stems of 'a' and 'b' respectively, or may be their derived forms.

The morphological rules above are the patterns of morphological processes of Japanese as underlying structures in morphology. The variables (a, a', b, b') are replaced by actual linguistic units selected from our Japanese lexicon as the realizational level. The more complex units (i.e. units consisting of more than two morphological units) are formed by repeating the same rule or by applying more than one rule. In Japanese, there is no 'infix'. There are no phenomena in which more than one suffix occurs with the stem at

the same time. Therefore, word formation rules are apparently simple formulae. We will now examine each rule in turn.

(1) The first rule

a + b → ab

represents a mere combination of two forms. There are three subtypes.

1) prefixation: 'a' is a prefix. By applying the notion 'occurrence dependency' from Chapter 2 (section 3), prefixes are all expansions, symbolized as '[']. For instance, in mu-imi(=no meaning), the prefix mu-(=no) is dependent on imi(=meaning), symbolized as '[mu-]imi'. Units occupying the position 'b' in this rule tend to stand on their own, but in the following examples, -bei(=USA), -oo(=Europe) which combine with the prefix tai-(=against) are exceptionally expansions; i.e. symbolized as '[tai][bei]' and '[tai][oo]'.

e.g.

mu- : -imi, -yoo, -ryoo, -seigen.
(non) (meaning) (use) (payment) (limit)

hu- : -seikaku, -seikoo, -gookaku.
(not) (accuracy) (success) (pass)

mi- : -siyoo, -kansei, -hattatu.
(not yet)(use) (completion) (development)

o- : -sake, -bentoo, -tenki.
(polite)(rice wine) (packed meal) (weather)

go- : -yoo, -ryokoo, -seikoo, -kenkoo.
(polite)(request) (trip) (success) (health)

tai- : -bei, -oo, -saku.
(against) (USA) (Europe) (plan)

The following examples are fossilized units and are considered as one morpheme. Although prefixes seem to be recognized, the latter half in the following examples does not exist or have any meaning on its own.

onaka (stomach), oden (boiled vegetables),

okaka (fish flakes), husigi (mystery), goten (palace),
mizou (never before), hukakai (not understandable).

There have been several surveys on negative prefixes (mu-, hu- and mi-). Nomura (1973) and Okuno (1985) investigate combinabilities of each negative prefix with other units. In particular, mu- and hu- hardly differ semantically and the attempt to classify units which can combine with mu- or hu- seems to be useful for word formation. However, their results based on a very large corpus cannot be classified grammatically, although there are some semantically-governed combination tendencies. For instance, hu- tends to be attached to units which express state, emotion or nature, whereas mu-, much less frequently, combines with such units. Mu- tends to combine with units which express action, and with abstract-meaning nouns. Okuno also points out that there are some units which combine with both mu- and hu-. Such units are examples which can express action as well as the state or nature. For instance, ai(=love), an-nai(guide or guidance), kiyoo(=being good at, technical), yoozin(=being cautious), ninsoo(=facial expression). These combine with both mu- and hu-. Mi- tends to combine with action-units, compared with mu- and hu-.

O- and go- are prefixes which express politeness. Go- combines with Sino-Japanese forms, and never with native-Japanese forms except yukkuri (=to be relaxed: goyukkuri means 'Please be relaxed.'). Whereas, O- tends to combine with native-Japanese forms, but also with some European loan words as well as some Sino-Japanese forms. There are some more examples which can follow o-.

native-Japanese forms:

hana (flower), kuruma (car), dango (dumpling),
hasi (chopsticks), keiko (lesson), yome (bride).

European-loan words:

kohii (coffee), naifu (knife), zyuusu (juice),
biiru (beer), toire (toilet), zubon (trousers).

Sino-Japanese forms:

benkyoo (study), ryoori (cooking), isya (doctor),
reizyoo (gratitude letter), syasin (photo),
syokuzi (meal).

2) suffixation - 'b' is a suffix. By applying the notion 'occurrence dependency' (Chapter 2, Section 3), suffixes are all dependent on units represented by 'a' above, i.e. a unilateral occurrence dependency as 'a[b]' in which 'b' is an expansion, although suru below is one of the very few exceptions, i.e. it stands on its own so that 'a + suru' is in the relation of mutual independency (Cf. 2.2.2).

e.g.

-suru	:	benkyoo-	kenkyuu-	genshoo-
(do)		(study)	(research)	(decrease)

-ka	:	bunmei-	zyosei-	sinpo-
(-ize)		(civilisation)	(woman)	(development)

-rasii	:	otoko-	onna-	gakusei-
(-like)		(man)	(woman)	(student)

-teki	:	kindai-	si-	kagaku-
(sort of)		(modern)	(poem)	(science)

3) compounding - For Japanese compounding, I suggest that 'a' and 'b' are on an equal level in the sense that each can appear in reverse order with other elements 'c', 'd',... i.e. the combinations 'bc' and 'da' are possible. This definition is not particularly necessary

for English compounding because English compounds are mostly combinations of two words, or precisely speaking, of two units which were originally words. Then, the forms themselves can distinguish affixation from compounding. However, in Japanese, their difference cannot be shown in only their forms since Sino-Japanese form units hardly stand on their own in syntax, i.e. they are morphological units. The only way they are judged as compounding units is by this definition. Otherwise, there would be formally no difference between affixes and compounding units. But for instance, Kageyama (1982) classifies the following units as prefixes although by the above definition, they are units for compounding.

dai (big), shoo (small), koo (high), bi (beautiful),
aku (bad), tyoo (long). (p226)

He does not give any particular reasons why these units are prefixes. We can merely guess that he classifies them as such from a semantic view. It is true that if "semantic" importance is taken into account, the unit dai kyoo (=big misfortune), for example, can be analysed as having kyoo(=misfortune) as its head, with dai(=big) as a modifier, and we may be tempted to assign the term 'prefix' to the unit shoo(=small). However, such a semantic approach is not that which our formal grammar requires. The analysis of a unit as a compounding unit, a prefix, or something else should depend on its behaviour in the environments it occurs in. Furthermore, whether semantic or grammatical, our theory does not accept the concept of the head-modifier in morphology (Cf. Chapter 2). With respect to daikyoo(=big misfortune), note that, by definition, prefixes cannot be transposed when in combination: they are 'pre-fixed'. Since dai(big) appears in both

dai - kyoo (big misfortune)

and

sei - dai (gorgeously big)

it is a compounding unit. The following are some more examples of compounding.

i-bunka (different culture), zyoo-ge (up and down),
hon-dana (bookshelf), dan-zyo (man and woman),
bei-koku (USA), yaku-nin (officer), to-ei (crossing
over to U.K.), tai-nai (body+inside=inside the body),
nihon-syu (Japanese alcohol), bai-bai (selling and
buying), syuu-huu (autumn wind), hito-kage (person's
shadow), koi-bito (love+person=lover), kage-e (shadow
(picture), sin-kyuu (new and old), sumire-iro (violet
colour), siro-kuro (white and black), yuki-yama
(snowed mountain), yuu-retu (superiority and
inferiority), zen-go (front and back).

(2) The second rule:

$$(a \rightarrow a') + (b \rightarrow b') \longrightarrow a'b'$$

which is the combination of the stem or derived forms of 'a' and 'b'.
(stems and derivations in a general sense Cf. Bauer (1983)) A hyphen
attached to a unit indicates that this unit is a stem form.

e.g. nage-sute ← (nageru → nage-) + (suteru → sute-)
(throwing away) throw abandon

huki-ageru ← (huku → huki) + (ageru → ageru)
(blowing upwards) blow up

iki-kaeri ← (iku → iki) + (kaeru → kaeri)
(going and return) go return

taka-hiku ← (takai → taka-) + (hikui → hiku-)
(high and low) high low

kui-nige ← (kuu → kui) + (nigeru → nige-)
(run-away without eat run away
paying for food)

(3) The third rule:

(a → a') + b → a'b

which is the combination of the stem or derived from of 'a' and 'b'.
This type has two sub-types.

1) inflections - Inflections are applied to verbs, adjectives and adjectival-verbs in Japanese. The last one is quite unique in Japanese, conveying adjective-type meanings with the form -da at the end of the word as its affirmative form. It has been a controversial category. Some classify this as the combination of a 'noun' plus -da the latter of which itself is equivalent to the copula in English; but others classify this as a separate category, giving the term keiyoo-doosi (=adjectival-verb). Chapter 5 discusses this problem and reaches the conclusion that keiyoodoosi is a one-morpheme unit and is syntactically no different from adjectives; the only difference is, as is shown below, its phonological changes in the inflections.

The following are examples of a verb, adjective, and adjectival-verb.

e.g.	verb	adjective	adj-verb
	'iku' (go)	'yasasii' (easy)	'kireida' (pretty)
negative	ika-nai	yasasi-kunai	kirei-danai
causative	ika-seru ika-su	-	-
intention/ suggestion	iko-o	-	-
passive	ika-reru	-	-
polite	iki-masu	yasasii-desu	kirei-desu
past	it-ta	yasasi-katta	kirei-datta
if	ike-ba	yasasi-kereba	kirei-naraba
imperative	ike	-	-
noun-attribute	iku-	yasasii-	kireina-

1 "Passive" in Japanese does not necessarily involve the rearrangement of a transitive-verb sentence, but the passive meaning (i.e. someone or something suffers an action.) is signalled by -ru/reru attached to a verb.

e.g. John-wa Mary-ni ikareta.
go+pass.+past

(John suffered Mary's going away from him.)

2 "noun-attribute" is a form modifying a nominal.

e.g. kireina hito (a pretty person)

This is the combination of the noun-attribute form of kireida and a noun in this order.

2) Derivations: Japanese derivations are the combination of a stem form and a suffix.

Nominalization: Adjectivals → Nouns

{	yasasi-i	→	yasasi-sa
	(kind)		(kindness)
	yowa-sa,	tiisa-sa,	tuyo-sa,
	(weak)	(small)	(strong)
	samu-sa,	suzusi-sa.	
	(cold)	(cool)	
{	nigiyaka-da	→	nigiyaka-sa
	(lively)		(liveliness)
	kenage-sa,	sizuke-sa,	
	(admirable)	(quiet)	
{	samu-i	→	samu-ke
	(cold)		(cold-feeling)
	nemu-ke,	haki-ke.	
	(sleep)	(vomit)	

Adjectivalization: Verbs → Adjectivals

tabe-ru	→	tabe-tai
(eat)		(desirable to eat)
nomi-tai,	aruki-tai,	sake-tai.
(drink)	(walk)	(avoid)

The form 'V + tai' above is considered as adjectivals since like other adjectivals, its inflections lack 'causative', 'suggestion', 'passive' and 'imperative' forms all of which verbs furnish (See the paradigm of inflections above).

3) Compounding: The definition of compounding has already been given in 3.2.1. The examples below contain stems of verbs on the left side of each unit.

(naku → naki) + koe → nakigoe
cry voice (crying voice)

(koe, goe: allomorphs of /KOE/)

(nagai → naga) + hanasi → nagabanasi
long talk (long talk)

(hanasi, banasi: allomorphs of /HANASI/)

(takai → taka) + sio → takasio
high sea (high sea=high wave)

(kuwaeru → kuwae) + tabako → kuwaetabako
hold in mouth cigarette (holding a cigarette
in the mouth)

(warui → waru) + kuti → warukuti
bad mouth=talk (speaking ill of someone)

(asai → asa) + tie → asazie
shallow wisdom shallow idea

(tie, zie: allomorphs of /TIE/)

(tazuneru → tazune) + hito → tazunebito
seek person (person seeked)

(hito, bito: allomorphs of /HITO/)

(sukuu → sukui) + nusi → sukuinusi
save the person (saver)
concerned

(warau → warai) + kao → waraigao
laugh face laughing face

(kao, gao: allomorphs of /KAO/)

(morau → morai) + mono → moraimono
given thing (gift)

(naku → naki) + kao → nakigao
cry face crying face

(4) The fourth morphological rule is:

a + (b → b') → ab'

which represents the combination of a simple form and a stem or derived form of a unit in this order. Japanese does not have ^{so} many examples of this type. _{as those of the other rules} In the following, (b') is all a derived form of (b).

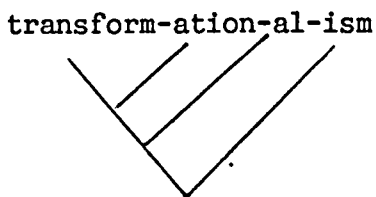
e.g.				
ame	+	(huru → huri)	→	amehuri
rain		fall		(rainfalling)
riku	+	(tuzuku → tuzuki)	→	rikutuzuki
land		continue		(land continuing)
miya	+	(mairu → mairi)	→	miyamairi
shrine		visit		(shrine visiting)
ame	+	(yadoru → yadori)	→	amayadori
rain		shelter		(rain sheltering)
				(ame, ama: allomorphs of /AME/)
sio	+	(yakeru → yake)	→	sioyake
sea		burn		(sea-burn)

3.3 Hierarchical Orders in Morphology

In 3.2, we have seen morphological processes, each of which involves two units. The morphologically-complex unit 'ab' can go into one of the four rules mentioned in 3.2, and we may obtain multi-complex units. At this stage, the hierarchy of combinabilities has to be taken into consideration. Up to the level of the two-morpheme combination, hierarchy in morphology is not relevant. Both 'a' and 'b' are treated as the same level in every morphological process. As was indicated in Chapter 2, this is a fundamental difference from syntactic combinations. Because syntax deals with the functional aspect of the whole unit concerned in a larger structure, one of the two units in syntactic formation should be a functor, i.e. it is the head of the whole constituent. For instance, if watasi wa (myself + case marker) is our concern, watasi is dependent on wa because wa is functional and determines the distribution of the whole constituent. (See the detailed discussion in Chapter 4.)

In contrast, morphology is concerned only with occurrence dependencies, and functional dependency does not exist in morphology because the resultant of combinations, i.e. 'ab', is always the maximum in morphology which is ready for syntax (provided of course, 'ab' is not subject to further morphological processes). Neither 'a' nor 'b' determines the distribution of the unit 'ab'; the position for 'ab' in a larger structure is a matter of a syntactic arrangement, not that of a morphological one. Therefore, in the combination of 'ab', there is no grammatical hierarchy between 'a' and 'b'. We also made clear in Chapter 2 that there is no head in morphology as the result of the argument above. But there is morphologically significant hierarchy when multi-combinations are involved.

Although this hierarchy is again different from a syntactic one (syntactic hierarchy is the result of functional dependency), one has to consider occurrence hierarchy when one assumes that there are more than two morphological units in a structure. A good example of occurrence hierarchy is shown here, cited from Chapter 1 and further discussed in Chapter 2.



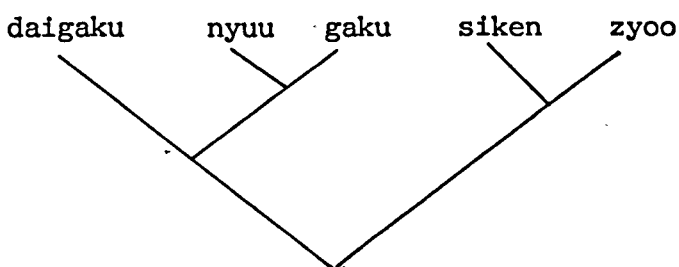
This shows that as far as occurrence dependency is concerned, -ation is higher than -al and -ism, and -al is higher than -ism. Here, in morphology, 'higher' means that if one unit is closer to the stem than another, and it is naturally the first that occurs with the stem, then, the former unit is on a higher level than the latter. This is

occurrence dependency. In contrast, in syntax, one unit is higher than the other when there is a head-modifier, asymmetrical or functional dependency relation between them. But there is no functional dependency between transform and -ation, transformation and -al, and transformational and -ism.

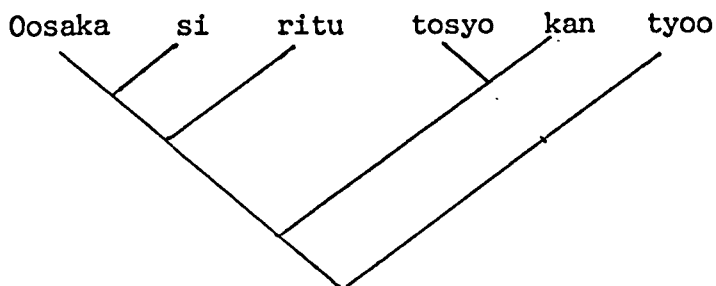
I do not deny that there may be some semantic importance in transform and some grammatical importance in the other morphemes in dealing with categorization. But this kind of association does not cover all the phenomena, as was already clarified in Chapter 2 with regard to the morphological head. Furthermore, categorization is not the property of morphology, but is originally assigned from syntactic positions in the case of English.

Here we look at some examples from Japanese. The tree diagrams are morphological hierarchy, i.e. occurrence dependencies.

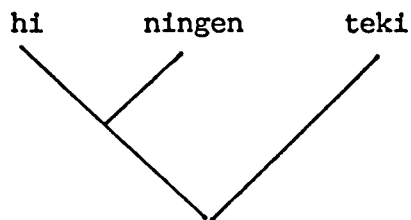
daigaku-nyuu-gaku-siken-zyoo
(university-entrance-exam-place)



Oosaka-si-ritu-tosyo-kan-tyoo
(Osaka-city-established-library-top
= the chief of Osaka city library)



hi-ningen-teki
(non-human being-like = inhuman)



3.4 Problem in Morphology

This section focuses on a problematic phenomenon with regard to word formation. There are some morphological complexes in Japanese which seem to have gone through some unique procedures to reach those forms. The following examples show that the completed form 'abx' which apparently have three forms 'a', 'b' and 'x' is not a mere linear combination, but that it seems to have been 'ax' and 'bx' before the formation of 'abx' was operated.

- (1) syutu-nyuu-koku
 out in country
 (going out of and into the country)

Cf. syukkoku(going out of the country)
 nyuukoku(entering the country)

- (2) de-iri-guti
 out in mouth
 (exit and entrance)

Cf. deguti(exit)
 iriguti(entrance)

- (3) sin-kyuu-seido
 new old constitution
 (new and old constitutions)

Cf. sinseido(new onstitution)
 kyuseido(old consitution)

(4) nai-ge-ka
 in out department
 (internal and external departments in
 the hospital)

Cf. naika(internal department)
 geka(external department)

(5) zyoo-ge-kan
 up down vol
 (two volumes)

Cf. zyookan(first volume)
 gekan(second volume)

(6) kan-dan-ryuu
 cold warm current
 (cold and warm currents)

Cf. kanryuu(cold current)
 danryuu(warm current)

(7) kan-dan-syoku
 cold warm colour
 (cold and warm colours)

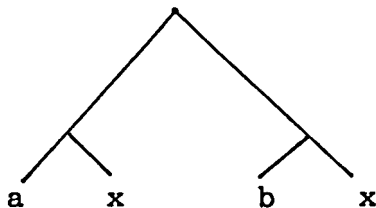
Cf. kansyoku (cold colour)
 dansyoku (warm colour)

(8) tan-tyoo-on
 short long tone
 (half and full tones in music)

cf. tanon (half tone)
 tyoon (full tone)

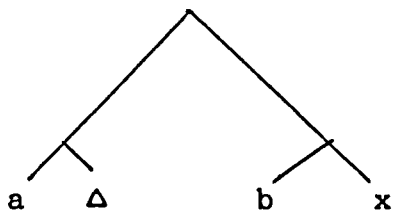
The examples above, according to Kageyama (1981), have originally the deep structure,

(3-6)

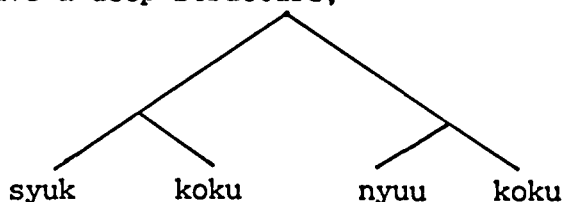


and by a transformational rule, this structure is, on the surface,

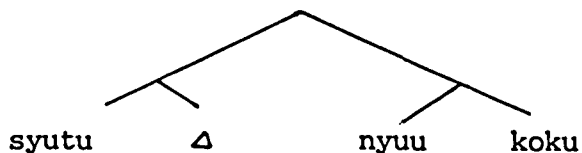
(3-7)



Because of this assumption, he considers this type as a 'dvandva' construction which is in contrast with 'lefthanded head' and 'righthanded head' structures. As the "Cf's" above show, the example (1) will have a deep structure,



and by deletion we obtain

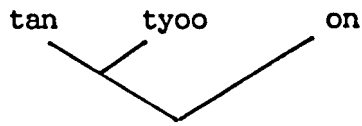


(syuk- and syutu are allomorphs)

His analysis is very fascinating. It is easy and neat in showing the structure of every unit above. In these examples, the transformation principle works well. As a non-transformationalist, however, I have to find another solution.

First, there might be an opinion that 'abx' is a simple combination; from one of the rules in the previous section, 'abx' is the result of '(a + b) + x'. Indeed, the combination 'ab' in every example above exists as a morphological complex, which is a compound, according to the definition in 3.2. But in this way of analysis, the denotation of 'a' and 'b' cannot be extracted in the same way as that from 'ax' and 'bx'. For instance, if we simply analyse the example (8) as

(3-8)



tantyoo in this combination alone has the meaning, 'short and long' and can hardly be associated with the part of the meaning of tantyooon, i.e. half (tone) and full (tone) in music. That is, if we followed the analysis (3-8), the first combination, tan-tyoo has the meaning 'short and long' because without on(=tone), this form cannot have the meaning 'half and full (tone)'. It means that having one meaning of 'ab' first, we have to confront another meaning of 'ab' when it is combined with 'x'. The meaning is not constant during the processes ('short and long' to 'full and half (tones)'). This is against one of our morphological conditions for lexical entries, and therefore, we have to deal with a specialized meaning. Then, one of our criteria for lexical entries tells us to list 'abx' as a fossilized unit.

This solution does not sound so convincing. Especially, we know on the other hand that 'ax' and 'bx' are morphological complexes, and 'a', 'b' and 'x' show productive morphological processes with other units. As Kagéyama (1981) solved this problem with a transformation, we somehow assume that there must be a grammatical relation between 'abx', and 'ax' and 'bx'.

In Chapter 2, we talked about 'underlying structure' as 'abstract representation which shows patterns of structure in each description' (the details in 2.2.4). We then saw different types of underlying structure in syntax and morphology. For example, in underlying structure in syntax, we may obtain a certain number of positions which imply relations between units in a given structure. But there are

some cases in which such positions are not occupied by actual units on the realizational level. In Japanese, it is a common phenomenon that a subject or object position is not realized, and yet in underlying structure each position exists. In general, this sort of phenomenon is considered as an ellipsis. An ellipsis should be interpreted to be the case that a certain unit is potentially recoverable perhaps by a context or an extra-linguistic phenomenon. But in syntactic analysis, we say that there is a position as underlying structure.

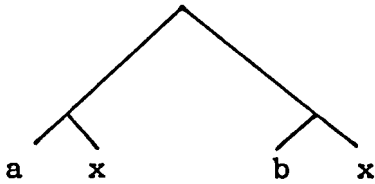
In morphology, such an elliptic phenomenon is rare. Nevertheless, underlying structure exists in morphology as well as in syntax. As far as underlying structure is an abstracted formula, every morphological process we have seen as a systematic statement is underlying structure. Word formation rules are one of such structures, and on the realizational level, this chapter has illustrated various Japanese examples.

Now, we apply the notion of underlying structure in morphology to the analysis of the examples (1) - (8) above. Assuming that there is a morphological process,

$$(3-9) \quad (a + x \longrightarrow ax) + (b + x \longrightarrow bx) \longrightarrow axbx$$

which is on this stage underlying structure, the hierarchy is the same as Kageyama's.

(3-10)



But, we hypothesize that on the realizational level, this structure occurs as 'abx' in which the first 'x' is not realized. This is not a deletion-matter which is used in TG. This means that the morphological process (3-9), which is multi-use of the word formation rule 1, results in the form 'axbx', and this whole process and result is an underlying structure as one of the patterns in Japanese morphology. On the other hand, the form 'abx' as a representation of the examples (1) - (8) above is already a realized form. That is, the underlying structure (3-10) is not realized exactly as it is. If the morphological structure of 'abx' is required, (3-10) is presented as its underlying structure. Therefore, the examples (1) - (8) are all on the realizational level, which is plausible since we use them in linguistic phenomena. Materially, this assumption is also adequate. We do not have to ignore somehow-related units 'ax' and 'bx'. Also we do not have to create another morphological process; (3-9) is merely the two applications of the first rule in the previous section. Semantically, this analysis remains unproblematic. The meaning does not have to be specialized to reach 'abx'.

Chapter 4 SYNTAX IN JAPANESE

In this chapter, I apply the notions discussed in Chapter 2 to some fragments of the Japanese language. The first section focuses on how syntactic analysis is presented, and how relations obtained are labelled. The analysis of the potential ultimate constituents, i.e. minimum units in syntax leads to an investigation of case markers in Japanese which will be considered as syntactic units. The analyses in this section do not cover all the phenomena of Japanese, but it is assumed that the methods allow further analysis of the language.

The second section deals with some phenomena unique to Japanese. The functions of wa and ga are examined, which presents some unique constructions which are hardly found in European languages.

4.1 Syntactic Analysis

4.1.1 Immediate constituents and labels

When a given structure is to be syntactically analyzed, the first step is to classify the units in that structure into the same distributional classes which are called immediate constituents (IC's) on the first level of analysis. Here, 'levels of analysis' means that by classifying units with distribution, we obtain hierarchical orders in structure. Since a complex structure is not a mere linear sequence of units, but contains structural hierarchies, syntactic analysis

involves 'levels' of hierarchy. The term 'distributional classes' is used in the same sense as Harris'. Suppose we have a structure,

(4-1) Watasi wa akai kutu wo katta.
I red shoe but past

(I bought red shoes.)

The first level of analysis isolates three possible units, watasi wa(=I), akai kutu wo(=red shoes), and katta(=bought), i.e. there are three immediate constituents. An alternative would be to have only two; watasi wa(=I) and the rest, as traditional American Structuralism practiced. This is simply because akai...katta can be replaced by a simple verb such as hassita (= ran). In this method, subjects are placed on a higher level than objects. The latter are integrated into VPs. ('Subjects' and 'objects' will be fully discussed later, but at the moment in a general sense).

I suggest, however, the former type of analysis (i.e. three constituents in (4-1)), at least in the Japanese language. There are two reasons. One arises from the view in general which can be applied to many other languages, that is, the matter of whether or not a predicate (predicates in Japanese are verbs and adjectivals) requires that an object is related to argument structure. Intransitive verbs in English, for instance, suggest one pattern of argument structure, and transitive verbs suggest another. Classifying verbs in English according to argument structures eventually establishes the patterns of syntactic structures of English. In the case of Japanese, subjects, objects and complements are all optional in occurrences. (The labels are discussed later in this section.) There is no constituent (except for predicates) that is obligatory. Predicates

Footnote of P122

As to popular examples of 'pivot' in English such as

John wants to go.

John seems to go.

Japanese equivalents cannot be discussed for 'pivot' since iki-tai (=want to go) and iku-rasii (=seem to go) will be judged as morphologically complex units or complex-verbs. However, in the example,

John wa ikukoto wo yakusokusita.
going promise past (John promised to go.)

there is, if we turn our attention to TG, Equi-NP deletion of the subject of ikukoto (=going); John is the pivot here.

can stand on their own without any complementary units. But as far as possibilities of argument structure are concerned, some predicates can take objects and others cannot. The former case is equivalent to the verb 'eat' in English. 'Eat' is one of the verbs that may take an object, but this is not obligatory: e.g. 'He eats.' vs. 'He eats soup.' Then, Japanese predicates can also imply patterns of structure, and they will be classified according to their types of argument structures. In this respect, taking 'objects' to be as primary a consideration as 'subjects' seems to be reasonable since argument structure of a predicate is an important consideration to establish systematic patterns of syntactic structures.

Another reason is that as far as Japanese is concerned, there is no grammatical characteristic that would possibly justify assigning a more important status to subjects than to objects. There is no agreement between 'subjects' and 'predicates', no morphological arrangement that suggests subjects prior to objects, and no pivot type that enables the subject to govern the structure (Foley and Van Valin 1984: p110). For instance, in 'He is eager to please.', the subject 'he' governs the structure 'to please' as well as 'is eager'; the whole structure is constructed around the subject. Let us now consider some examples from Japanese concerning the pivot. ^(footnote) Suppose we have the structure (4-2)

(4-2) John ga mada yattekonainode,
 yet come not since

okureteirundaroo to omotta.
 late being assumption thought

(Since John had not come yet, (we) thought
 (the train) had been delayed.)

In this structure, only one unit 'John' is recognized as the agent. In the case of English, ^{(if (4-2) is translated literally)} 'John' is supposed to govern the whole structure; it is the subject of all the predicates ('come', 'be delayed' and 'thought'). However, in Japanese 'John' participates in the subject role only in the structure 'John ga...node' (=since John had not come yet); it does not govern the whole structure. What is delayed (=okureteriru) is not John, but the vehicle which John is assumed to get on (such as a train), and who thinks about the delay (=to omotta) is not John, either, but someone who is waiting for him to come (such as 'I' or 'we'). Of course, we need to have contexts from which we understand what vehicle John gets on and who thinks of John's delay. But native speakers' judgement that at least John is not responsible for the actions, 'delay' and 'thought' has nothing to do with contexts, but to do with grammatical structures. Contexts or extra-linguistic phenomena are involved only when we want our subject positions to be realized, i.e. by contexts, subjects are recoverable. Grammatically, subjects of 'delay' and 'thought' exist in underlying structure, and they can never be filled by 'John' since the structure is interpreted as 'Someone thought the vehicle was delayed since John had not come yet.' In this example, the subject on the top does not necessarily govern the whole structure; the structure is not built around the central item, 'subject'.

Another example is that the same unit plays the role of a subject and of an object at the same time in a given structure.

(4-3) John wa Mary ga sodatetanode,
bring up since

gyoogi no yoi ko da.
manner of good child be

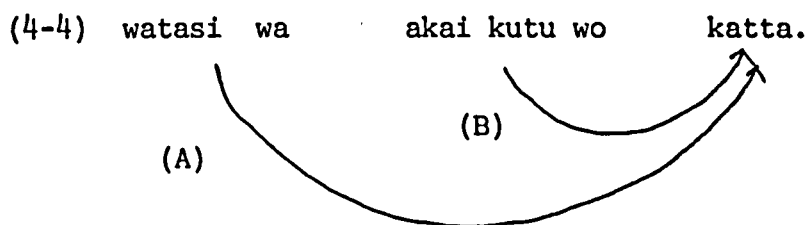
(Because Mary brought up John,
he is a well-mannered boy.)

In (4-3), John wa is the object of sodateta(=brought up), and the subject of gyoogi...da(=be a well-mannered boy). In other words, while John wa is the subject of the main clause John wa...yoiko da (=John is a well-mannered boy), it cannot govern as the subject the subordinating clause (Mary...node = Mary brought (him) up). In the latter clause, Mary ga is the subject and John wa is the object. These two examples above occur quite commonly in Japanese. In building structures, Japanese subjects are not constant pivots.

Furthermore, in English, subjects cannot be elliptic in a structure. But in Japanese, subjects are merely one of the modifiers of predicates, and as was mentioned above, every modifier in Japanese is optional. While there are reasons why English subjects must be given a higher level than objects, Japanese subjects and objects are grammatically related to predicates in the same way. It is, therefore, reasonable that the first analysis of (4-1) should obtain three immediate constituents.

Now, we have three IC's on the highest level of analysis. Applying dependency theory, we see that predicates control argument structure. That is, predicates determine the number of arguments, and must accordingly be treated as heads. The head, as defined in Chapter 2, is the unit which determines the distribution of the whole constituent in which it is contained. Unless a given structure is a coordinating or subordinating structure, predicates position heads in

structure. (In a subordinating clause, for example, a conjunction is the head since it is a functor, but on a lower level of analysis, a predicate is the head provided the clause is a basic sentence: See 'basic sentence' in 4.2.3.) Watasi wa(=I) and akai kutu wo(=red shoes) are both dependent on katta(=bought), as shown in (4-4).



The arrow in 'a → b' means that 'a' is dependent on (or subordinated to) 'b'; 'b' is the head, and 'a' is a modifier. This presentation of a dependency relation is a direct application of the notion 'subordination' from the theory. On this point, the relations of subordination, (A) and (B), have no difference in functional terms. They are both ⁱⁿ the same asymmetrical relation to the predicate katta(bought).

Our description, however, should not stop here. If there are any significant differences between (A) and (B), we must investigate them to establish descriptive statements. Here, we take a closer look at the relations (A) and (B), and if there are different aspects between them, they will be given different labels.

Here, we operate alternations of the units wa and wo with other case markers. Case markers are examined because watasi(myself) and akai kutu(red shoes) themselves carry no inherent marker of their status as 'subject', 'object' or anything else. They are merely a noun and a noun complex. Since there are no grammatical

characteristics in these units to differentiate them, we first assume that the case markers may show different grammatical behaviours. Here, we provisionally establish the criterion that alternations of these case markers with others may reach such different aspects.

Alternations should be made one by one, not at random with more than one alternation at the same time. Alternations should not change the grammatical structure of (4-4), i.e. the three immediate constituents with the subordinations, (A) and (B). This means that throughout the operation, the constituents should remain within the same distributional classes. And finally, alternations should not produce ungrammatical structures. Such properly conducted alternations are called 'valid commutations'.

Bearing in mind the conditions of commutations, we now operate them on the case markers in (4-4).

(4-5) watasi wa akai kutu wo katta.

(4-6) wa wa

(4-7) ga wo

(4-8) ga wa

Translations

(4-5) I bought red shoes (statement).

(4-6) I bought red shoes, but did not buy any other.

(4-7) I (not another person) bought red shoes.

(4-8) I (not another) bought red shoes, but did not buy any other.

Because meaning is taken into account to the extent that in (4-5), the agent is 'I' and the patient is 'red shoes', commutations are not

operated to change the agent-patient roles such as,

(4-9) *watasi wo akai kutu ga katta.

(Me, red shoes bought.)

Although this is nonsensical in normal life, the structure is perfectly grammatical. Our concern, however, is that this structure is not considered as one of the resultants of the commutation tests on (4-3). We say that by alternations, ~~argument~~ structure is changed, i.e. (4-9) is a different structure from (4-5).

Now, we obtain the result that in the relation (A), case markers can offer valid commutations between wa and ga, and in (B), between wo and wa. We conclude that the relations (A) and (B) can be differentiated only by the behaviour of case markers attached to each nominal. We then call the relation (A) 'a subject relation' and (B) 'an object relation'. Labelling such terms is purely language specific, no matter what similarities there are between languages. As we have seen, Japanese subject and object imply both syntactic relations and the case markers which each can take. This statement remains purely within the description of Japanese. Also labelling is entirely a free enterprise, but of course, the use of the traditional labels 'subject' and 'object' may lead one to expect similarities between Japanese and other languages. Nevertheless, this does not mean that a Japanese subject, for instance, is equated with an English one, nor with an Agent. The Japanese subject is labelled to the unit which is in the relation (A) as a subordinating unit, and which can furnish the commutations between wa and ga. Labels are, therefore, resultants of syntactic relations and criteria, and such names are given for a convenient use in our description, because they can

systematically imply those grammatical behaviours which we have examined in the above. The details of case markers are discussed later. We now go on to further analysis.

4.1.2 Case markers as syntactic units

After the first analysis, we have the three constituents watasi wa(=I), akai kutu wo(=red shoes) and katta(=bought). Further analysis applies to each of these constituents, until we obtain the ultimate constituents, i.e. syntactically minimum units.

First, we examine watasi wa(=I). We start with the assumption that this constituent has two units, watasi(=myself) and wa, perhaps because we recognize two meaningful forms. Whether they are morphological or syntactic is considered at the next stage. At this stage, in order to clarify the assumption, what is important is to show explicitly that there are two units in the constituent. We apply the commutation test to each unit.

(4-10)

watasi	wa	watasi	wa
	ga	kare	(himself)
	wo	anata	(you)
	ni	John	
	no	Mary	
	.	.	
	.	.	
	.	.	

(4-10) shows that each unit can commute with other units while each

maintains its denotational meaning during the commutations. Also, each unit can have productive combinations with others. Here, we conclude that there are two units in watasi wa(=I).

The next stage is to know whether these two units are syntactic or morphological. Since we have already recognized two units, i.e. watasi wa(=I) is not fossilized, we can assume that if they are not syntactic, they are morphological. It is a fact that in the combination of units, 'ab', either both 'a' and 'b' are syntactic, or both are morphological. There is no example demonstrating that the one is morphological and the other syntactic. Morphological units mean that they are capable of being in a morphological relation to others, and syntactic units mean that they show syntactic relations. Then, there can never be a case that two units are different types of grammatical unit while they are in a certain relation (or in combination). 'Played' in English, for example, shows a morphological relation between 'play' and '-ed'. Of course, 'play' may construct a syntactic relation with other units such as in 'I will play the piano.', but in this context, it is a syntactic unit. In the context 'played', 'play' takes a morphological role because its combinality is in occurrence dependency (See Chapter 2 for the details.). In this context, both 'play' and '-ed' are in a morphological relation, and, therefore, they both are morphological units. Note that 'morphological' and 'syntactic' mean 'grammatically functional' in the systems of morphology and syntax, respectively.

Let us now consider the following commutations.

(4-11)

watasi		wa
watasi no otoosan		(my father)
kawaii ningyoo		(pretty doll)
.		
.		
.		

(4-11) shows that watasi can commute with syntactically complex units. By this test, we conclude that watasi is grammatically equivalent to those altered units, i.e. watasi is syntactic. Or, we can say that watasi is potentially capable of expanding to a syntactic complex. However, we have no example showing that a morphological unit can show valid commutations with syntactic units. We saw the violation of commutation in Chapter 1 (Section 4), and we have a notion on the nature of morphology in Chapter 2 that morphological relations are bound and binary. We can also conclude that the fact that watasi(myself) is syntactic, ipso facto, makes the other unit wa syntactic, as only syntactic units can enter into a relation with syntactic units. Hereby, watasi wa(=I) is further analyzed into watasi and wa which are both syntactic units. They are also ultimate constituents because they cannot be split into smaller meaningful parts of either unit. In the same way, case markers in general are treated as syntactic units. Without referring to the above test, I take it for granted that they are syntactic.

Now, we investigate the relation between watasi and wa. Because wa determines the distribution of the whole constituent watasi wa, wa is the head and watasi is a modifier. In other words, wa is the functor that determines the relation between the whole constituent and

This analysis is in a sense the combination of dependency with constituency. (4-15) is an example of one of the patterns in Japanese which, by the nature of the predicate kau (to buy; a basic form of katta), requires (though as possibility, i.e. occurrence is optional) two arguments, a subject and an object. Classification of types of predicate is discussed in Obana (1984). We shall not repeat this classification here.

The analysis of (4-1), emphasizes the point that, unlike the morphological combinations shown in Chapter 3, syntactic combinations are investigated via 'functional' relations of units rather than 'occurrence' relations. Although occurrence dependencies are also considered in syntax (e.g. a subject and an object are optional in Japanese), they do not directly affect syntactic relations, since occurrence in syntax is a matter of realization.

Constituency or hierarchy in syntax is also related to functional dependency rather than occurrence dependency which is morphological hierarchy. As we discussed in Chapter 2, the head-modifier matter, i.e. asymmetrical relation, is only the property of syntax which is the result of functional dependency.

The next section discusses some examples of case markers and labels in Japanese.

4.2 Grammatical Functions of wa and ga

4.2.1 Ga is nominative and locative.

In the previous sub-section, we have seen an example of syntactic analysis, according ^{to} our theory. The analysis of (4-1) demonstrated that commutation tests and dependency relations will lead us to labels such as 'subject' and 'object'. For example, if there is a dependency relation between a unit and a predicate, or more precisely, a relation such that the former is subordinated to the latter, and at the same time, if the former shows valid commutations of wa with ga, then such a relation is called a 'subject' relation. On the other hand, the same dependency relation will be labelled as an 'object' relation if the subordinating unit shows commutations between wa and wo.

For convenience, wo will be labelled 'accusative' and ga, nominative. Wa, as will be shown more clearly later, is grammatically equivalent to most cases. Or, more precisely, this marker does not specify any cases. Because this marker can commute with most of the other case markers, it is almost impossible to classify this as one of the cases, whereas other case markers can be classified thus:

- (4-16) wo = accusative
ni = locative, dative or ablative
de = instrumental or locative
to = comitative
ga = nominative or locative

Wa in contrast can be replaced with all these markers (except to: it becomes towa).

Matusita (1938) and Mikami (1960, 1972a, b) suggest that wa should be a topic or thematic case (=daimoku-kaku) as one of the cases which include accusative and nominative, etc.. Indeed, as the examples below indicate, the unit with wa means 'as far as something or someone is concerned', which is a topic in the relevant utterance. But, this naming is not based on the grammatical function of wa, but on its semantic interpretation. Because wa can occur with almost all nominals, no matter what dependency relations they have with other units, naming it as 'topic' is not correct to show our grammatical role of this marker. The term 'topic' does not imply the functional relation of the unit with wa; simply, it is a semantic meaning. We have to clarify what grammatical function wa has in each utterance. Wa in fact is more important in semantic interpretation, which is further discussed in 4.2.3. In this sub-section, we mainly investigate the nature of ga.

Consider the following examples. Some of them are taken from Kuno (1972, 1973a) and the others are my own. To avoid the influence of English translations, I give my own translations which, though odd, are closer to the Japanese interpretations.

(4-17) John wa nihongo ga dekiru.
 Japanese can

(Talking of John, Japanese is possible (for him to speak).)

(4-18) Kimi wa nihongo ga wakaru ka?
 you Japanese understand question

(Talking of you, is Japanese understandable (to you)?)

(4-19) Taroo wa zitensha ga iru.
 bicycle necessary

(Talking of Taroo, a bicycle is necessary (for him).)

(4-20) Watasi wa terebi ga aru.
I TV set be/exist

(There is a TV set at my (hand).)

(4-21) Watasi no ie wa terebi ga aru.
my house

(There is a TV set in my house.)

Kuno, as a transformationalist, analyzes (4-17) as having a subject, John wa, and an object, nihongo ga. In his deep structure, the underlying structure of (4-17) is :

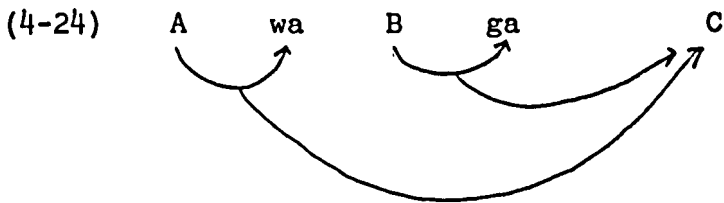
(4-22) John ga nihongo ga dekiru.

(4-17) is a topicalized form on the surface. Shibatani (1977) on the other claims that (4-23) is the deep structure, although he also considers John wa as a subject and nihongo ga as an object.

(4-23) John ni nihongo ga dekiru.

The reasons for each analysis are not our concern here. It is more important that we must realize different commutations of markers between (4-17) and (4-1), which in our analysis should be carefully considered.

The dependency relations in (4-17) - (4-21) are shown as:



(A = the first nominal, B = the second nominal,
C = predicate)

This is the same as the analysis of (4-1) (shown in (4-15)). However, the commutation tests on (4-17) - (4-21) yield different results from those of (4-1).

(4-25)

A	wa	B	ga	C
	wa		wa	
	ni		wa	
	ni		ga	
	ga		ga	

(4-25) shows that while wa in A wa is maintained, ga in B ga can commute with wa, and that while ga in B ga is maintained, wa in A wa can commute with ni and ga, and also that when ni occurs with A, wa can occur with B. When we analyzed (4-1), we hypothesized that a subordinating unit to a predicate with commutations between wa and ga will be labelled as a 'subject'. In (4-25), B-ga shows exactly the same behaviour. Let us then assume that B-ga is a subject. In semantic interpretation, B-ga as a subject is not far away from reality, either. Without A-wa, B-ga C stands perfectly in a relation between an agent and an action (or existence). For example, without A wa, (4-17) means 'Japanese is possible.', and (4-18) means 'Japanese is understandable.', etc..

A-wa, on the other hand, although its dependency relation to C is the same as B-ga, has the commutable markers, wa, ga and ni. Ni is a locative, dative or ablative case marker. For locative, ni is used in:

(4-26) kooen ni (in the park)

(ni here commutes with de (=at))

For dative, it is used in:

(4-27) kare ni yaru
himself to/for give

(to give something to him)

For ablative, ni is used in:

(4-28) kare ni kariru
borrow

(to borrow something from him)

(ni here commutes with kara (=from))

Since dative and ablative ni do not allow commutations with ga, ni in (4-25) is locative. Locative ni can commute with ga. For clear understanding, let us look at the following examples in which ni as a locative can be altered by ga.

(4-29) Taroo wa jitensha ni noreruyooni natta.
bicycle ride can come to past

(4-29)' Taroo wa jitensha ga noreruyooni natta.

(Taroo has come to be able to ride on a bicycle.)

(4-30) Watasi no gakkoo ni mazu taikukan ga hituyooda.
my school first gym. necessary

(4-30)' Watasi no gakkoo ga mazu taikukan ga hituyooda.

(First of all, a gymnasium is necessary in my school.)

(4-31) Tanaka-san ti ni kodomo ga dekita.
home child was born

(4-31)' Tanaka-san ti ga kodomo ga dekita.

(A baby was born in Tanaka's place.)

(4-32) Subeteno ie ni terebi ga toritukerareta.
every house TV set be supplied past

(4-32)' Subeteno ie ga terebi ga toritukerareta.

(A TV set was supplied in every house.)

We have seen a subordinating unit (to a predicate) which can contain case markers wa, ni and ga. Consequently, we assume that A-wa cannot be labelled as a subject or an object. A subject is assumed to have commutable case markers, wa and ga, and an object to have Accusative wo in the commutation. A-wa is not an adjunct, either, since it is directly related to C; the predicate requires A-wa as one of its arguments although this is not obligatory in Japanese. Here, we provide a new label 'complement'. This term is introduced for the positions which are directly subordinated to the predicate position except for the subject and object positions. There may be some different complements, and as one of them, we label A-wa as a locative complement. (Dative and ablative complements are others.)

In our analysis, because dependency relations from the theory show only subordinations between units and a predicate, to reach labels such as a subject or object, case markers are taken as indicating the subject or object status of the constituents. We have then understood that the difference between such labels is obtained by what case markers are commutable in a given structure. Commutation

tests are, therefore, our criteria to differentiate between labels.

Kuno (1972, 1973a, b), Shibatani (1977) and their followers (such as Farmer (1985)) have agreed that A-wa in the above examples is a subject and B-ga is an object. Kuno (1973a,b) and Farmer (1985) say that subjects with ni and ga occur with stative verbs, and they refer to the feature, [+stative]. 'Stative' is used for verbs with meanings of hope, desire, ability, understanding, seeing, hearing, possessions (Kuno 1973b: 51). (This feature is assumed to be equated with that of English, but in Japanese most stative verbs can have a progressive form.) So, they have a rule that a stative verb can have a subject with the case markers, ni and ga. First, we cannot accept the feature [+stative] because a criterion for stative verbs is not mentioned, but only by meanings stated above. Secondly, and more importantly, their rule is not applicable to every stative verb in Japanese (provided we assume that there exist 'stative' verbs in line with intransitive and transitive verbs, i.e. by grammatical classification). For example, the following cannot have the structure 'A ni B ga C.': sukida, (=fond of), hosii (=be desirable), nomitai (=want to drink), etc.. (These units are stative according to Kuno (1973a,b) in other analyses.) As Kuno (1973b) says that only some of stative verbs which occur in the structure 'A ga B ga C' can have the structure 'A ni B ga C', the feature [+stative] is not sufficient to allow A-ni to be considered as a subject. Moreover, by what criterion is A-ni to be considered as a subject? It seems, then, that since B-ga was regarded as an exceptional object by equating it with the English translation, A-ga cannot help playing the role of 'subject' which is believed to be inherent in a main clause. The view that A-ga is a subject leads to A-ni having the status of subject, which Kuno calls the ga => ni

conversion. This means that Kuno and his followers allow several exceptions for 'object', and another several for 'subject'. This is too generous for exceptions. From their analysis of ga, wa and ni, it seems as though they already decided that because the meaning is such and such, A-wa in A wa B ga C is a subject, no matter what particles appear in alternation of wa in A-wa.

Indeed, it is a logical thought ('thought', not grammatical analysis) that in (4-20), 'Watasi wa terebi ga aru' (= There is a TV set at my (hand)), the person who possesses a TV set (though aru does not mean 'possess' or 'have') is watasi (=myself), and that watasi wa may be a logical subject. But apart from the difference between 'mankind' and 'house', which is a semantic difference, there is no difference between (4-20) and (4-21) (Watasi no ie wa terebi ga aru. = There is a TV set in my house.) as to the syntactic relations. Whether a TV set is there at hand as a person's belonging, or in the house, grammatical relations do not differentiate between the two structures. Note that we are concerned with establishing a Japanese subject from the description of Japanese alone, not from translations in English.

Although semantic considerations are involved in grammatical analysis, this is only valid until or unless the discrepancy between semantics and grammar (= syntax and morphology) is found, because grammatical analysis does not always show a one-to-one correspondence to semantic analysis. The status of subject or object can be assigned only on the basis of good grammatical evidence. As has been shown above, therefore, it seems to be most appropriate to regard A-wa as a locative complement and B-ga as a subject since we saw the constant

relations between the immediate constituents as well as the constant commutations between the particles.

4.2.2 Double subject-relations

This sub-section deals with unique phenomena in Japanese. The following are the examples.

(4-33) Zoo wa hana ga nagai.
elephant nose long

(Elephants are long-nosed.)

(4-34) Taroo wa Hanako ga sukida.
likable

(Talking of Taroo, Hanako is likable for him.)

(4-35) Taroo wa mizu ga hosii.
water desirable

(Talking of Taroo, water is desirable for him.)

(4-36) Taroo wa Hanako ga kiraida.
unlikable

(Talking of Taroo, Hanako is not likable for him.)

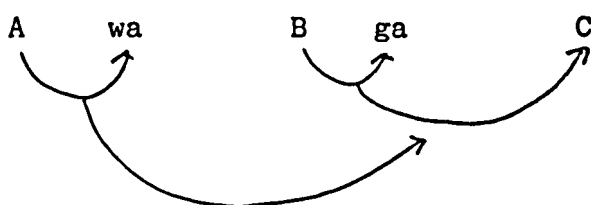
(4-37) Taroo wa me ga ookii.
eye big

(Taroo is big-eyed.)

(4-38) John wa nihongo ga umai.
Japanese good

(John is good at Japanese.)

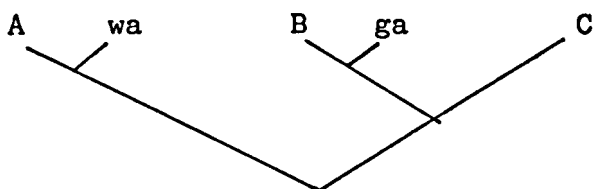
All the above are analysed as:



or

$$(A \rightarrow wa) \longrightarrow ((B \rightarrow ga) \longrightarrow C)$$

The hierarchical order is:



Their appropriate interpretation, corresponding to their structure, is 'There is a statement about A; A is (B + C), and the detail of (B + C) is that B is C.' For instance, (4-33) means that there is a statement about an elephant; it is in a certain state, namely that its nose is long.

The first level of analysis is that A wa as a subject position is subordinated to the rest (B ga C) which is a complex predicate. And on the lower level, the same subject relation is shown in (B ga) C. The commutation tests:

A	wa	B	ga	C
	wa		wa	
	ga		ga	

show that A and B have the same grammatical nature, i.e. the same case category, 'nominative'. It is not, however, that A and B are what Japanese grammarians have very often called 'double subjects',

but that A wa is in the same relation to (B ga → C) as B ga to C. If the subordination 'A wa → (B ga C)' is labelled as a subject relation, then, 'B ga → C' is labelled as such, too. A wa is the subject of the structure 'A wa B ga C', and B ga is the subject of the structure 'B ga C' on the lower level of analysis. So, we would not say that there are two subjects on the same level, but that the same subject relation appears on different levels of analysis. If a 'subject-predicate' structure can be called a 'sentence', 'A wa → (B ga C)' is a sentence S and 'B ga → C' is a nested sentence S'; i.e.

$$\left(\begin{array}{c} \text{A wa} \\ \text{S} \end{array} \longrightarrow \left(\begin{array}{c} \text{B ga} \\ \text{S'} \end{array} \longrightarrow \text{C} \right) \right)$$

This hierarchy (not 'A wa → C', but 'A wa → (B ga C)') also satisfies material adequacy. First, semantically, B ga is more closely related to C than A wa to C. For instance, in (4-31), although zoo (=elephants) is somewhat related to nagai(=long), it is hana (=nose) which is directly related to nagai. Zoo(=elephant) is more naturally related to the whole state 'hana ga nagai', which denotes the state of zoo. Second, though a minor point, in speech, a longer pause can occur between A wa and B ga than between B ga and C.

There is a generally accepted assumption among Transformationalists that zoo wa in (4-33) is topicalized from zoo no (=elephants'). This assumption, initiated by Mikami (1960, 1963, 1972a, b), apparently works well enough to explain the semantic fact that 'A' has its property or part 'B' (in (17), 'B' (=hana) is part of 'A' (=zoo)). Kuno's (1973b) subjectivization (no → ga

conversion) achieves the same goal. However, within the framework of our grammar, we neither accept the structural alternation in syntactic analysis, nor the concept of 'double structures' to explain the linguistic behaviour of one example. As mentioned in the previous section, our commutations do not allow syntactic structures to be changed. The commutation below (wa → no) is not valid because it does not operate within the same distributional class.

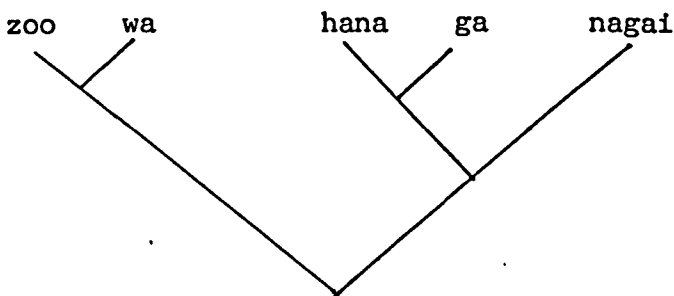
(4-39) Zoo wa hana ga nagai.
 elephant nose long

(4-39)' Zoo no hana ga nagai.
 of

(4-39) is analysed as:

(zoo → wa) → ((hana → ga) → nagai)

or

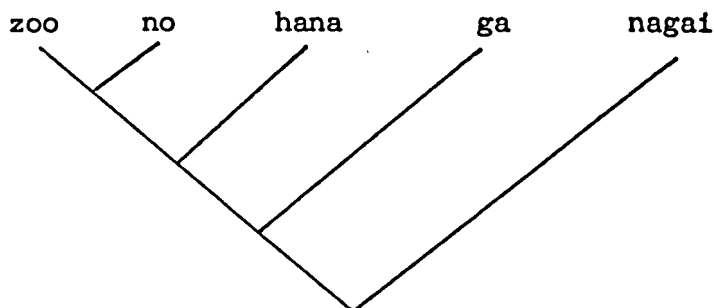


Its interpretation is 'Elephants are long-nosed.'

Whereas, (4-39)' is analyzed as:

((zoo → no) → hana) → ga) → nagai

or



Its interpretation is 'Elephants' noses are long.'

The alternation of wa to no changes the hierarchical order, and the relations are changed. (4-39)' has a simple structure, 'subject - predicate' in which the subject is the combination of a complex nominal (i.e. zoo no hana=elephants' nose) and a case marker (wa). The grammatical function of zoo no(=elephants') is different from that of zoo wa in a given structure.

Commutation tests are one of the criteria that show the nature of case markers, and this criterion never permits violation of structural hierarchy. Otherwise, the function of each unit in a given structure would be also changed.

In Kuno's analysis (1973b), (4-34), for instance, is analyzed in the same way as (4-1). That is, he admits an accusative ga for exceptional cases. He explains that in the case of some stative verbs, ga functions as an object-marker. It means that on the one hand, he admits the 'ga ⇒ ni' conversion in dealing with a subject (in the previous sub-section), and on the other, he allows ga to act as an object marker. His object markers, as he explained of the

subject markers, exactly correspond to English translations. (e.g. (4-34) is 'Taroo likes Hanako.', and (4-35) is 'Taroo wants water.')

Although he explains them with the feature [+stative], it should be noted that the definition of stative verbs is obscure. Sukida(=be fond of) in (4-34), and hosii(=desirable) in (4-35) are not verbs in Japanese (unless they are categorized via their English translations), but are adjectivals because of their different grammatical (i.e. syntactic and morphological) arrangements. (See the details in Chapter 3 for inflections, and Chapter 5 for the classification of parts of speech.)

Furthermore, Kuno's explanation of stative verbs includes 'possessiveness'. But the possessive verb motu (=have) in Japanese cannot have ga as an accusative marker. This verb always requires 'NP-wo' as its object. He also simply assumes that Japanese 'stative verbs' are equated with English ones. But because the feature [+stative] does not constitute strong evidence, we cannot help having the impression that his subject and object are equated with English ones, or are based on the English translations.

We cannot then admit so many exceptional subjects and objects, especially, since Japanese, unlike many European languages, does not furnish characteristic grammatical-arrangements on forms (i.e. no agreement, no declension on nominals, no morphological cases, etc.). In order to differentiate between labels, we have so far assumed that only the range of behaviours of case markers characterizes our subject and object. Therefore, we would hardly admit so many examples as exceptional markings.

To summarize this sub-section, there are structures in Japanese in which the same subject relation occurs on different levels of analysis. We may call this phenomenon 'double subject-relation'. In the first subject relation, a subject is related to a complex (or clausal) predicate, and in the second one, i.e. within the complex predicate, another subject is related to a predicate.

4.2.3 The nature of wa: further discussion

In this section, as a concluding remark, we summarize the nature of wa and ga, and discuss further the nature of wa.

Ga is either a locative or nominative case marker. The former leads NP-ga to one of the complement positions if and only if (1) the unit is subordinated to the predicate position, (2) ga commutes with ni and wa without altering the construction or producing ungrammatical structures. If these tests are met, the unit may safely be named 'locative complement'. The latter gives NP-ga the status of a subject if and only if (1) the unit is subordinated to the predicate position and (2) ga commutes with only wa. Semantically, as Kuno (1973b) explains, NP-ga is neutral or exhaustive listing, and indicates NP as new information in the given structure, provided this is a main clause.

On the other hand, NP-wa denotes 'topic' or 'theme', but grammatically could be any category. In the examples (4-17) - (4-21), A wa occupied the position of a locative complement because wa is equivalent to a locative marker. In (4-1) and (4-33) - (4-38), A wa was determined as occupying the subject position, subordinated to the

head, the predicate, although in (4-17), the predicate is syntactically simple, and in (4-33) - (4-38), each predicate is complex.

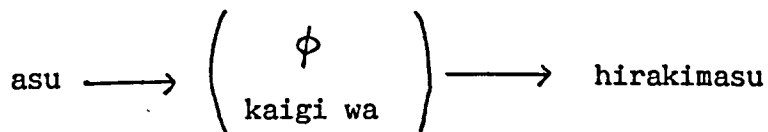
Wa can also be equivalent to an accusative marker wo which leads to an object. In the following examples, the underlined NP-wa is an object.

(4-40) Kaigi wa asu hirakimasu.
 meeting tomorrow hold polite
 ((We will) open the meeting tomorrow.)

(4-41) Taroo wa Hanako wa nagutta ga,
 hit past but
 Naomi wa naguranakatta.
 not past
 (Taroo hit Hanako, but not Naomi.)

(4-42) Yuuhan wa sitizi ni tabeyoo.
 supper seven at eat let's
 (Let's eat supper at seven o'clock.)

(4-40) for instance, is analysed as:



This is read as: asu is an adjunct and is dependent on the rest (Let us call this 'basic sentence' which contains a predicate and its arguments). The next analysis shows that in the Basic Sentence, a subject position which is not realized (symbolized as ϕ), and an

object position (occupied by kaigi wa=meeting) are both on the same level subordinated to the predicate hirakimasu(=open).

In (4-40) and (4-41), NP-wa denotes a 'theme' or 'topic', and in (4-41) the underlined NP-wa is interpreted as 'contrastive' (between Hanako and Naomi). But grammatically (or precisely, syntactically), all these NP-wa function as occupying an object position since wa commutes with an accusative marker wo and nothing else, and a dependency relation is found between this position and the predicate position.

(4-43) - (4-45) illustrate another role of wa.

(4-43) Umi wa nihonkai ga araku kurai.
sea Japan sea choppy dark

(Among seas, Japan Sea is (comparatively) choppy and dark.)

(4-44) Sake wa kamojuru ga umai.
sake tasty

(Among kinds of sake, Kamojuru (brand) is tasty.)

(4-45) Hana wa sakura, tuki wa mangetu to
flower cherry tree moon full moon quote

mukasi kara iwareteimasu.
old days since (it is) said

(It has been said since the old days that cherry blossoms are the best among flowers, and a full moon is the best among kinds of moon.)

Semantically, NP-wa as a topic, denotes 'a general suggestion' and the next NP is a selected one of the former NP. That is to say, the

latter NP (nihonkai=Japan Sea, kamozuru=brand name 'kamozuru', sakura=cherry blossom and mangetu=full moon in the above) is a hyponym of the first NP (umi=sea, sake, hana=flower and tuki=moon).

Syntactically, NP-wa is an adjunct as an expansion of the basic sentence. It is neither a subject nor a complement, because it cannot be functionally dependent on the predicate. Wa here commutes with only dewa, which denotes 'among (of all the)...'. Therefore, (4-44), for instance, is analysed as:

sake wa	→	(kamozuru	ga	→	umai)
adjunct			subject			predicate	

There is a general TG opinion that the issue of case markers cannot be solved only on the surface structure. For example, Shibatani (1977) assumes that by the rules of Reflexivization and Subject Honorification, subjecthood is determined. It is up to him to say that because these rules are applied to a certain unit, he gives the label 'subject' to such a unit. But it does not mean that Martin's ⁽¹⁹⁶²⁾ subject for the unit B ga in 'A ga B ga sukida.' has to be automatically rejected. By the example of Reflexivization,

(4-47) Watasi ga Taroo ga zibun no grupu de itiban
 I self of group in best

sukida.
 fond

(It is I who like Taroo in my own group.)

Giving the structure (4-47), Shibatani says that the reflexive unit zibun (=self) always corresponds to watasi, not Taroo so that watasi ga is a subject, not Taroo ga. This is rule of Reflexivization to

identify a subject in a structure. But I do not see any connection between finding the corresponding unit to zibun(=self) and determining the status of watasi, unless there is some constant correspondence between the two forms as in European languages (e.g. I - myself, you - yourself in English). Zibun naturally indicates watasi not because watasi is a candidate for a subject, but because the structure of (4-47) is:

(zibun no gruupu de) → ((watasi ga) → (Taroo...da))
 adjunct (Basic Sentence)

which shows that wherever zibun appears on the realizational level, zibun no gruupu de(=in my group), as an adjunct, is syntactically subordinated to the whole Basic Sentence. The identification of zibun is hardly searched from the lowest level Taroo...da, ignoring the higher level watasi ga. In other cases, zibun is identified as a pragmatic or contextual anaphor. For instance,

(4-48) Watasi ga sukina hito wa zibun no gruupu ni
 I fond person in
 iru.
 be

(The person I love is in my group.)

(4-49) Zibun no gruupu ga itiban da to omotteiru
 of best quote think
 no wa zibun dake rashii.
 only seem

(It seems to be only me (or them) who think my (their) own group is the best.)

(4-50) Kare no okaasan wa zibun ni yoku
 his mother to well
 niteita to Hanako wa hanasitekureta.

similar quote

tell (me) past

(Hanako told me that his mother was very similar to her.)

Zibun here is not identical with the subject of the given structure, but anaphorically determined in the context.

It is entirely arbitrary for a linguist to call the identification of zibun 'reflexivization', but he should know such a Japanese reflexivization cannot be compared to that of European languages. As we investigated Japanese subjects and objects, labelling a certain unit or its behaviour is entirely based on the phenomena of a particular language; labels are therefore language specific. In fact, reflexivization in Japanese does not necessarily guarantee that a unit corresponding to zibun is a subject. Moreover, the reflexivization rule cannot offer any evidence to refute safely the hypothesis that Taroo ga is a subject. When the hierarchy of analysis, or (pragmatic or syntactic) anaphora, is considered to look for the corresponding unit to zibun as shown above, the grammatical statuses of watasi ga and Taroo ga are irrelevant to the identification of zibun.

As for Subject Honorification, Kuno(1977) and Shibatani(1978) claim that there is some agreement between 'subject' and 'predicate' as to honorific expressions. Especially, Kuno says that a variety of honorific expressions emerges according to the nature of the 'subject' concerned. In other words, honorific expressions in a predicate differ according to status, age, and level of "respect", etc.. The problem is that this type of agreement is not identical with

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*

(However, if some specific predicates which contain honorific markers are selected, there is indeed a certain restriction on selecting subjects: To this extent, there is some agreement between subjects and predicates. For example, if the predicate irassyaru (=to go or come + honorific) occurs in a structure, its subject is expected to indicate somebody who is highly respected by the speaker. However, this 'restriction' cannot lead to formulating a constant grammatical agreement since basically the choice of honorific expressions is up to the speaker or depends on the degree of respect he has towards the person in topic (subject here).)

grammatical agreements in European languages, since the level of respect comes rather from a social agreement than a grammatical agreement. ^{*2} This means that basically, honorification in an utterance is determined according to social environments where the utterance appears. The choice of forms (humble to respective forms) is basically dependent on the social code. Then, naturally this type of agreement does not occur constantly as a grammatical arrangement. A different rate of respect for a subject does not necessarily correspond to a specific honorific form in a predicate. This is simply because honorific changes (for instance, the predicate taberu (=eat) is changed from humble (itadakimasu), polite (tabemasu), respectable (mesiagarimasu) to supreme respectable expressions (omesiagarini nararemasu).) are not determined by the grammatical nature of subject but determined via the social relationships between the speaker, hearer and the person in a topic. The same subject, someone A in 'Someone A eats something.', therefore, can have different expressions for eating. Or, there is even an extreme but quite an understandable case that if the speaker wants to insult his superior 'someone A', a rude expression (e.g. kuu) can be easily used. In such a case, arguments on the existence of agreement between a subject and a predicate are simply useless. Although there are regularities in honorific expressions themselves, such as patterns of auxiliary forms attached to verbs, there are not constant grammatical agreements between the subject and the predicate. Shibatani's examples are limited to a certain case which is already arranged (between the speaker and the hearer) as showing some respect on the subject. The phenomenon in his examples cannot be expanded to generalizations. In other words, Japanese honorific phenomena are

hardly equivalent to the grammatical agreement in European languages. Whether the Emperor has an action, kuu(vulgar 'eat') or omeshiagarini nararemasu(supreme 'eat'), it is not the task of a linguist to judge kuu as ungrammatical, but rather, it is the Japanese society in general to say 'no' to such a rude expression. But grammatically this expression is acceptable, and it may occur in a certain situation, for instance, that there is a brave person who intends to be rude to the Emperor or to the hearer who respects the Emperor. Contexts where utterances occur make a variety of predicate forms possible and these forms are irrelevant to what linguists call 'grammatical arrangements'. Therefore, again, the hypothesis of Subject Honorification cannot be a stable and persistent criterion to determine 'subject'. If Shibatani ever wanted in Japanese some equivalence to the nature of 'subject' of European languages, i.e. agreement, he is simply wrong. There is no constant agreement type between 'subject' and 'predicate' in Japanese.

In dealing with labels, the commutation tests are suggested because they are the most appropriate criteria to determine the status of each unit. When a unit shows a certain syntactic relation, and its certain commutations, we give a certain grammatical label to that unit as a hypothesis. The hypothesis is a statement of the description of a particular language. It is valid until and unless it is refuted. Refutation comes only when that hypothesis conflicts with the actual linguistic phenomena. Until then, the hypotheses mentioned in the previous sections persist as adequate criteria, or enough evidence for determining labels in a given structure.

Labels are not universal features. Because they are conveniently given as implying the results of the structural relations and the possible commutations within a particular language, they are language specific. Their nature cannot be associated with or assimilated to that of any other language. Accidental affinity or comparison between two languages is not concerned with determining labels in one or the other language.

In this chapter, we have seen syntactic analysis in Japanese. Since case markers play an important role in syntax, the most problematic markers wa and ga have been also focused on.

Up to now, we have looked at typical examples of morphology in Chapter 3 and of syntax in Chapter 4. As we assumed in Chapter 1, the distinction between syntax and morphology is inevitably necessary. As notions from Chapter 2 have been applied to Japanese phenomena, we have clearly noticed characteristic differences between the two systems.

However, the boundary of the two systems is still problematic because Japanese, like many other languages, also seems to have some cases which are difficult to handle in determining which system they belong to. Naturally, the next chapter deals with such problematic cases.

Chapter 5: INTERACTIONS BETWEEN SYNTAX AND MORPHOLOGY

So far in this thesis we have discussed the differences between syntax and morphology. Theoretically, we saw, in Chapter 2, their differences in 'hierarchy' (functional vs. occurrence), in 'relations' (free vs. bound relations), and as to the notion 'head' (no head in morphology). As evidence, we saw such differences in Chapter 3 and 4 by describing relevant phenomena of Japanese. In Chapter 4, we have introduced the criteria for identifying syntactic units. In general, we have been able to draw the borderline between syntax and morphology, with these criteria. But not every unit can be easily determined to be syntactic or morphological according to the notions and criteria. There are some units which are difficult to deal with. This chapter, therefore, discusses problematic phenomena in Japanese. Also, we examine in 5.1 and 5.2 what some Generative Grammarians call 'synthetic formation in morphology' which, they believe, shows the phenomena of 'interactions between syntax and morphology'.

5.1 Parallelism between Syntax and Morphology

5.1.1 Synthetic formation in morphology - Kageyama,

Roeper and Siegel, and Selkirk

Since Chomsky (1970), so-called Lexicalists, in contrast with Transformationalists, have stepped out on their own, and much morphological analysis has been carried out over the last fifteen years. A lot of hypotheses and principles have been introduced from the viewpoint of lexicalists. Aronoff (1976) says that all derivations should be in the lexicon (i.e. treated in morphology in the terms of this thesis), and Lieber (1981) claims even inflection to be in the lexicon. Traditionally, compounds were categorized into primary (or root) and synthetic (or syntactic) compounds, but Allen (1978) says that there is no fundamental difference between them. All these claims seem to support the Lexicalists' view. If their hypotheses are considered as adequate as well as appropriate, our grammatical survey will be clear-cut and easy to pursue. Morphology stands as the study of inner-structures of words, and syntax as that of higher levels of words.

However, at the same time, there have been studies on interactions between syntax and morphology, which cast doubt on the extreme lexicalist position. Kageyama (1982) assumes that in the case of Japanese, word formation cannot be dealt with only in the lexicon, and that syntactic word formation must be recognized in the theory of morphology. Syntactic or synthetic word formation in this discussion means in general that there are certain units which are apparently morphological complex, but which are believed to be formed as

derivations of syntactic formation, i.e. word formation derived from syntax. For example, as to verbal compounds, Roeper and Siegel (1978) claim the First Sister Principle that all verbal compounds are formed by incorporation of a word in first sister position of the verb. They are concerned with verbal compounds as morphological processes ^h which are derived from syntactic structures. To account for the same sort, Selkirk (1981) adopts the discipline from Lexical Functional Grammar (LFG) which Bresnan (ed. 1978) presents, using Argument structure. Although both Roeper and Siegel, and Selkirk are basically Lexicalists, they claim that there are some interactions or parallelism between syntax and morphology.

Let us look at each of these three opinions one by one. Kageyama (1982) gives some evidence from Japanese which opposes Allen's strict lexicalist position. For example, the following are, according to him, derived from their paraphrasing sentential constructions, i.e. via movement transformations.

- (5-1) kosi-kakeru (sit down)
- (5-2) tema-doru (take time)
- (5-3) sei-dasu (make efforts)
- (5-4) tabi-datu (depart for journey)
- (5-5) mono-yuu (say something)

The above, according to Kageyama, are derived from the following syntactic structures. ((A) corresponds to (A)'.)

- (5-1)' Kosi wo kakeru.(lit. hook the back on something)
- (5-2)' Tema wo toru.(lit. take one's efforts and help)
- (5-3)' Sei wo dasu.(lit. produce one's energy)
- (5-4)' Tabi ni tatu.(lit. depart for journey)

(5-5)' Mono wo iu.(lit. say things)

The reason is that nouns, once incorporated into predicates by 'movement' transformations (e.g. kosi wo into kosikakeru as (5-1)' to (5-1)), cannot show up in a sentence. For instance, in relation to (5-1), the structure (5-6) is not possible.

(5-6) *kosi wo kosi-kakeru (sit down with the back?)

(kosi = back, kakeru = hook)

On the other hand, Kageyama assumes that a compound muti-utu (=to whip) is differently formed from the examples (5-1) - (5-5). He assumes that this is lexicalized. Because muti-utu is derived from X-ni muti wo utu (=to flick a whiplash at X), where the adjunct X is marked with ni(=at) because muti wo(acc.) is the direct object. However, there is another case marking in which X is marked with wo: X wo mutiutu (=to whip X). The accusative marking here is triggered by muti-utu as a whole. From these different phenomena in building argument structure with newly-formed compounds, Kageyama established the hypothesis that syntactically derived compound verbs do not affect the argument structure of a sentence, while the lexicalization of such compounds causes a reorganization of the argument structure, resulting in a case marking different from the original. Also, Kageyama says that kosi-kake(=stool) is not the same sort as sakana-turi (=fish catching=fishing) which is the nominalization compound, because the former cannot become one of suru-compounds (in Kageyama's terminology: -suru(=do) is a suffix in this thesis), i.e. * kosi-kake-suru, whereas the latter is a candidate for suru-compounding, say, sakana-turi-suru.

His reasoning is not particularly persuasive firstly because the examples (5-1)' - (5-5)' are hardly considered as proper syntactic phrases. The lexicon (in my terminology) would judge them as 'syntactically fossilized' units, and store them as the whole. For instance, in (5-1)', kakeru(=hook) may contribute some meaning to the whole constituent, but with this meaning, if any, this unit cannot combine with any other unit as syntactic combinations. The whole structure is idiomatic, and therefore, this fossil cannot be treated in the way Kageyama shows as the evidence for a syntactic interaction. Exceptions cannot be used as strong evidence. Also, because of this 'fossilized' phenomenon, we cannot have the structure (5-6). The impossibility of making this structure has nothing to do with the matter of syntactic derivations. Simply, fossilized expressions do not have flexibility of movements, insertions or combinations with other units.

As to mutiutu (=to whip), which, according to Kageyama, is lexicalized from X ni muti wo utu(=to flick a whiplash at X), one might assume alternatively that it is derived from X wo muti de utu (=to hit X with a whip). In this case, argument structure would not be affected (i.e. X wo mutiutu) because Y de (=with Y: instrumental) cannot show up in a sentence. Following Kageyama's hypothesis above, mutiutu can be a synthetic compound. We cannot judge how this unit is derived; there is no sufficient evidence.

How about the argument of kosi-kake(=stool)? For a similar reason to the discussion on (5-1) - (5-5), the unit kosi-kake cannot be compared with sakana-turi(=fishing) the latter of which, according to Kageyama, can combine with -suru (=do) as compounding, whereas the

former, as a syntactically-derived unit, cannot combine with -suru. (Although I do not see why a unit (such as kosi-kake in Kageyama's examples) is to be judged as syntactically-derived simply because it cannot combine with suru(=do) (this is merely a suffix in this thesis, Cf. Chapter 3), let us for the sake of argument assume that this statement is Kageyama's hypothesis or criterion to look for a synthetic/lexicalized unit.) Kosi-kake is a one-morpheme unit the meaning of which is specialized as 'stool'. There may be some association between kosikake and kosi wo kakeru, but our lexicon recognizes the former as one morpheme. Kageyama's analysis of kosi-kake is a matter of its etymological survey, but not a matter of grammar. Once kosi-kake is recognized as one morpheme with the meaning 'stool', entirely incomparable with kosi wo kakeru(=sit down) in grammatical terms, there is no point of discussing whether kosi-kake can compound with suru(=do). Furthermore, as indicated above, I do not see the connection between Kageyama's evidence of suru-compounding and the judgement of whether kosikake is syntactically-derived or morphologically-formed. The affix -suru is mainly attached to units the meaning of which has an action such as benkyoo (=study), ryoori (=cooking). Then, it is quite natural that kosikake with the meaning 'stool' cannot combine with -suru, which has nothing to do with syntactic derivation.

Kageyama also gives another reason why synthetic compounding is a necessary rule in word formation. He says that the following examples are synthetic, i.e. derived from syntax, because the honorific marker o...ni naru can occur with them. The examples are from 'verb-verb' compounds classified as Class I.

- (5-7) tabe-tai (want to eat)
 (5-8) kaki-hazimeru (start to write)
 (5-9) hanasi-nikui (hard to speak)
 (5-10) tabe-reru (can eat)

with the honorific marker,

- (5-7)' o-tabe-ni-nari-tai
 (5-8)' o-kaki-ni-nari-hazimeru
 (5-9)' o-hanasi-ni-nari-nikui
 (5-10)' o-tabe-ni-nara-reru

On the other hand, verb-verb compounds which are formed into the lexicon cannot combine with the honorific marker (Class II).

Before we judge his statement, firstly, we look at the honorific marker o...ni naru with regard to its grammatical status in the lexicon. Although naru itself exists as a syntactic unit, meaning 'to become', the same form in this marker seems to be different from the former, because there is no predictable meaning in the marker as 'to become'. As a set expression, this honorific marker is presented. This will, then, be regarded as one (discontinuous) lexical entry. Although we recognize three forms, o, ni and naru, there is no commutable element in this expression while the same meaning is maintained. (Or, precisely speaking, each form, if separated, would have no semantic relation to the whole meaning of o...ni naru.)

We now consider this marker as one lexical entry. Here there is a generalized rule of formation between this unit and verbs.

(5-11) O...ni naru + V → o+V'+ni naru

where V is a verb and V' is a stem of V.

This is a very productive procedure for forming a complex verb which has two morphemes; a honorific marker and a verb stem. Then, as a next step, (5-11) can, expand to form a more complex verb by adding another morpheme. For instance,

okakini naru (to write)
↓
(5-12) okaki ni nari hazimeru (to begin to write)
(naru, nari: allomorphs of the lexical
entry /NARU/)

Here, the resultant (5-12) is the same as (5-8)'. Kageyama claims that the procedure to form (5-12) is the combination between the honorific marker and kakihazimeru(to begin to write), i.e. (5-8). Therefore, it is inevitable for him to bring in syntactic word-formation in order to explain this formation, i.e. (5-8) (5-8)', because he firstly assumed that kakihazimeru (=begin to write), for instance, combines with the marker o...ni naru, which is certainly difficult to deal with only by his lexicon. However, as we have seen with our solution, there is no evidence as to whether or not (5-12) is formed from kaki-hazimeru (=to begin writing) simply because of the form-association, but it would be a better solution to assume that (5-12) had the step (5-11), which is a repeated use of a simple morphological process. In other words, if there is any other solution that would not cause a more complex description, and that would make our description simpler by using already-hypothesized statements, then, that solution would be considered as a better statement. We would naturally stay with this

solution rather than create another descriptive statement.

Provided that we employ the (5-11) (5-12) procedure, Kageyama's classification of I and II among verbal compounds would not become a matter to be discussed since there are always some units which cannot combine with other units as a matter of accident.

In general, Kageyama's discussion on interactions is not convincing since his counter-examples, (5-1) - (5-5), are not appropriate because they are fossilized units, and the verbal complexes, (5-7) - (5-11), can be solved in another simpler way. However, he points out a good phenomenon. That is, the problem of -suru verbs. In a coordinated structure, the deletion is made on only a part of the word. This will be discussed later in this chapter.

We now turn our attention to Roeper and Siegel (1978) who suggest 'First Sister Principle' (FSP). According to them, English verbal compounds are formed by this principle, namely, that the first sister to the verb in its subcategorization is attached to the left of the verb, and at the same time, if necessary, affixation is operated. For instance,

(5-13) [make] [coffee] -----> [coffee maker]
 V N N

By following their method, we can indeed obtain a number of verbal compounds from syntactic trees. But as Bauer (1983) points out, this syntactic word formation can be presented only when a simple structure is given. 'Simple' means that we cannot use this principle on complex nominals such as 'weak coffee', 'nice and aromatic coffee' and so on. This means that although Roeper and Siegel claim correspondence

between syntactic and morphological structures, this correspondence is only partial. Moreover, it is more difficult for each compound to look for its corresponding syntactic structure. 'Coffee-maker' does not convey any other information such as 'who makes coffee', and does not mention whether it is from 'one who makes coffee'.

There are also many cases which we must rule out, in applying this principle. As Bauer exemplifies, 'London-reacher' (<-- She reached London.), 'city-inhabiter' (<-- She inhabits the city.), etc. are the ones that do not follow the principle. Also, 'a dog-fetcher' could only be a person who fetches dogs for someone and not a person who fetches a dog a bone. In the case of Japanese, if an equivalent principle to FSP is introduced, it cannot cover all the phenomena of compounds. For example, there are compounds which, if we admit 'derivation', are derived from a subject-verb combination.

- (5-14) soko-bikari <--- Soko ga hikaru.
bottom glittering (The bottom glitters.)
- (5-15) sue-hirogari <--- Sue ga hirogaru.
end expanding (The end expands.)
- (5-16) Ame-huri <--- Ame ga huru.
raining (The rain falls.)
- (5-17) yoyaku-zumi <--- Yoyaku ga sumu.
reserved (Booking is finished.)

Consequently, Roeper and Siegel's First Sister Principle is not convincing, either. The principle does not precisely grasp the correspondence between syntactic formation and compounding, and there are many examples which either are forced to be ruled out or cannot be formed by the principle.

Finally, we look at Selkirk's (1981) argument structure in morphology. As in LFG, a verb may have its arguments in syntax, Selkirk assumes that verbal compounding is based on argument structure. By 'argument', she means 'an element bearing a thematic relation such as Agent, Theme, Goal, Source, etc. to the the head'. But she is reluctant to include the subject of a structure as one of her arguments, saying, 'The SUBJ argument of a lexical item may not be satisfied in compound structure'. Also, she states that an adverb should be impossible in the lefthand position of a verbal compound noun. Apparently, as she states an open-ended list of arguments (by using 'etc. '), Selkirk allows any kind of argument, whether obligatory or optional, to form verbal compounds, except for SUBJ and Adv. However, as Botha (1984) gives as counter examples, Adv should be one of the arguments in compounding.

(5-18) fast mover

(5-19) slow worker

(5-20) late bloomer

(Botha 1984: p65)

Secondly, if SUBJ is excluded from her list of arguments, 'Agent' should have some restriction. In syntax, as far as transformation rules are applied to reach the surface, the deep structure must have a subject which is, with few exceptions, 'Agent'. The essential point of deep structure is to explain structures in the most primitive (or simple) way, i.e. to show how complex structures are constructed by multi-simple structures. And by transformations, those simple ones are formed into complex as surface structure. To aim at this performance, in practice, the subject in deep structure is normally an agent of the verb. Given Selkirk's 'Agent', I cannot have a single

example in deep structure which is an agent but cannot be a subject. Selkirk does not not explain this difference. She should explain what she means by her 'agent'.

Finally, with regard to Selkirk's list of arguments for compounding, I agree with Botha (1984) that while she gives an open-ended list of arguments, she denies 'Location' in her theory because she claims that there is no thematic relation between nonheads and the argument structure of the head. This 'thematic' relation is suggested by Jackendoff (1972) and Gruber (1965, 1976) in explaining between units in compounds.' (cited from Botha, 1984: p62). On the one hand, Selkirk adopts their thematic relation to explain her 'argument' type. On the other, she denies a thematic relation in the case of 'Locative' and excludes 'Locative' from her list of arguments. This means, as Botha points out, that Jackendoff and Gruber's examples such as:

- (5-21) party drinker
- concert singer
- home grown

would not be considered as verbal compounds according to Selkirk. Botha criticizes Selkirk in that she presents no justification for her claim that Location is not an argument type. He continues that her adopting 'thematic' relation and at the same time denying it in the examples of (5-21), is to create an obscure notion 'argument' type.

On the whole, Selkirk's argument structure is not explicitly explained. Once the examples in (5-21) are excluded from argument structure formation, without any criteria or justifications but an obscure 'argument' notion, her theory is hard to grasp.

5.1.2 No parallelism between syntax and morphology

We have seen the opinions to claim the interaction of syntactic processes into word formation. But none of them seem to be successful or convincing in their presentations. There are two ways to solve this controversy. One is to wait until a powerful device were presented to cover all possible synthetic formations in morphology. The other way is to look at this argument from a different viewpoint.

Selkirk (1981) says that words are assigned a dual status. On one hand, they are introduced as basic units of phrase structure for the purpose of syntactic description. On the other, words represent the maximal units for the internal structure of which a morphological theory must account. Word structure, however, is independent from phrase structure and does not simply constitute the lower portion of a single homogeneous syntactic representation. Indeed. The question here is very simple. Why are we supposed to invoke the theory of syntax when we are analysing the inner structure of words?

We are somehow tempted to relate one phenomenon to another if we see similarities in their forms. An initial assumption may start via some intuitive assessment, on looking at forms alone. But, to bring up this mere assumption to a theoretical notion is a very difficult task; we may need a long procedure and substantial evidence to justify the hypothesis. No one denies some associative links between syntactic structures and morphological ones such as verbal compounds. But this association seems to stop at the level of 'form' only. The endeavour to relate morphological processes to syntactic ones in the above mentioned works seems to be based on this form-affinity, and

cannot go further to generalize as grammatical notions.

While their principles and rules are presented in vain, there is an important point that has been left undiscussed. That is, although language phenomena are apparently complex, they are very often systematically and economically used by speakers. Productive formations by using the same units repeatedly are a typical example in syntax as well as morphology. And compounds some of which we have seen in the previous section are also in this respect examples of economical use of language. By analogy from syntactic phenomena, speakers can create morphological complexes as compounds. Or, precisely speaking, they have ability to use the same lexical entries (syntactic units in this case) both in syntax and in morphology. Forms are, then, naturally similar, but before we relate them and formalize them as a rule or principle, we must ask ourselves whether this affinity can be described in grammatical terms, or whether such a description is actually necessary for our grammar.

Once units are used in morphological combinations, they are the property of morphology no matter where they are more frequently used. Of course, each unit in compounds is more familiar to syntax than to morphology. It does not mean, however, that such a unit is to be set in syntax, and to be considered as synthetic interaction in morphology in the case of compounding. Economy of language would tell that whatever lexical entry it is, it can be used as both a morphological and a syntactic unit, according to the nature of its grammatical behaviour. The lexicon (in my terminology) provides lexical entries both to syntax and to morphology. Only typical morphological units (see Chapter 3 for classification of lexical entries) go to

morphology. Every other entry can be in morphology as well as in syntax. And yet, once an entry is in morphology, its status is morphological because of its grammatical function in a given structure.

Grammatical descriptions are not based on the 'form' alone. No matter how similar forms are, they are kept separated if they behave differently in a larger unit. Syntax and morphology are set forth as autonomous components because of their significantly different grammatical-roles. Compounding, for instance, is inevitably a morphological process because of bound forms and no functional dependency (See 1.2.3 and 3.1.2 as to compounding, and 2.3.1 as to functional dependency.). Form-association, i.e. determining the grammatical status via 'forms' alone or because of their familiarity in syntax, is not taken into account because we are most concerned with functions of units, but not with affinities in form.

My standpoint, therefore, is unchanged. Syntactic formations are the property of syntax because of their idiosyncratic nature (grammatically), and morphological formations are that of morphology because of their idiosyncratic nature (grammatically). We have seen these significances in the previous chapters. Then, although form-affinities are somewhat recognized between compounds and syntactic structures, I do not set forth such affinities as a grammatical description. In other words, due to different grammatical functions, word formation processes can hardly be explained by syntactic notions.

In addition, if forms alone are considered, meaning-specialization in morphology will be left undiscussed. Consider the following compounds in Japanese.

- (5-22) kutu-migaki (=shoe-polishing paste)
shoe polish
- (5-23) kokuban-kesi (=chalk eraser)
blackboard erasing
- (5-24) syakkin-tori (=debt-collector)
debt collect

If they were considered as synthetic compounds (i.e. verbal compounds), they would be derived from:

- (5-22)' Kutu wo migaku.
(to polish shoes)
- (5-23)' Kokuban wo kesu.
(to erase (chalk) on the board)
- (5-24)' Syakkin wo toru.
(to collect money from someone
who is in debt.)

Note that (5-22) - (5-24) do not correspond to (5-22)' - (5-24)' in terms of their semantic meaning. The former are semantically idiosyncratic, or specialized in meaning. (5-22), for example, is not 'polishing shoes' but means 'paste-type thing which is used for shoe-polishing'. If interaction-principles were considered in the process of forming the examples (5-22) - (5-24), then, semantic-change would have to be explained, too.

The more important phenomenon here is that each unit of the compounds above is productive as to its morphological combinations with other units. Without fail, each maintains the same meaning while commutations are operated. For example, (5-22) has two morphemes each of which shows valid commutations with other morphemes.

(5-25)

kutu		migaki	
ha			(tooth-paste or -powder)
tairu			(tile polishing powder)
kutu		migaki	
		himo	(shoe-string)
		oto	(shoe sound=foot steps)
		ya	(shoe shop)

This shows that although there is meaning specialization in compounding, the meaning within this limit is maintained during the commutations (e.g. migaki = paste or powder for polishing). Our morphology is more concerned with this aspect rather than form-affinity to syntactic structure. Compounding has already grammatical as well as semantic significances, which can hardly be parallel to syntactic formation.

As we denied the notion 'head' in morphology in Chapter 2, we also deny parallelism between syntactic and morphological formations. In our grammatical description, mere conceptual-analogy without well-established justifications has to be rejected.

5.2 Morphological Ellipses in Syntax

This section deals with morphological ellipses in syntax. Morphological ellipses are to be understood as follows. Suppose there are units 'ax', 'bx' and 'cx' which are all morphologically complex, i.e. morphological combinations of units, 'a' and 'x', 'b' and 'x', and 'c' and 'x' respectively. If these three units occur in a chain (normally coordinated) in the order 'ax + bx + cx' ('+' represents a coordinating unit), then, either the 'x' in 'ax' and 'bx', i.e. the repeated morphological unit in all the structures except the last one, does not occur (discussed in 5.2.1), or all instances of 'x' except the first are omitted (discussed in 5.2.2). Let us call this type of phenomenon 'morphological ellipsis in syntax' because ellipses are believed to occur when units appear in syntactic structure, i.e. in a coordinated structure. The first sub-section deals with the discussion argued by Sugioka (1986) and the second with Kageyama's (1982) suru-compounds as mentioned briefly in the previous section.

5.2.1 Sugioka's Past Tense ellipses

Sugioka's (1986) account of the interaction between syntax and morphology, in line with the lexicalists mentioned in the previous section, points out an interesting phenomenon in Japanese. Past Tense is a morphological unit (realized as -ta) attached to a predicate (verb or adjectival). When more than one predicate with Past Tense are coordinated in the same structure, Past Tense occurs only with the last predicate, and the remaining predicates lack Past Tense. She describes this phenomenon as '(a + b + c)x' in which 'a', 'b' and 'c' are verbs or adjectivals, 'x' is Past Tense, and '+' indicates a

coordinating unit, whereas English is schematized as 'ax + bx + cx'. In her argument, this ellipsis is considered as interaction between syntax and morphology. That is '(a + b + c)x' is formed by morphological rules on the syntactic plane. First in Deep Structure, syntactic rules generate 'ax + bx + cx' and then, morphological operations are applied to form '(a + b + c)x', i.e. 'x' in 'ax' and 'bx' become elliptic (perhaps by the rule of deletion). For example,

- (5-26) ϕ ϕ ϕ
 Arui-te, ton-de, koke-ta.
 walk and jump and stumble past
 ((I) walked, jumped and stumbled)
 (-te and -de :allomorphs of /TE/)

(5-26) shows, according to Sugioka, that Past Tense is elliptic in the first two predicates (indicated by ' ϕ ').

Before Sugioka's argument is examined in the light of our theory, all the auxiliaries attaching to verbs or adjectivals must be investigated with respect to their combinations to conjunctionals. Maruyama and Iwasaki's (1976) work on usages of jodoosi (=help-verb-term: auxiliaries) and josi (=help-term: including some of conjunctionals, case markers and some of interjections in this thesis), mentions what inflectional forms of jodoosi are attached to josi, or what types of josi are attached to a particular jodoosi.

For example, -te, which is a morphological conjunctional, showing an order of events (equivalent to 'and'), is said to be attached to only renyookei of inflectional items (adjectivals, verbs and auxiliaries). Renyookei is one of the allomorphs which participate in inflectional paradigms. In traditional Japanese grammars,

inflectional items are arranged in paradigms according to their phonological changes. They have basically six paradigms: mizen, renyoo, rentai, shuusi, katei and meirei. Mizen-forms occur when items are attached to, for example, negative auxiliaries (= -nai, -mai, -masen, and their allomorphs). Renyoo-forms follow a polite form -masu, or some conjunctionals (see (2) in (5-28)). Rentai-forms require nominals and shuusi means 'fullstop' so that this form ends a sentence. Katei-forms are attached to conjunctionals, typically to -ba (=if), and meirei-forms are 'order-form' (imperative). Let us see one example from a verb in a paradigm.

(5-27)

/TABERU/ (=eat)

mizen: tabe-nai, tabe-masu, tabe-yoo etc.
 (not) (polite) (let's)

renyoo: tabe-masu, tabe-te, etc.
 (polite) (and)

rentai: taberu-koto (eating), etc.

shuusi: taberu.

katei: tabere-ba
 (if)

meirei: taber-o or tabe-yo
 (order) (suggestion)

Note that this paradigm is the method in traditional grammars, which are mainly concerned with phonological changes (i.e. allomorphs) in each inflectional-item (Cf. inflections in Chapter 3). Because

inflectional-items require certain units, conversely, conjunctionals, if they are attached to inflectional-items, are classified according to the inflectional form they attach to. Maruyama and Iwasaki classify conjunctionals as follows.

(5-28)

(1) Conjunctionals attached to shuusi-forms

ga (=but), kara (=from, because),

keredomo (=although)

e.g. taberu-ga (=I) eat, but...)

taberu-kara (=because (I) eat...)

taberu-keredomo (=though (I) eat,...)

(2) Conjunctionals attached to renyoo-forms

te (=and), tari (=and so on), tutu (=while),

temo (=even if)

e.g. tabe-te (=I) eat and,...)

tabe-tari (= (I) eat, and so on)

tabe-tutu (= while (I) eat,...)

tabe-temo (=even if (I) eat,...)

(3) Conjunctionals attached to rentai-forms

node (= since), kuseni (=in spite of),

si (and also)

e.g. taberu-node (=since (I) eat,...)

taberu-kuseni (= in spite of eating,...)

taberu-si (= (I) also eat,...)

(4) Conjunctionals attached to katei-forms

ba (=if)

e.g. tabere-ba (if (I) eat,...)

Since auxiliaries are inflected, the same method is applied. If we want to use a conjunctional -ba (if), we have to provide the katei-form of an auxiliary. But auxiliaries do not offer a full range of inflections as adjectivals and verbs do. (See (5-26)). For example, most auxiliaries lack a meirei (order) form. Among all auxiliaries - 11 auxiliaries: -ta (past), -rareru/reru (can), -nai (not), -tai (want to), -masu (polite), rasii (likely), -sooda, -yooda (seem), -yoo (let's), -mai (no), and -mitaida (look like), - only -rareru/reru and -masu are fully-inflected. Past Tense, -ta, lacks its renyoo-form and meirei-form. It means that as classified in (5-28), Past Tense cannot combine with the conjunctionals -te, -tari, -tutu and -temo. Sugioka's argument on '(a + b + c)x' is explained on this point. Before we argue whether or not Past Tense should be treated as interaction between syntax and morphology, -te, which was used in Sugioka's argument, cannot occur with Past Tense. Simply, Past Tense does not have a renyoo-form, therefore it cannot combine with any of the conjunctionals from (2) in (5-28). Therefore, in line with our theory, impossible combinations are not mentioned even in our underlying structure. Underlying structure, as is defined in Chapter 2 (2.2.4), means an abstract structure which may or may not be realized; an abstract structure which shows certain positions in a certain relation with others. If positions are not filled by actual units, we say that they do not occur on the realizational level (e.g. Japanese subjects and objects are often not realized, but their

positions in the syntactic relation with a predicate exist in underlying structure.).

Of course, semantically all the verbs in (5-26) imply a past tense, because we understand that the sequence of actions (or events) happened in the order of time. But this semantic implication of 'past' in the structure cannot be formulated in grammatical terms. Simply, 'Past Tense' cannot occur with the conjunction -te. Otherwise, we would have to accept the following ungrammatical structure as our underlying structure.

(5-29) *Arui-ta-te, ton-da-te, koke-ta.
 walk past jump past stumble past

(-ta and -da -> allomorphs of /Past/)

Furthermore, even in line with TG, i.e. admitting (5-29) as a deep structure as Sugioka explains, this analysis does not constitute a systematic pattern of interacted structure. As mentioned earlier, Past Tense is one of only two examples (-mai (=no) is the other example) that do not combine with the conjunction -te. The other auxiliaries do not go through such a problematic phenomenon. It would be, then, sufficient only if a restriction of combinability between an auxiliary and a conjunction were mentioned rather than creating a deep structure to justify the synthetic interaction in morphology. Because this is an exceptional case, it is even doubtful if it would be determined as the interaction. There is no consistency in this phenomenon. Or, Sugioka might say that the deletion of Past Tense in (5-29) is obligatory and in other cases is optional. However, further complicated obligatory/optional rules and constraints will make the description more complex. Perhaps, we can simply explain that Past

Tense in (5-26) semantically lies in each predicate, but that because in reality Past Tense does not occur with the conjunction ^c-te, this phenomenon is not grammatically formulated, but is merely explained as the constraint on the combinability.

5.2.2 Kageyama's ellipsis in -suru-compounds

As briefly mentioned in the previous section, Kageyama (1982) points out that -suru (=do), while this is normally attached to a nominal to make a compound, stands on its own in syntax when the same form 'N + -suru' is repeated in a coordinated structure, i.e. 'N' normally is elliptic or the compound is partially deleted (even if 'N' is not elliptic, the structure is not ungrammatical though it sounds childish). He gives the following example.

(5-30) Amerika-zin wa yoku hatugen-suru ga
 Americans often speak out but

Nihon-zin wa amari sinai.
 Japanese rare do not

(Americans often speak out, but the Japanese do not.)

The 'N', hatugen (=speaking out) is deleted in its second occurrence. He explains that (5-30) is obtained through the procedures of 'object deletion' and then 'suru-compounding'. This is shown as:

(5-30)' Amerika-zin wa yoku hatugen o suru ga,
 speaking out acc do but

Nihon-zin wa amari hatugen o sinai.

object deletion:

--> Amerika-zin wa yoku hatugen o suru ga,

Nihon-zin wa amari ϕ sinai.

suru compounding:

--> Amerika-zin wa yoku hatugen-suru ga,

Nihon-zin wa amari sinai.

By the object deletion, the form hatugen o suru in the latter occurrence is deleted. And then, by suru-compounding, hatugen o suru in the first clause is lexicalized as hatugen-suru. Kageyama, therefore, concludes that deletion should be applied before the compound formation. This means that he allows compounding to be operated in syntax.

-Suru compounding was a favourite example among early Japanese Transformational Grammarians, because this type of compounding is one of the formations which are easily handled by a transformational rule in syntax. They believed that benkyoo-suru (=to study), for example, is formed as follows.

(5-31) benkyoo wo suru
studying acc do
↓
benkyoo-suru

(5-31) shows that a VP (=NP + VP in TG) on the tree, by a transformational rule, is lexicalized. But when Lexicalists (e.g. Allen (1978), Aronoff (1975), Halle (1973), Siegel (1974), etc.) started to criticize the Transformationalists' operations, this compound was equally one of the targets of criticism. That is, once a compound is made, it can have another object. That is, once a unit is lexicalized as a compound-verb, this verb very often takes a new

argument structure. For example,

(5-32) suugaku wo benkyoosuru
 mathematics acc study

(to study mathematics)

This phenomenon poses problems if compounding is handled on syntactic trees, because the two objects cannot occur in the same structure.

(5-32) *suugaku wo benkyoo wo suru

Therefore, Lexicalists avoided the problem by assigning compounding to the lexicon: in the lexicon, compounds acquire a new argument structure.

Now, in a sense, Kageyama brings the formation (5-31) back to his argument, although he is basically a lexicalist. He allows some morphological formations in syntax, and one of them is -suru-compounding. He states that if such compounding is formed in the lexicon (i.e. morphology in this thesis), the partial deletion on the compound cannot be explained.

This implies, then, that in either position, whether lexicalization or transformation, there is a problem in dealing with this type of compounding. Even if Kageyama allows some interactions, he still has to explain examples such as (5-32). If he considers -suru-compounding as a rule of syntax, i.e. formed on syntactic trees, in order to explain the partial deletion on this compound, he also has to explain how the following is formed.

(5-33) Amerika-zin wa nanika wo hatugen-suru ga
 Americans something acc speak out but
 Nihon-zin wa zenzen si-nai.
 Japanese at all do not

(Though Americans speak out something, the Japanese do not (at all).)

In (5-33), nanika wo (something) occurs as an object of hatugensuru (speak out). If Kageyama admits the formation of (5-34) on syntactic trees,

(5-34) hatugen wo suru
 ↓
 hatugen-suru

(5-33) would have a deep structure,

(5-35) *Amerika-zin wa nanika wo hatugen wo
 suru ga,...

where two objects (nanika wo and hatugen wo) occur in the same structure. This is ungrammatical. So, even though he is successful in explaining the partial deletion on compounds, he cannot solve the general issue which Transformationalists have had. Either way, -suru-compounding is difficult to handle.

How about our theory? As mentioned in Chapter 3, -suru is considered as a suffix (because suru cannot occur at the beginning of the word, i.e. unlike compounds, suffixes cannot be transposed; see the definition of 'compounds' in Japanese in Chapter 3), and 'N +

-suru' is one of our word-formations, because the combination between a noun and -suru is morphological, i.e. the relation is bound, and there is no syntactic relation between them. That is, there is no functional dependency between the two units so that neither of them can commute with a syntactic complex (e.g. benkyoo syokuzi suru =to do studying and eating) (See the criteria in Chapter 4.). Since basically we are more interested in the relation between units rather than the order of rule-applications, the formation of 'N + -suru', because of its grammatical nature, should be treated in morphology. The problem is how we explain the morphological ellipsis in syntactic structure. Indeed, this ellipsis occurs only when 'N + -suru' occurs (repeatedly) in syntax.

This ellipsis is also anaphoric, i.e. the first 'N' in 'N + -suru' cannot be elliptic. Compare (5-36) with (5-37).

(5-36) Suugaku wa benkyoo-suru ga,
 maths acc study but

eigo wa sinai.
 English do not

((I) study mathematics, but do not study English.)

(5-37) *Suugaku wa suru ga,

eigo wa .benkyoo-si-nai.

(Note: Colloquially 'suugaku wo suru' (do maths) is possible, but in the coordinated form like (5-37), this is not acceptable.)

This phenomenon is quite unique in Japanese. Exceptionally, a morphological ellipsis occurs in syntax. Whether or not we call this 'interaction between syntax and morphology', we can surely mention this phenomenon as an exceptional case in our description. While we

have rejected other examples by Lexicalists on 'interaction', we could be content with Kageyama's example as our only example of interaction.

5.3 Relation of Concord in Japanese

Relation of concord in Japanese means that in a given syntactic structure there are a number of units which tend to require a certain other unit. For example, if there are kaimoku, kessite and zenzen (=quite or at all) in a given structure, the structure should have a negative form somewhere, usually the negative-form morpheme (nai, nu, zu or sen; the second and third ones occur in written Japanese, and the last one occurs with a polite form) which is attached to a predicate. In the following examples, the underlined units are in the relation of concord.

(5-38) Kessite tabemasen.
 at all eat polite+not
 ((We will) never eat.)

(5-39) Nanimo iwanai.
 any say not
 ((I) do not say anything.)

(5-40) Tatoe damedemo, ganbattemimasu.
 though fail effort try polite
 (Even though I might fail, I will try.)

(5-41) Kaimoku wakaranai.
 at all understand not
 ((I) do not understand at all.)

(5-42) Zenzen arukanai
 al all walk not

((I) do not walk at all.)

(5-43) Kare wa osoraku ikudaroo.
he perhaps go assumption

(Perhaps he will go.)

Because this type of concord occurs between a syntactic unit (an adverb) and a morphological unit which is part of a predicate, there is a problem when we consider lexical entries in the lexicon, i.e. what forms are to be in the lexicon. Let us take an example from (5-41). If kaimoku...nai were to be considered as a (discontinuous) lexical entry, in (5-41) we would assume that there are two lexical entries; /KAIMOKU_NAI/ AND /WAKARU/ (<- wakara in (5-41) is an allomorph). In this structure, then, there are two words, kaimoku...nai and wakara. Let us call this type of lexicon 'Lexicon I'.

Another solution would be that we assume that in (5-41) there are three lexical entries; /KAIMOKU/(=at all), /NAI/(=not), and /WAKARU/(=understand). In this way, we still obtain two words in the structure, but different forms, i.e. kaimoku(=at all) and wakaranai(=not understand) (the latter is formed in morphology). Let us call this type of lexicon 'Lexicon II'.

Now, we discuss the pros and cons of these lexicons. In Lexicon I, because the relation of concord is already indicated in the lexical forms, from the lexicon to syntax, concord is easily found. However, there is a big disadvantage in Lexicon I. That is, the number of lexical entries will become almost double (compared with that of Lexicon II). On the one hand, there is a list of 'Adverbs +

-nai(=not)', 'Adverbs + -temo(=in spite of)' and 'Adverbs + -daroo(perhaps)', and on the other hand, the morphemes /NAI/(=not) and /DAROO/(assumption auxiliary) which do not enter the relation of concord must be listed. Moreover, we have to add the adverbs which will occur in one-word sentence (e.g. Kessite! = No, not at all). An adverb osoraku (=perhaps) can occur even with other units; e.g. Osoraku korosaretanoda (= It is perhaps (the case) that (he) was killed.). Then, Lexicon I would look like this. (Lists of verbs and other morphemes are excluded here.)

(5-44) LE1 KESSITE__NAI LE7 KESSITE
 LE2 NANIMO__NAI LE8 NANIMO
 LE3 KAIMOKU__NAI LE9 KAIMOKU
 LE4 ZENZEN__NAI LE10 ZENZEN
 LE5 OSORAKU__NAI LE11 OSORAKU
 LE6 NAI
 LE12 OSORAKU__NODA
 LE13 OSORAKU__NITIGAINAI (=must)

Since there are a number of adverbs which can be in the relation of concord, as well as being independent, the complete Lexicon I would be tremendously clumsy, and would not capture the view that there is an agreement process. Just because we wanted to indicate concords already in the lexical forms, we would have to be patient with the enormous size of the lexicon.

How about Lexicon II? Lexicon II would look like this:

(5-45) LE1 KESSITE
 LE2 NANIMO
 LE3 KAIMOKU

LE4 ZENZEN
LE5 OSORAKU
LE6 NAI
LE7 NODA
LE8 NITIGAINAI

(LE7 and LE8 are added because LE12 and LE13 in
Lexicon I are introduced.)

To form the same number of structures, Lexicon II requires only eight entries, compared with Lexicon I requiring thirteen. The same lexical entries are repeatedly used in Lexicon II. This organization is very economical. In Chapter 3, we claimed that the lexicon should store entries in the most economical forms, i.e. the minimum number of entries in the list should produce the maximum number of structures in syntax and morphology (of course, provided entries are duly justified as proper ones). In this respect, Lexicon II is more attractive than Lexicon I, but unfortunately cannot supply the relation of concord in lexical forms themselves. While descriptions from Lexicon I are automatically made such that there is a concord between kaimoku(=at all) and -nai(=not) in the case of (5-41), descriptions from Lexicon II cannot easily tell whether the relation lies between kaimoku(=at all) and -nai(=not) or between kaimoku(=at all) and wakaranai(=not understand), or even whether the relation exists at all.

Then, to solve this problem, either concord should be handled somewhere (perhaps, in syntax with a note that there is a morphological relation during the syntactic analysis), or some information in lexical entries (perhaps as a feature) should be

provided. In the former case, the syntactic structure (5-41) would be noted that there is a concord between kaimoku and -nai. In the latter case, (/KAIMOKU/ / ___ [+Neg]), for instance, might be added as one of features of the lexical entry, /KAIMOKU/.

To judge which solution is better, let us suppose that we construct the example (3-41). Lexicon provides three lexical entries /KAIMOKU/, /WAKARU/ and /NAI/. Provided we have to use always /KAIMOKU/ to form structures, there are two possible constructions; (A)*kaimoku wakaru(=understand at all?) and (B) kaimoku wakaranai(=not understand at all). (We ignore the other possible structures, wakaru(=understand) and wakaranai(=not understand) for simplicity of our argument.) If Lexicon can provide information on 'concord' between kaimoku and -nai, there is no possibility of constructing the example (A) above. If, on the other, Lexicon does not mention such information, there is nothing to stop the structure (A) being produced. Of course, we can state afterwards that (A) is not accepted on the ground of restriction to the usage of kaimoku, i.e. this unit always combines with negative forms. However, instead of producing unnecessary structures to be rejected afterwards, it would be more elegant to have the necessary information to prevent ungrammatical structures from being specified. This leads us to prefer the solution that lexical entries such as adverbs which combine with negative forms should possess such information as one of their features. When this information limits the usage of kaimoku, we only obtain kaimoku wakaranai and never kaimoku wakaru.

In syntax, we have to mention an occurrence dependency, i.e. '[kaimoku] wakaranai'. Syntactic analysis of this structure is 'kaimoku → wakaranai' which of course does not directly mention 'concord'. But in our description of syntax, we may state (or precisely, ^{may} repeat) that there is a concord between kaimoku and -nai which is derived from a feature the former unit possesses.

5.4. Parts of Speech

5.4.1. General view

This section deals with parts of speech in Japanese, and discusses whether they are established on syntactic, morphosyntactic or morphological criteria. Since later in this section, problematic parts of speech (the copulative verb da in 5.4.2., adjectival verbs in 5.4.3., and conjunctions in 5.4.4.) will be discussed, this sub-section will be useful for understanding the Japanese parts-of-speech system. The classification of parts of speech here is quite different from that of Japanese traditional grammarians. While traditional grammarians classify parts of speech according to the autonomy of occurrence in a given structure, we classify them according to their grammatical arrangements. Parts of speech are grammatically recognized as belonging to particular categories because of their common distribution and their range of syntactic or morphological functions. In this respect, as Schachter (1985) says, 'the assignment of words to parts-of-speech classes is based on properties that are grammatical rather than semantic, and often language-particular rather than universal,' although '...the name that is chosen for a particular

parts-of-speech class in a language may appropriately reflect universal semantic consideration.' (p4) Furthermore, because parts of speech are established by grammatical criteria, it cannot be accepted that Nouns and Verbs, for example, are inherent features of linguistic units. In Japanese there are hardly any problems in assigning parts of speech as features (e.g. [+N], [+V]) to each unit because the phonological forms themselves signal their categories; e.g. the basic form (i.e. the termination form or syuusi-form: See 5.2.1.) of verbs ends with /u/ such as aruku (=walk), taberu (=eat). etc., and the basic form of adjectives ends with /i/ such as utukushi (=beautiful), ookii (=big) etc.(although not vice versa; e.g. there are nouns which end with /U/ or /I/, such as keisatu=police, kai=shell). If there is any conversion from one category to another, the form changes, too (Cf. Chapter 3.2 in this thesis). The conversion of categories with maintaining the same phonological form is rare in Japanese, whereas, it is common in English for a given form to have various distributions. For example, 'pay' can be a noun in 'full pay', or a verb in 'to pay one's debts'. A more extreme language is Chinese, in which word-class can hardly ever be decided for words in isolation.

Bearing this view in mind, we have a look at the classification of parts of speech in Japanese. The figure shows my classification.

Syntactic

Morphological

1) Noun

2) Demonstrative

3) case marker

4) Verb { Copulative
transitive ⇒ Stem + Auxiliaries
intransitive

5) Adjectival → { Adjective
Adjectival verb

6) Numeral ⇒ Number + Classifier

7) Adverb

8) Conjunctival
 { coordinating
 subordinating

Conjunctival

9) Interjection

The arrow means that a syntactic category has the possibility of being further analysed into smaller units which are listed as morphological

parts of speech systems. For instance, verbs are syntactic units and they can be morphologically complex with auxiliaries. In 4), the arrow indicates that when verbs are morphologically complex, they are further analyzed into verbs (stems) and auxiliaries. We now look at the parts-of-speech systems one by one.

1) Noun - Nouns in many languages are very often sub-classified into common and proper nouns. In English, the grammatical distinction is made between them because proper nouns do not occur regularly with articles (although there are exceptions, e.g. He is no longer the Harry we used to know.). Schachter (1985) exemplifies the Tagalog language which uses different case and topic markers for proper and common nouns. However, Japanese nouns are not differentiated in this way, and there is no distinctive grammatical differences between proper and common nouns. Therefore, there is no need to sub-classify nouns. Although the proposal is controversial, nouns in Japanese could be sub-classified into pronouns and nouns because of their anaphoric relations. But this distinction is not very significant, since anaphoric relations are very often semantic or extra-linguistic as well as syntactic.

The grammatical characteristics of nouns are that with case markers (see 3) below), they have grammatical labels (e.g. subject, object, etc.) in syntactic structure. Also, with copulative-verbs (see 4) below), nouns play the role of predicate. Nouns in Japanese do not present any morphological features such as case-marking or agreement with verbs, gender or number. Compound nouns are discussed in Chapter 3 in this thesis.

2) Demonstrative - e.g. kono (this), sono (that near-by), ano (that over there), dono (which), arayuru (every), aru (a certain).

Demonstratives cannot be a sub-class of nouns (as has been suggested in traditional Japanese grammars) since they occur in a different position to nouns within the same distributional class. Nouns in Japanese occur with case markers and are thus clearly marked as subject or object, but demonstratives cannot have case markers. The latter behave as modifiers to nouns, as in:

(5-46) Kono kireina hana
this pretty flower

(this pretty flower)

They can occur after adjectivals or their equivalents

such as:

(5-47) kireina kono hana

in which case connotationally kono is emphasized, in contrast with other flowers.

Demonstratives, though modifying nouns, cannot be classified as adjectivals, either. They do not have inflections, and occupy a different position from adjectivals in syntax, i.e. demonstratives and adjectivals can co-occur as shown above (kireina is an adjectival.)

3) Case marker - Case markers are traditionally called kaku-josi(=case-help-term, as one of josi (help-term) which include some of conjunctionals and mood-markers in this thesis (See below.). They are attached, as postpositions, to nouns, noun phrases or their equivalents (e.g. a clause nominalized by no (=of) equivalent to

'that' in a 'that-clause' in English). As demonstrated in Chapter 4, they play one of the most important roles in syntax. They determine the distributions of nouns or their equivalents, i.e. they function as case marking which leads to labels such as subjects, objects, etc.. Therefore, in syntactic analysis, case markers can be regarded as heads of arguments. Case marking in many European languages is a morphological process, and it is not directly concerned with syntactic analysis. It is not involved in the hierarchical orders of constituents. Therefore, a noun in a noun phrase, for instance, is naturally the head of the structure, which is irrelevant to what case the noun contains. But, in Japanese, since case markers are syntactic, they occupy the head position in syntactic analysis. Case markers are proved to be syntactic by the fact that unlike other morphological units in Japanese (such as auxiliaries Cf. 4) below), case markers, though not free as to their positions in structure, can have syntactic complexes as modifiers:

e.g.

(5-48) hana ga
flower Nom (flowers...)

hana to choo ga
and butterfly (flowers and butterflies...)

totemo kireina hana ga
very pretty (very pretty flowers...)

4) Verb and Copulative-verb - Verbs in Japanese function as predicates with their substantial inflections possibly containing auxiliaries. Verbs with auxiliaries are considered as morphologically complex, but syntactically simple. For this characteristic, verbs are distinct from nouns. In this respect, adjectivals function in a similar way to

verbs, but the former lack some morphological processes such as 'causative', 'passive' and 'imperative' formations all of which verbs can offer. (The formations are shown in Chapter 3.2.)

Copulative-verbs, on the other hand, although they cannot have the above formations, are distinguished from adjectivals by their predicate formations. That is, a predicate with a copulative-verb should contain a complement position which is normally a noun, whereas, adjectivals stand on their own as predicates. Copulative-verbs, namely da, dearu and their inflected forms, are controversial with regard to their status and function in grammar. This is discussed in 5.4.2, but in my opinion, copulative-verbs are another type of verb.

The distinction between 'transitive' and 'intransitive' can be drawn in Japanese. Transitive verbs may (not must) have objects (specified by an accusative marker wo) while intransitive verbs cannot. Many intransitive verbs can be transformed into transitive verbs by their 'causative' formation in morphology. For instance,

(5-49)

intransitive	⇒	transitive
aku (be opened)		akeru (open)
tatu (stand)		tateru (make one stand)
naoru (get well)		naosu (cure)
kawaru (be changed)		kaeru (change something)
hueru (be increased)		huyasu (increase)

The distinction between transitive and intransitive in Japanese is not exactly the same as in English, as far as passivisation is concerned. Firstly, passivisation in Japanese is possible both for transitive and intransitive verbs. For instance, naku (cry) is an intransitive verb, and yet the passive form naka-reru (reru is a passive morpheme) is possible. This is used, for example, as:

(5-50) Watasi wa imoto ni nakareta.
I young sister cry+pass.+past

(I suffered from my sister's cry.)

Secondly, passivisation does not necessarily mean that the structure cannot have objects. In other words, in some structures, passivisation does not involve the conversion between the agent and the patient. For instance, the transitive structure,

(5-51) Kare wa sono miti wo itta.
he that road acc. went

(He went to that road.)

can be passivised as:

(5-52) Sono miti wo kare ni ikareta.
go+pass.+past

((I) was upset by his going to that road.)

Of course, (5-52) is not the conversion of objects to subjects. Rather, the agent of predicate is changed from kare (=himself) to someone uttering the structure (i.e. maybe the speaker). The speaker suffers from his (=kare ni) deed (=ittaa). In Japanese, therefore, there are two types of passivization: One is equivalent to that of English (the exchange of agents with patients) and the other is that the agent is merely changed to another.

5) Adjectival - Adjectivals behave as modifiers to nouns and as predicates with auxiliaries. They are traditionally called keiyoosi (adjective) and keiyodoosi (adjectival-verb). They differ only in certain phonological aspects when inflected, which is the only reason why the paradigms in Chapter 3 are given two labels. But this distinction is not necessary in our parts-of-speech system. The controversial issue on the status of adjectival-verbs is discussed in 5.4.3, where it is concluded that there is no need to distinguish them from adjectives in our grammar. The term 'adjectivals' is used to represent both.

6) Numeral - Numerals in Japanese are often classified as a type of noun. But their distribution entitles them to an autonomous status in syntax. Firstly, if we have a noun phrase such as

(5-33) ni-satu no buatui hon
two+classifier of thick book

(two thick books)

the numeral nisatu occupies a nominal position (although nisatu no is a modifier to the noun), because no which is a possessive case marker is attached to nominals (no as a nominalizing-marker mentioned in 3) is a different unit, though phonologically the same.) But unlike a noun, it cannot occupy an object position which is marked by the accusative case marker wo.

(5-54) *nisatu wo yonda
acc. read+past

((I) read two.)

Of course, the structure

(5-55) Sono nisatu wo yonda.
 those
 ((I) read those two (books).)

is possible, but this is understood as elliptic, i.e. syntactically or semantically, the noun such as hon (=books) is elliptic, because the numerals basically cannot stand on their own unless the head noun is contextually given.

Secondly, if we have a structure such as

(5-56) Hon wo nisatu yonda.
 ((I) read two books.)

nisatu is not in the noun phrase, but is a modifier to the verb, i.e. it is an adverbial, although semantically hon and nisatu are related. Because nisatu (=two vol.) in (5-56) can be replaced by an adverb such as takusan (=a lot), and also the structure (5-57) which has these two units at the same time cannot be constructed, nisatu is adverbial, i.e. this unit is grammatically equivalent to an adverb takusan.

(5-57) *Hon wo takusan nisatu yonda.

These two points are sufficient for numerals to have an autonomous status.

Numerals are morphologically complex. They are the combination of numbers with classifiers. The choice of classifiers is conventionally fixed and is semantically determined by the material-nature of nouns which are counted. For instance,

birds --- -wa or its allomorphs, -pa and -ba
animals -- -hiki (-biki, -piki)

(5-55) Sono nisatu wo yonda.
 those
 ((I) read those two (books).)

is possible, but this is understood as elliptic, i.e. syntactically or semantically, the noun such as hon (=books) is elliptic, because the numerals basically cannot stand on their own unless the head noun is contextually given.

Secondly, if we have a structure such as

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Numerals are morphologically complex. They are the combination of numbers with classifiers. The choice of classifiers is conventionally fixed and is semantically determined by the material-nature of nouns which are counted. For instance,

birds --- -wa or its allomorphs, -pa and -ba
animals -- -hiki (-biki, -piki)

paper -- -mai
sticks -- -hon (-bon, -pon)
houses -- -ken

7) Adverb - Adverbs in Japanese modify verbs, adjectivals and other adverbs. They also often modify the whole sentence.

e.g.

(5-58) Zan-nennagara, siken ni otita.
unfortunately exam. in fail+past

(Unfortunately, (I) failed in the exam.)

Many adverbs are derived from adjectivals, nouns and verbs. Some nouns can function as adverbs without undergoing morphological processes (or zero derivation). In the following, the arrow means 'derivation'.

e.g.

Adjective ----> Adverb

hayaku aruku (to walk fast)
fast walk

hayai ----> hayaku

Noun ----> Adverb

joohinni taberu (to eat elegantly)
elegantly eat

joohin ----> joohin-ni

(or maybe Adjectival ---> Adverb :
joohinda ---> joohinni)

Verb ----> Adverb

Aratamete ukagaimasu.
another time visit+polite
(I) will visit (you) another time.)

aratameru ----> aratamete

Noun as Adverb

Asu ukagaimasu
tomorrow

((I) will visit (you) tomorrow.)

8) Conjunctival - In the list of parts of speech at the beginning of this section, syntactic and morphological conjunctivals are listed. The latter do not result from further analysis of the former. That is why although numbered the same, they are listed in separate columns. It is meant to show that there are two types of conjunctivals; the one is syntactic and the other is morphological. Which conjunctivals are syntactic or morphological are discussed in 5.4.4. Here, we look at typical ones.

Syntactic conjunctivals are sub-classified as coordinating and subordinating ones, (Cf. Schachter (1985)). The former include to (and) which combines only nouns or their equivalents with other nouns. They cannot coordinate between the other categories or sentences. This coordinating unit is normally added to each noun if more than two items are listed. The last item does not always need to. For instance,

(5-59) ringo to .mikan to banana
apple orange banana

(apples, oranges and bananas)

There is another unit which functions in the same way as to: ya is the unit which exemplifies items, i.e. its meaning is 'A, B, C and so on'.

Sentential coordinating units are: suruto (then), sosite (and then), sikasi (but), yueni (therefore), dakara (that is why), sokode (then), soreni (what is more). They may have historical backgrounds of how they have been converted to conjunctionals (e.g. sosite is said to have been formed by the combination between soosi- (=do so) and te(morphological conjunction)). However, they are now perfectly considered as sentential conjunctionals according to their functions.

Subordinating conjunctionals in Japanese are not easily recognized as such. If a traditional writing system is introduced to remark a sentence, namely by a fullstop (tooten in Japanese), it is very simple to judge whether a conjunction is subordinating or coordinating. Or, in the spoken language, there is some pause if that is coordinating. Otherwise, there would be no other grammatical method to distinguish them. For example,

(5-60)	ame ga huru		keredomo (though)
	rain fall		naraba (if)
			ga (though)
			to (if)

If there is a fullstop or a pause after huru, it is natural to consider the above conjunctions as coordinating ones. It means the structure is completed, and conjunctions belong to another structure that follows. Syntactic analysis on (5-60) is separately operated from the structure with conjunctions. If not, then they are subordinating units. It means that main clauses will occur after them, such as

(5-60)' Ame ge huru keredomo, dekakeru.
rain fall though go out

(Although it rains, (I will) go out.)

This is analyzed on the first level as

(ame ga...keredomo) —→ (dekakeru)

and on the second level of analysis, the left-hand structure above is analyzed as

(ame ga huru) —→ (keredomo)

in which keredomo(=though) is the functor that determines the distribution of the whole clause.

In either way, they are quite naturally accepted. Except for this distinction, the conjunctions above remain ambiguous as to their grammatical status, and the whole clauses including them remain ambiguous, too. We are not certain whether the given clause is a coordinating or a subordinating one. Of course, the definition of 'sentence' is required to make a more clear understanding of this discussion. But since this may stray from the aim of this section, I shall not go further into the issue of ambiguity.

We now turn to morphological conjunctionals. There are no coordinating conjunctionals in this category. Morphological conjunctionals, together with clauses, make subordinating clauses. The underlined units in the following are examples of morphological conjunctions.

(5-61) warui to siri-tutu
wrong know while

(while (I) know (it is) wrong,...)

(5-62) yooji ga deki-te
job happen and

(since (I) happened to have something
to do,...)

(5-63) yose-tewa kaesu nami
come repeating return wave

(the (sea) wave which comes and goes
repeatedly)

(5-64) tabe-nagara aruku
eat while walk

(to walk while eating)

9) Interjection - The last part of speech is interjections. They include exclamations; e.g. oya (=?), maa and waa (=surprise), chet (=disappointment), etc., replies; e.g. hai (=yes), ie (=no), eetto (=well), soonee (=well), etc., and requests or calling a person; chotto, anoo, mosimosi, etc.. Also, mood markers are added at the end of sentences, signalling a question, exclamation, order, emphasis, etc. (the term 'mood marker' is credited to Kuno (1973a).) Ka makes the structure a question, yo and wa (the latter is used by women) emphasize the speaker's intention, and koto with a verb makes the structure a command.

We have so far discussed the general view of parts of speech in Japanese. According to the grammatical functions of units, we have seen that there are nine parts of speech. Some minor points may have been ignored, but at least from the viewpoint of grammatical arrangements, the most important points have been covered; what is syntactic or morphological, how many sub-classes of each parts of

speech, and what are the distinctions between them. But, of course, Japanese is not exceptional in that they do not have always clear arrangements of units. The following sections (5.4.2 - 5.4.4) focus on the problems of grammatical statuses of some units.

5.4.2 Copulative-verbs in Japanese; full word? or dummy?

The term 'copulative-verb' is assigned to the form da, its (generally called) polite form desu, its derived form dearu, and their inflected forms. Traditionally, this is classified as an auxiliary (jodoosi) simply because it does not occur on its own in speech. It always combines with a nominal, to make a predicate in a given structure. This section investigates first whether da is a full verb or an auxiliary, i.e. whether it is to be regarded as a syntactic or a morphological unit. Secondly, Daniels' (1973) views on the grammatical function of this term are examined. Daniels casts doubt on its copula-function by giving counter examples. The answer to his argument will clarify how and why I classified da and its other paradigm forms as copulative-verbs in the previous sub-section.

Although da does not appear on its own, it is considered as a syntactic unit. For, a predicate noun, i.e. a noun which occurs with da to make a predicate, can be altered within the same distribution with a syntactic complex which is a noun phrase, or a clause equivalent to a nominal.

- (5-65) hana da (to be a flower)
 flower
- kireina hana da (to be a pretty flower)
 pretty
- haru ni saku siroi hana da
 spring in bloom white
 (to be a white flower which blooms
 in spring)

By commuting hana with syntactic complexes which all modify hana, while maintaining all the grammatical features of da, i.e. da remains the same linguistic unit as functioning a predicate with nominals, da is concluded to be syntactic because it combines with a syntactic (or precisely syntactically-functioning) unit; as only syntactic units can enter into syntactic relation, da is consequently considered as syntactic (Cf. Chapter 4 on the criteria for syntactic units). At the same time, the role of da is that it leads the nominals to predicates. In other words, da determines the distribution of nominals, and it is the head of the whole constituent. Nouns themselves cannot determine their grammatical roles (such as a subject, object or predicate) in a given structure. Of course, in colloquial Japanese, da is sometimes omitted, if, for example, mood markers are replaced.

- (5-66) kireina hana ne.
 (It's a pretty flower, isn't it?)

But since this phenomenon occurs only in an obvious context, i.e. da can be omitted if it is contextually understood that a sentence is completed, this phenomenon does not necessarily invalidate the analysis of da as head of a predicate. As is discussed in Chapter 2,

our 'head' is not necessarily an obligatory term. Its occurrence is a matter of occurrence dependency; the head is the result of a functional dependency. In other cases, especially in subordinating clauses, da cannot be omitted as in (5-67) and (5-68).

(5-67) Kare wa gakusha de, sikamo geijutuka da.
he scholar and also artist

(He is a scholar as well as an artist.)

(5-68) Kon-nani kireina hana na no ni....
such pretty flower nom. in-spite-of

(Although (it) is such a pretty flower,...)

The example (5-68) shows that no, as a case marker, nominalizes the whole kon-nani...na, and ni, as a conjunctive, makes the whole nominalized clause a subordinating clause. Na, as an inflected form of da, has to be in that position to indicate the noun phrase (konnani kireina hana=such a pretty flower) as part of a predicate. If da were an auxiliary, it would be optional. Da, therefore, is distinguished from auxiliaries by its status as head and its obligatory presence.

Note, however, that there are exceptional auxiliaries which are paradigmatically related with da. Rasii (=likely) and mitaida (=look like) are the only exceptions which are more likely considered as syntactic and do not occur with da in the same environment. That is, these auxiliaries combine with nominals to create a predicate unit which takes exactly the position and function of da. In the previous discussion on parts of speech, these auxiliaries were not mentioned because they function as normal auxiliaries when they occur with other verbs. Only when da and these auxiliaries are examined, the latter behave as if they were replaced by da since the former cannot occur

with the latter in the same distribution (e.g. *Seito rasii da (=He) is likely to be a student.). This exceptional case is rather disturbing in establishing the status of da. Because the above auxiliaries have the auxiliary-status via their combinability with verbs and adjectivals, one would be tempted to classify da as an auxiliary. At the same time this indicates that although da obtains the syntactic status as well as the nuclear status according to our examination so far, such statuses are not so strongly firm as the other verbs or even the English copula, i.e. Japanese copula da is less syntactic than the English one. Nonetheless, because da plays an important role in determining the function of the whole unit as explained with the examples (5-67) and (5-68), we stay with the verb-status of da. Also, as far as the auxiliaries above are separately described, i.e. they behave as copula in a certain structure, i.e. as replacement of da, it is quite reasonable that they are still classified as auxiliaries because they are morphological when they combine with verbs (da cannot combine with any verbs).

Now, let us turn to the function of da. The term 'copulative-verb' is introduced because there is some semantic association with copulas, for instance, in English. There is in fact a parallel between da and 'be' in English in that it functions as a link between a subject and a predicate. But the parallel stops there. The Japanese copulative-verb differs in many ways from the English copula. Firstly, unlike English be, da links only a noun or its equivalents. Adjectivals become predicates on their own. Secondly, not every construction 'A wa/ga B-da.' corresponds to 'A is B.' Daniels (1973) uses this fact to argue that da is not truly a copula, but he mistakenly takes it for granted that 'A wa/ga' is a subject.

As discussed in Chapter 4, 'A wa/ga' may or may not be a subject. Take Daniels' example which has also been a controversial issue. Boku wa unagi da - if one considered boku wa (myself + case marker) as a subject, the translation would indeed be 'I am an eel.' Daniels, then, concludes that da in this structure does not function as a proper linking-verb. However, before examining whether or not da functions as a copula, we first have to analyze this structure. Okutu (1978) suggests that this was transformed from a deep structure like Boku (no hosii no) wa unagi da (= What I want is an eel.: (no hosii no) is deleted when the structure is passed onto the surface.) Since the deep structure is unseen, more structures for one sentence might be created. Okutu's deep structure here is entirely based on the explanation of the meaning of the above structure.

The simplest solution is that the idea 'boku wa = a subject' should be abandoned. In Chapter 4, wa was repeatedly mentioned as commuting with most of the case markers. In this structure, where wa commutes with the dative case marker ni, the literal translation will be 'Eel for me.' The subject position is not realized in this structure, and yet, in the underlying structure (i.e. in the abstract relational system), da is clearly a linking verb.

Daniels also points out that in colloquial Japanese, the '...no desu' form is used ('...' is a sentence, no is a nominalizing case marker, as in the example (5-68)), and this desu is not truly a linking verb because there is no subject which is supposed to be linked with the predicate '...no desu'. He is right in the sense that desu has no linking function in the same way that the English copula does. He is, however, wrong in that he equates the Japanese

copulative-verb with the English copula. The `...no desu' form indeed does not offer a strong grammatical-function of linking, and does not have any semantic contributions, either. This form may rather correspond to the English form `It is that....' Nonetheless, desu determines the function of the whole nominal (clause) in a given structure. That is, desu sets up the status of the nominal as a predicate. In Japanese, the occurrence of a subject on the realizational level is entirely optional. In some cases, subjects are recoverable via syntactic, semantic, discourse or extra-linguistic contexts. In other cases, it may be difficult to realize subjects: they may exist as entirely formal positions in the underlying structure. If a formal (and phonologically null) subject position were set up, desu here would still function as a linking verb. But this is not our main concern, since the Japanese copulative-verb is established principally because of its predicating function.

Daniels comments further that the following desu is not a copula because there is already a predicate, and it does not have any grammatical function except its polite expression in semantics.

(5-69) siroi desu (...was white)
white

(5-70) sirokatta desu (...was white.)
past

(5-71) arimasen desita (...did not exist.)
exist not past

This desu is indeed not a copulative verb. This is shown by the fact that desu, which elsewhere is a polite form of da, cannot be replaced by da in the examples above, i.e. the form desu is not necessarily a polite form of da.

5.4.3 Keiyoodoosi - two words? one word?

The traditional term keiyoodoosi has been used for units with the ending form -da as one of its conjugations called shuusi kei (=termination form). Units designated by this term describe the physical or emotional state of an entity. Recent grammarians such as Miura (1975), Watanabe (1974), Yamada (1908) and Yamasaki (1958) claim that this term is redundant because it is the combination of a noun with -da the latter of which is traditionally called an affirmative form of jodoosi (=help-verb term, auxiliary) or a copulative-verb in this thesis. By showing the paradigms of 'noun +da' and the so-called keiyoodoosi, they assert that the two da's show exactly the same inflections. Watanabe (1974) exemplifies:

(5-77)	neko cat	da	sizuka da quiet
	seem	rasii	rasii
	negative	de-nai	de-nai
	if	nara	nara
	assumption	da-roo	da-roo
	question	ka?	ka?

(1974: 175f)

through which he states that there is no distinction between the two paradigms as far as their function in structure is concerned.

The problem with Watanabe's statement is that his argument is limited to the morphological phenomena of the unit. Indeed, the inflected forms themselves do not distinguish between the two examples, but since categories in Japanese are basically the property of syntax (except auxiliaries and morphological conjunctionals), we

need to know whether in syntax, those da forms function in the same way. In syntax, as the term's name indicates, sizukada (=quiet), for instance, has the same function as adjectives.

- (5-78) (1) totemo _____
 very
- (2) _____ hito
 person
- (3) Kare wa _____.
 he

As a modified unit by an adverb in (1), a modifier to a noun in (2), and a predicate in (3), sizukada, with its appropriately inflected forms, functions as equivalent to adjectives. On the other hand, neko da does not appear in (1) and (2). In other words, da in neko da functions only as a predicate, but does not modify a noun nor is modified by an adverb. It is, therefore, more appropriate to classify keiyoodoosi as the same class as adjectives than ^{to consider it as} the 'noun + da' group. Such da-forms are classified as adjectivals together with adjectives.

We now admit two types of da forms; one is a syntactically simple (not further analysable) unit, i.e. an adjectival, and the other is a syntactically complex unit, i.e. a noun plus a copulative verb da. This means we have to know how to distinguish them. Consider the following examples.

- | | | |
|---------------------------|------------------------|-------------------------|
| 1. kodokuda
lonely | 2. kenkooda
healthy | 3. tanjunda
simple |
| 4. sakarida
prosperous | 5. sizukada
quiet | 6. nodokada
peaceful |
| 7. hareyakada
clear | 8. toozenda
natural | 9. sinsetuda
kind |

10. mazimeda diligent	11. kireida pretty	12. nigiyakada lively
13. teineida polite	14. ganzyooda firm	15. meiwakuda annoying
16. detarameda nonsense	17. usoda lie	18. hontooda true
19. akirakada obvious	20. banzenda perfect	21. manukeda stupid
22. kenageda making	23. doomooda fierce	24. iyada reluctant
25. bakada foolish	26. sakanda popular	27. odayakada sereen
29. kessakuda excellent	30. soogonda dignified	31. sukida fond
32. kiraida unlikable		

Since all of them can appear in the syntactic environments (1), (2) and (3) above, they may all appear to be adjectivals. Consider, however, the environments where neko da, i.e. a noun + a verb, can appear.

(5-79)	kawaii cute adj.	neko	da	(to be a cute cat)
	totemo very adv.	kawaii	neko	da
				(to be a very cute cat)

Since neko is a noun, it can expand to a noun phrase with modifiers. By using a similar method, we examine the examples 1 to 32. Among them, only the following can occur in the environment, '(adjectival) modifier ___', which construct a complex nominal.

2. kenkooda ----- mattakuno _____
perfect
(perfect health)
4. sakarida ----- sakura no _____
cherry of
(It is the peak of cherry blossoms)
9. sinsetuda ----- tiisana _____
small
(It is small kindness.)
15. meiwakuda ----- ookina _____
big
(It is a big annoyance.)
16. detarameda ----- mattakuno _____
(quite a lie)
17. usodo ----- ookina _____
(It is a big lie)
21. manukeda _____ taihenna _____
great
((He is) a great fool.)
25. bakada ----- makotono _____
true
((He is) a definite fool.)
29. kessakuda ----- tainenna _____
(It is quite excellence.)

The above nine examples, then, should be considered as both adjectivals and a noun + da. In order not to fall into the same dilemma that traditional grammarians have had, we should not decide which category they are by their form alone. Just as in English 'help' can be a noun and a verb, according to its environments, so bakada, for instance, can be an adjectival and a noun + da, depending on where it occurs in syntax. In the context such as

(5-80) makotono _____

in which makotono (=quite) is a noun attribute, i.e. modifies a noun, bakada is analysed as

(5-81) (makotono → baka) → da
 N P copula

Thus, baka da, in this syntactic environment, is to be considered as the noun, baka, plus the copulative-verb, da. On the other hand, if the environment

(5-82) hijooni _____
 extremely

is given, then, bakada should be an adjectival since hijooni as an adverb requires an adjectival or its equivalent for its nuclear position.

The nine examples above are, then, either an adjectival or two syntactic forms, a noun + a copulative-verb. The decision between the two is entirely dependent on their syntactic environments.

5.4.4 Syntactic and morphological conjunctionals

In traditional grammars of Japanese, conjunctional units are classified into two types; the one is so-called setuzokusi (=conjunction-term) and the other is setuzoku-zyosi (=conjunction-help-term). The latter is one of zyosi which include case markers and mood markers in this thesis. The only criterion of this classification is whether the unit occurs on its own (equivalent to a free form in the Bloomfieldian sense) or does not (equivalent to a bound form). This criterion, however, as is discussed in Chapter 1, ignores the distinction between syntax and morphology. For instance, case markers, though they are unlikely to occur on their own in

speech, are syntactic units and play one of the most important roles in syntactic analysis. But in the traditional grammar, they are considered as one of zyosi on the same level as mood markers which hardly contribute grammatical roles, but pragmatic aspects.

We have seen two types of syntactic conjunctionals; co-ordinating ones and subordinating ones. The latter are easily confused with morphological conjunctionals because many of them have the same phonological forms and occur in the same place in a structure, i.e. at the end of the clause. We examine here how to distinguish them. The following conjunctionals are cited from Maruyama and Iwasaki (1976). The underlined units are conjunctionals.

- (1) Ame ga huru ga,... (Although it rains,...)
rain fall but
- (2) Ame ga huru kara,... (Because it rains,...)
since
- (3) Ame ga huru keredomo,... (In spite of raining,...)
though
- (4) Ame ga huru si,... (In addition to raining,...)
and also
- (5) Ame ga huru to,... (Suppose it rains, then,...)
if
- (6) Ame ga hut-tatte,... (Even if it rains,...)
even if
- (7) Matigatta koto wo siteiru kuseni,...
wrong thing be doing in spite of
(In spite of (his) doing a wrong thing,...)
- (8) Zyuubun siritutu, ... (While (he) knows enough,...)
enough know while
- (9) Ame ga hut-te,... (It rains and,...)
and
- (10) Yakusyo ni kiita tokoroga,...
council to ask when

(When (I) asked the council, the result is,...)

- (11) Otituku dokoroka
settle down on the contrary

((I) have not settled down, on the contrary,...)

- (12) Zikakusita tokorode,.. (Even if (he) realizes now,..)
realize even if

- (13) Sinbun ga nakutomo,...
newspaper not even though

(Even though (we) do not have papers,...)

- (14) Warai nagara,... (While (he) is smiling,...)
laugh while

- (15) Okirunari,... (On getting up,...)
get up soon

- (16) Anmari hataraita node,...
too much work past since

(Since (he) worked to much,...)

- (17) Ganbatta noni,... (In spite of all efforts,...)
make efforts though

- (18) Ame ga hure ba,... (If it rains,...)
rain fall if

- (19) Yareru mononara,...(If you dare to do,...)
can do if

(pp65 - 76)

These are all considered as zyosi in traditional Japanese grammars, because they do not occur independently in the spoken language. Also, because all the examples above indicate that they are subordinating clauses, and the functor that makes a structure a subordinating clause is each of the so-called setuzoku zyosi (=conjunction-help-term), they are classified as the same part of speech. In this solution, there is no consideration of the syntactic or morphological status of units. It is also understandable since the traditional grammarians were not interested in the syntax-morphology boundary.

Here, we have to examine their status. As far as the grammatical function is concerned, all the units above have the role of a 'functor' which makes the whole structure a subordinating clause. This is the reason why the term 'conjunctive' is introduced in the parts-of-speech system in 5.4.1. We now go on to investigate their grammatical status; whether they are syntactic or morphological units.

We saw in 1.4 and Chapter 4 that there is a method to identify a unit as a syntactic unit. That is, suppose we have 'ab' as potentially two units. We, then, operate commutation tests on this combination. Commutations must be valid, i.e. they are operated within the same distributional class. Let us say, if 'a' in 'ab' can commute with 'xyz' which is a syntactically complex, and if 'a' and 'xyz' belong to the same distributional class (e.g. 'a' is a noun, and 'xyz' is a noun phrase), then, we conclude that 'a' and 'b' are both syntactic. By commutations, 'a' is considered as equivalent to a syntactic unit, and 'b', which is in the relation with the syntactic unit, 'a', must be syntactic as only syntactic entities enter in syntactic relations. (See the details in Chapter 4.) In Chapter 4, we have the commutation test on 'N + case marker' and we obtain

(5-83)	a		b
	xyz		b

where 'b' is a case marker as a head, determining either 'a', a simple noun, or 'xyz', complex nominal (e.g. a noun phrase).

However, in the case of conjunctionals, because they tend to be attached to the end of clauses, commutations do not clearly show the relation between conjunctionals and other units. This means that because conjunctionals make subordinating clauses, the commutation between 'a' and 'xyz' as in (5-83) is not possible within the same distributional class, i.e. a sentence (basic sentence in Chapter 4) cannot be substituted by a simple unit within the same distributional class. Then, the example (1) has two possible ways to be analyzed.

(5-84) (ame ga huru) → ga

(5-85) (ame ga) → huru ga

At this stage, we do not know whether ga (attached to huru: ga in ame ga is a case marker) is syntactic or morphological. If it is syntactic, ga is a functor, and occupies the head position as is analyzed in (5-84). If it is morphological, ga is part of verb-inflections, equivalent to auxiliaries. Therefore, huru ga is the head of the structure as is shown in (5-85).

As mentioned above, the simple-complex commutations are not successfully applicable here. We have to add one more commutation test. In the previous section, there is a syntactic conjunctional. Let us consider one example.

(5-86) sosite (and then)

Ringo to mikan, sosite obentoo mo.
apple and orange and packed meal too

(Apples and oranges. And a packed meal, too.)

Sosite, dare mo inakunatta.
and anyone disappeared

(And then, there is none.)

Sosite is a coordinating conjunctival. It occurs between clauses and phrases. We attempt to commute this with the conjunctivals in (1) - (19). Because sosite is a syntactic unit and its function as a conjunction is the same as the conjunctivals in (1) - (19), we assume that if sosite is commutable, they have the same status, i.e. syntactic.

Among the examples above, ^{the conjunctions in} (6), (8), (9), (13), (14), (15) and (18) cannot commute with sosite. There is a common phenomenon here. If sosite is commutable with a conjunctival 'a', 'a' is attached to a certain form of a verb, i.e. the termination form (syuusi-form) or the structure is completed. It means that the examples which cannot commute with sosite are all part of inflected forms of verbs. These are analyzed as in (5-85). We conclude that the conjunctivals in (6), (8), (9), (13), (14), (15) and (18) are morphological and the rest are syntactic conjunctivals.

Chapter 6: THE NOTION 'WORD'

6.1 Defining a Word

Krámský (1969) in his book 'The Word as a Linguistic Unit' plunged into defining the 'word' after examining definitions of the word by other linguists (in traditional grammars): He defines the word as 'the smallest independent unit of language referring to a certain extra-linguistic reality or to a relation of such realities and characterized by certain formal features (acoustic, morphemic) either actually (as an independent component of the context) or potentially (as a unit of the lexical plan).' (p67) Whether or not this definition applies to as many languages as possible, however, is not questioned here. We must instead note that Krámský mentions that 'language units in various languages have different boundaries that often overlap the boundaries of other units.' (p75)

When Matthews (1974) investigated various languages to see how each language should be analyzed, whether syntactically-based or morphologically-based, he remarks that morphology and syntax cannot be defined universally. He mentions that in Latin, the traditional division seems justified; in French or English it is tolerable, but in Vietnamese it would be nonsense; in Turkish there must be rules for the incidence of different allomorphs. (p171)

A number of discussions have appeared on the issue of the term 'word'. The term seems to be the key unit in attempts^t to draw a borderline between syntax and morphology. But as the two remarks above indicate, linguists have confessed that it is next to impossible

to give a universal definition of the 'word'. If one definition of this term applies in a certain language, it very often happens that it is not applicable to another language. The result is that although the majority of studies on syntax and morphology support the existence of 'word' as a notion, they invariably add a statement '...but agglutinative languages such as Turkish may be better described with the morpheme-base.' (Although the morpheme-base plan still has to face the problem of the notion 'word' in describing structures, Matthews, for instance, perhaps means that the borderline between syntax and morphology is ignored in such a description.) Some linguists even accept the term 'word', i.e. admit its existence, but use this term in different senses in different language descriptions.

As was mentioned in 1.4, we are therefore still content with an approximate identity of a word, while there have been elaborate endeavours to develop syntactic and morphological studies. This thesis was motivated by this problematic issue. However, instead of plunging into directly defining the term 'word', we started with the assumption that it is necessary to distinguish syntax from morphology because of the tremendous differences between these systems. By showing such differences, we have attempted to clarify and refine the borderline between the systems.

Knowing that Japanese is one of the so-called agglutinative languages, and more importantly aiming at the most natural way of describing this language, i.e. never to be disturbed by, for instance, English translations or to assimilate Japanese to other European (or any other) language descriptions, we have refused to employ certain theoretical notions in our theory, and sometimes have

had to suggest different solutions in the description.

As to notions, for example, we have been negative in employing 'heads' in morphology. Also, dependency relations have been developed to distinguish between functional and occurrence dependencies, which is in fact a key issue in dealing with the syntax-morphology distinction. The definition of 'head' in syntax is in fact derived from functional dependency. Furthermore, morphology does not offer functional dependency, but only occurrence dependency, which is one of the reasons why the notion 'head' in morphology is not employed in our theory.

As to the descriptions of Japanese, all are based on our theoretical notions, and criteria of 'commutations' are introduced. These methods led us to some characteristic analyses of Japanese in relation to types of lexical entries, morphological hierarchy, morpho-syntactic problems and treatment of case markers. There is no need to repeat these discussions here, but there are some further points to be discussed.

Firstly, as indicated in Chapters 3 and 4, this thesis avoids providing a definition of 'word'. Although for the sake of convenience, we have allowed this term to be used in the same sense as a minimum syntactic unit, there is no statement even within the description of Japanese that defines the word. This is simply because it is difficult or almost impossible to give a definition of 'word' which would be applicable all the time even in a particular language. (Needless to say, it is impossible to do so in a universal sense.)

Van Wyk (1968) and Krámský (1969) discuss conditions to extract 'words'. As Rosch (1977) mentions 'prototypes' (in her discussion, prototypes of categories are applicable not only to linguistics but also to other fields), their conditions are prototypes of categories (in this case linguistics 'words') which demonstrate the most characteristic members of the category 'word'. For example, they mention the following conditions; 'transpositions' (e.g. They will try.: Will they try?: Try they will.), 'free mobility' (e.g. An apple is eaten.: I will eat an apple), 'substitutions' (e.g. I will eat an apple.: I will eat an orange.), and 'insertions' (See below.) (discussion by Van Wyk (1968) and Krámský (1969)) which should extract words, do not satisfy every unit in a particular language.

However, as Rosch (1977) remarks, categories (in this case 'words') are not '...logical, bounded entities ... in which all instances possessing the criterical attribute have a full and equal degree of membership.' Rather, they are 'internally structured into a prototype of the category with nonprototype members tending towards an order from better to poorer examples.' (p218) That is, not every unit as a candidate for a 'word' can fulfill all the conditions. There is a degree of applicability; we might find some units which satisfy only few of the conditions. For instance, English particles are not free-mobile, nor transposed. 'Insertions' seem to work in English. Van Wyk explains that '...a word which appears in immediate linear context with another word, may appear in other, different contexts with the same word.' (p547) This implies that a word can be separated from another word by inserting still other words between them, e.g. The man will go.: The /old/ man /and his wife/ will /definitely/go. However, in Japanese, this condition does not necessarily satisfy only

syntactic units, because insertions are quite possible even in morphology. For example, 'verb/adjectival + Past Tense' is a morphological combination in Japanese (See word formation in Chapter 3), and yet a number of units can be inserted. Because Van Wyk does not consider structural hierarchy in explaining 'insertions', the same method is applied to (6-1). (i.e. tabe-nakat-ta, for instance is not judged as ((tabe + nakat) + ta); only insertions in a linear structure are considered).

- (6-1) tabe-ta ((He) ate.)
 tabe-nakat-ta ((He) did not eat.)
 tabe-masi-ta ((He) ate:polite.)
 tabe-rare-ta ((He had something) eaten.)
 tabe-sase-rare-ta ((He) was forced to eat.)
 tabe-sase-rare-nakat-ta ((He) was not forced to eat.)

This phenomenon is true for all combinations between verbs or adjectivals and auxiliaries. Although the order of auxiliaries in occurrence is fixed (e.g. Past Tense occurs at the end of the unit and Negative forms occur at the next end.), a complex unit is formed by insertions. Other agglutinative languages seem to behave in a similar way, or to have more substantial examples of this kind.

Giving definitions or conditions of words has another disadvantage. As Van Wyk (1968) remarks, we have to specify degrees of applicability, according to different units in a particular language, and naturally according to different languages. For example, English prepositions are generally admitted as words. Although they cannot be transposed with nominals to which they are attached, they satisfy other conditions. This means that English

prepositions have a lower degree of autonomy than other units such as nouns and verbs. Japanese case markers are, though postpositioned, very often compared to English prepositions. But English prepositions have a more autonomous status than Japanese case markers. That is to say, English can have structures such as

(6-2) I will put this in the pot.

(6-3) I will put it in.

In (6-3), 'in' occurs autonomously although in a limited way, whereas, Japanese markers do not have such structures that can extract case markers in some way. They are always attached to nominals.

As Van Wyk (1968) remarks, '...the autonomy of words ranges from a point where they are very much like morphemes without ceasing to be words, to a point where their word status is obvious from every point of view.' (p549) This implies that although conditions on recognizing words are given, other conditions on word-autonomy should be mentioned additionally. Giving the definition of a word in this way would end up with all explanations of degrees or ranges of autonomy, according to different units in a language, and also according to different languages. Although the description of such degrees is equally important in our linguistic interests, it is again difficult to adopt this method to our theory in introducing as a notion, because such descriptions are far too complicated to be a universal notion and require far too many footnotes on the conditions. Let us say, therefore, that the degree of autonomy is an important statement in a particular language description, but that it does not lead to a notional statement in our theory as a universal feature.

What we have aimed at in this thesis, then, is to search for criteria to identify words through different phenomena between syntax and morphology. What we truly require is the guideline with which everyone, in the same way, can judge a certain unit as a word, a certain unit which is problematic or uncertain as to its status. If it is tremendously difficult to define a word, an alternative method is to furnish criteria with which we can judge the status of a unit. Throughout this thesis, the criteria of commutations are employed.

6.2 Commutations as Criteria for Identifying a Word

In syntax, the most characteristic notion is functional dependency. It not only shows the relation between immediate constituents, i.e. which unit determines which, but also implies the relation between the controlling unit and a larger structure. The head unit is responsible for the latter relation. We have mentioned in Chapter 2 that this kind of dependency does not exist in morphology. Morphology deals with only the inner relation between immediate constituents, and its hierarchy is obtained via occurrence dependency. This characteristic in syntax means in short that every unit that is a candidate for functional dependency is a syntactic unit, and every unit that is not capable of standing in a functional relation but only in occurrence dependency, is a morphological unit. However, this statement is not sufficient to identify a unit as either syntactic or morphological. We somehow need a certain method to lead us as a guideline to scrutinize units concerned. For this scrutiny, criteria of commutations are introduced to complement our theoretical notion on syntactic units.

In Chapter 4, when we continued syntactic analysis, we had to examine the status of case markers. They do not obviously look like autonomous words since, applying Van Wyk's conditions on words (Cf.6.1), they do not occur on their own, and are attached to nominals in a fixed order.

Let us say, if 'a noun + case marker' were considered as morphologically complex, i.e. syntactically simple, the whole unit would be treated in the same way as Latin words. That is, 'cases' are shown on the morphological plane, and syntactic analysis stops at the level of 'a noun + case marker'. The unit is examined in morphology for a further analysis. But in Chapter 4, through our criteria of commutations, case markers are considered as syntactic units. Commutations are not simple alternations of units. Insofar as the same distributional class is maintained, and ungrammatical structures are not produced (i.e. commutations are valid), a given unit in the chain can be altered with a simple to complex unit. Because syntax deals with distributional classes in presenting functional relations, the major idea of commutations is to find out whether the altered unit in the chain is distributionally equivalent to a syntactic unit. Because the questioned unit 'a' in 'ab' is not certain as to its grammatical status, our aim is to find out through commutation tests that 'a' is grammatically equivalent to another unit which occurs during the tests as syntactic units. This means that although our commutation tests do not directly prove or determine the unit 'a' as syntactic, they can provide the unit with the same distributional class as syntactic units.

In our tests in Chapter 4, therefore, case markers are regarded as syntactic. Because they can combine with a complex noun which is syntactically complex, and because only syntactic units can enter in the combination together, i.e. there is no case that syntactic units and morphological units are combined in the chain, case markers are considered as equivalent to syntactic in our grammar. (As mentioned in Chapter 4, 'syntactic' or 'morphological' means from the viewpoint of the grammatical role of units in a given structure.)

Although commutations are criteria for the purpose mentioned above, the idea behind this is truly from the nature of syntactic units, i.e. functional. The altered unit in question which is syntactic shows its equivalent function to the uncertain unit. Dependency relations in syntax are the same; relations are found via the function of units in the chain. The distributional class of units is determined by their function in the chain. In this sense, the fundamental criterion in our grammar very much relies on 'function'. In spite of different notions and descriptions, our theory is basically in line with Martinet's (1962) claim in Functionalism that function is a criterion of linguistic reality.

6.3 For the Future

As the title of this thesis indicates, the boundary between syntax and morphology has been investigated. The major concern was not only how the borderline is drawn, but also how we could approach the status of each system via our theory and criteria. For this purpose, characteristics of each system are first examined (Chapter

2), and secondly they are applied to some relevant fragments of Japanese (Chapter 3 and 4). Although theoretically we can show different natures between syntax and morphology, practically in the description of Japanese, we have to solve some problematic phenomena in the description alone, although the way to solve them is not (and should not be) far from our theoretical backgrounds (Chapter 5).

However, there is still much more to be investigated; for example, theory-establishing awaits for further study. It is tremendously difficult to introduce a notion into a theory, because there are so many languages in this world. We cannot be so naive as to be content with a notion which is based on only limited knowledge of languages (or even one language). Although I suggested and adopted some notions in Chapter 2, I should investigate more languages by applying those notions. Furthermore, the ultimate issue of this thesis, the definition of word, also would be an ever-lasting investigation in other languages.

With regard to the description of Japanese, a further investigation on morphology awaits. Because the boundary was more focused, I feel that morphological studies of Japanese have been only a rough sketch. Especially, compared with English, Japanese morphology seems to be more substantial and complex. Perhaps, my future concern will go into this study. How much I could pursue, I do not know. Maybe, life is too short to complete linguistic studies.

I, as a native speaker, would hardly utter the examples above. (2-2) is acceptable, but I would tend to interpret it as 'Ken said that Naomi would come.' rather than the way Gunji presents as the result of topicalization. Perhaps linguists' opinions are not so reliable. With my friends' help, I examined the above examples by asking 167 native speakers whether they can understand or accept the examples. Also, the question continued for 'who' said, 'who' loves someone, 'who' is loved and so on, if the examples are understandable. The Figure 1 shows the result. The question mark means that informants said, 'I am not sure.', or there was no answer.

Figure 1

Example	NO	?	YES
(2-2)	6	5	156
(2-3)	147	6	14
(2-4)	75	16	76
(2-5)	151	13	3
(2-6)	105	14	48
(2-7)	102	13	52
(2-8)	126	15	26

Out of 'YES' answers (A = agent, P = patient)

- (2-2) A of 'come': Naomi(147) Ken(2) ?(7)
 A of 'said': Naomi (2) Ken(148) ?(6)
- (2-3) A of 'love': Ken(3) Susumu (9) ?(3)
 A of 'think': Naomi(9) Ken(2) ?(7)
 P of 'love": Naomi(3) Ken(1) Susumu(1)
 ?(8)

- (2-4) A of 'met': Susumu(75) ?(1)
 A of 'think': Susumu(1) Ken(75) ?(2)
 A of 'said': Ken(1) Naomi(74) ?(1)
- (2-5) A of 'love': Ken(3)
 A of 'said': Susumu(2) Marie(1)
 P of 'love': Naomi(3)
- (2-6) A of 'love': Ken(46) ?(2)
 A of 'said': Marie(43) Ken(1) ?(4)
 P of 'love': Marie(1) Naomi(46) ?(2)
- (2-7) A of 'love': Susumu(1) Ken(47) ?(4)
 A of 'said': Susumu(48) Ken(2) ?(2)
 P of 'love': Naomi(49) ?(3)
- (2-8) A of 'come': Marie(3) Ken(23)
 A of 'said': Marie(22) Ken(2) ?(2)

Note: Some informants seem to answer more than one Agent or Patient as another possibility. This is also counted in number above.

Sources: Students of Kagoshima Univ. Japan, with help by Mr. Yasuhumi Iwasaki, NEC and Mitsubishi company workers and tourists in Scotland with help by Mrs. Akiko Patterson, and some other individuals in England.

Except for (2-2), the examples above seem to be difficult to accept or understand. (2-2) gained the majority who understand it as 'Ken said that Naomi would come.' *in spite* of Gunji's intention to show the topicalization of 'Ken' which was originally a unit in an embedded clause. Furthermore, the data show that even when the answer is 'Yes', informants tend to interpret agents and patients differently from Gunji who attempted to show topicalizations of units no matter where they are in a given structure.

APPENDIX 2

The following formations are studied in a component outside the lexicon.

1. pseudo-complex units

hakuchoo (=swan) --- The forms haku (=white) and choo (=bird) are from the observational fact that swans are white. Although there are many other kinds of birds which are white, hakuchoo is used only for the specific bird, 'swan'. This is an example of specialization of meaning.

asemo (pricklyheat) --- Ase (=sweat) and mo (?). Although the form mo is given the Chinese character which means 'rash', but this character originally does not have such a phonological form. Only from meaning, the written form was artificially adopted. Mo does not combine with any other unit.

aramaki (=salmon) --- This specifies a half-dried whole salmon which is rolled (=maki) by a rough (=ara) straw-woven cloth. The name of this specific item, therefore, is from the way it is presented for sale.

baisyun (=prostitution) --- bai (=sell) and syun (=spring). The latter is used in syunga (=erotic painting), syunmono (=erotic thing), etc.. By this association, baisyun means 'prostitution'.

zyagaimo (=European potato) --- The form imo means 'potatoes' in general. Zyaga is from 'Jakarta' because European potatoes were introduced by the Dutch who came to Japan via Jakarta.

kokuban (=blackboard) --- koku (=black) and ban (=board). The forms are from the fact that something that functions as a 'blackboard' is normally a black board.

biidama (=glass ball) --- Bii is a short form of biidoro which came from either the Portuguese word 'vitreo' or the Spanish word 'vidrio', meaning 'glass'. The form dama is an allomorph of tama (=ball). In present Japanese bii is used only in this unit.

kaakiiro (=bright brown colour) --- Kaaki is from 'khaki' (=dust from the dried ground) in an Indian language. Because the soil-dust is brownish colour (at least in the place where the word 'khaki' is used), kaakiiro (iro = colour) is used for a colour term. Kaaki itself, however, does not exist in Japanese.

higuma, araiguma, sirokuma --- All are types of kuma (=bear). Hi- and arai- do not have any meanings. (The latter might come from arau (=wash) because this bear was seen to wash food before eating?) Siro means 'white' and sirokuma is in fact a white bear, living in the North pole. Like hakuchoo, this name specifies a certain type of bear.

handon (=half a day work) --- Han (=half) and don (=the abbreviated form of the Dutch word 'zondag' (=holiday)). The combination between a Japanese form and a Dutch. This unit is usually used by elder people nowadays, meaning 'Saturday work' because the work on Saturday finishes at lunch time. Don is never used with any other unit.

2. Abbreviations from syntactically fossilized units.

The formations seem to be made by combining forms which can be easily identified even in the abbreviated forms. For instance, anpo is one of many treaties (therefore, zyooyaku (=treaty) is not a good candidate for part of abbreviated forms) between Japan and USA (therefore, niti (=abbreviated form of nippon (=Japan)) and bei (=abbreviated form of beikoku (=USA) are not good for abbreviation, either). Then, the first syllables of anzen (=security) and hoshoo (=gu^arantee) were chosen to form anpo (po is an allomorph of ho). The following are formed in the same way. Note that always the first syllable of each word is chosen.

kyoodai - kyoto daigaku
 Kyoto university

tandai - tanki daigaku
 short term university
 junior

settin - sekkeyuu tinko sokudo
 blood sedimentation speed

zinken - zinzoo kensi
 artificial silk

kokutetu - kokuyuu tetudoo
 nation-own railway

Each syllable of the above words does not combine with other units. Because they present specific forms, each syllable in the abbreviated forms does not specify a certain meaning. It is rather a symbol like 'U', 'S', and 'A' in 'USA' in English.

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