

Japanese Periphrastic Verbs and Noun Incorporation*

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Abstract

Japanese periphrastic verbs, consisting of a verbal noun together with the verb *suru* 'do', are generally considered to be lexically incorporated. I argue that in fact they are not only not lexically incorporated, they are not incorporated at all, but remain analyzable at every level of representation. While it is possible to account for the Japanese facts without positing any sort of constituency of the verbal noun and *suru*, there are theoretical grounds for preferring an analysis in which the periphrastic complex consists of a V dominating N V, including the proposal that the introduction of non-head lexical categories is restricted to the expansion of lexical categories. Distinguishing this case and others like it from true incorporations makes possible the claim that true lexical incorporations are syntactically opaque.

0. Introduction

Over the past few years a controversy has raged over the nature of noun incorporation. What seems to invite general agreement is that in some cases a noun and a verb come to form a unit that acts in some respects like a single verb, that after incorporation takes place, the resulting unit is atomic, that is, that it is thereafter unanalyzable into its component N and V, and that the result of incorporation is a single word. What is more controversial is whether incorporation may be treated

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as a strictly lexical operation (Di Sciullo & Williams 1987, Mithun 1984, 1986, Rosen 1989), or whether it must take place in the syntax (Baker 1988, Sadock 1980, 1985, 1986, 1991).

In this paper I discuss in considerable detail a construction in Japanese, periphrastic verbs consisting of a verbal noun followed by the verb *suru* ‘do’, that has been taken by most previous authors to be an instance of lexical incorporation of the verbal noun into the verb. Authors favouring lexical incorporation include Inoue (1976), Poser (1980), Miyagawa (1987, 1989), and Grimshaw & Mester (1988), while Kageyama (1977ab, 1982) has argued for incorporation in the syntax.

The evidence for monoverbal behaviour of Japanese periphrastics is quite similar to that given in many of the other cases in the literature (Mithun 1984, Miner 1986), in spite of which I propose to show that they are not incorporated at all. I give evidence that the periphrastics retain their complex structure and remain analyzable at **every** level of representation. The implication of this is that they cannot be accounted for by an incorporation rule, no matter where in the grammar it may apply, nor by Autolexical component misalignment of the sort advocated by Sadock.

The organization of the paper is as follows. Section I provides an introduction to the periphrastic construction. Section II reviews the evidence for considering the periphrastics to be single verbs. Section III gives evidence against lexical incorporation. Section IV presents evidence that the periphrastics remain analysable not only in the syntax but even in discourse representation. Section V distinguishes the periphrastics that exhibit the phrasal properties examined in Sections III and IV from historically related periphrastics which I claim to be lexical. Section VI presents the analysis proposed here, in which the periphrastics are treated as being purely syntactic.

1. Japanese Periphrastic Verbs

Modern Standard Japanese possesses a large number of periphrastic verbs composed of a verbal noun followed by the verb *suru* ‘to do’.¹

The great majority of the verbal nouns are constructed from morphemes borrowed from Chinese, as in (1), but loans from other languages, including English, also occur, as in (2), as do some native Japanese verbal nouns (3).

- (1)
- | | |
|--------------|----------------|
| denwa suru | to telephone |
| sanpo suru | to take a walk |
| kenkyuu suru | to do research |
- (2)
- | | |
|--------------|----------|
| doraibu suru | to drive |
| nokku suru | to knock |
- (3)
- | | |
|---------------|-----------------|
| tatigare suru | to be blighted |
| tatiuti suru | to cross swords |

Japanese rarely borrows verbs directly, so virtually all loan verbs are borrowed as verbal nouns and used in the periphrastic construction. Verbal nouns of mixed etymology are occasionally found. A recent coinage is *aikonka* ‘iconify’, from the English *icon* and the Sino-Japanese *ka* ‘-ize, -ify’. *menyuuka* ‘menuize’ is similar.

The verbal nouns found in this construction need not co-occur with *suru*; they may appear anywhere that nouns with their semantics may reasonably appear. Consider, for example, the verb *kenkyuu suru* ‘to study, to do research’. In (4) it serves

¹ Since we will have frequent occasion to refer to this verb, I give here representative forms of its paradigm contrasted with the forms we would expect if it were a regular *s*-stem or *i*-stem verb.

Form	<i>suru</i>	s-stem	i-stem
present affirmative	suru	*su	*siru
present negative	sinai	*sanai	sinai
present polite affirmative	simasu	simasu	simasu
past affirmative	sita	sita	sita
provisional	sureba	*seba	*sireba
adverbial negative	sezu	*sazu	*sizu
passive	sareru	sareru	*sirareru
causative	saseru	saseru	*sisaseru

as the head of the subject NP, while in (5) it is the head of a predicate relative clause.²

- (4) Sono kenkyuu-ga taisetu-da.
 that research-N important-be
 That research is important.
- (5) Sore-wa Tanaka-san-ga site-iru kenkyuu-da.
 that-T Tanaka-Mr.-N doing-be research-be
 That is the research that Mr. Tanaka is doing.

In the periphrastics shown so far, the verbal nouns exhibit no case-marking. They may also appear case-marked. When the verb is intransitive, or is transitive but lacks an overt object, we can equally well have forms like those in (6), in which the noun bears accusative case.

- (6)
- | | |
|-----------------|----------------|
| denwa-o suru | to telephone |
| sanpo-o suru | to take a walk |
| tatigare-o suru | to be blighted |

When the verb is transitive and has an overt direct object two patterns are possible: one in which the direct object is marked accusative and the verbal noun is unmarked, as in (7), the other in which the direct object is genitive and the verbal noun receives accusative case, as in (8).

- (7) Eigo-o benkyoo site-iru.
 English-A study doing-be
 (He) is studying English.
- (8) Eigo-no benkyoo-o site-iru.
 English-G study-A doing-be
 (He) is studying English.

The construction in which the verbal noun is not case-marked and the object, if any, appears in the accusative is referred to in the literature as the *incorporated* form

² The following abbreviations are used in glosses on the examples:

A	accusative	L	locative
AD	adessive	N	nominative
AP	antipassive	NEG	negative
COMP	complementizer	Q	interrogative particle
D	dative	SUBJ	subjunctive
G	genitive	T	topic

of the periphrastic. The construction in which the verbal noun is case-marked and the object appears in the genitive is referred to as the *unincorporated* form. Although I deny that the so-called *incorporated* periphrastics are actually incorporated, I will make use of this terminology for descriptive purposes.

Incorporated and unincorporated periphrastics have roughly the same meaning, but differ in discourse properties and perhaps in such aspects of their semantics as the referentiality of the verbal noun.

Not all incorporated periphrastics have unincorporated counterparts. As Miyagawa (1987) and Tsujimura (1990) point out, unergative periphrastics, that is, those that have an agent thematic role, have both incorporated and unincorporated forms, while unaccusative periphrastics, that is, those that have only a patient or theme role, do not have unincorporated forms.³ Thus, such incorporated periphrastics as those in (9) have no unincorporated counterparts.

(9)

antei	stability	antei suru	*antei o suru
rikai	comprehension	rikai suru	*rikai o suru
seikoo	success	seikoo suru	*seikoo o suru
tanzoo	birth	tanzoo suru	*tanzoo o suru
zyooka	vaporization	zyooka suru	*zyooka o suru

2. Monoverbal Properties of Incorporated Periphrastics

The incorporation analyses of “incorporated” periphrastics are motivated by the fact that although clearly composed of two words in some sense, the verbal noun and the verb *suru*, incorporated periphrastic verbs behave like single verbs in a number of respects. One that we have already seen is their case-marking properties. The verbal noun is not case marked, even though, modulo ellipsis of the case-marker in casual speech, direct objects always are. Moreover, the periphrastic as a whole may take a direct object, which bears accusative case.

The verbal nouns of intransitive periphrastics also behave like non-objects with respect to the Double-O Constraint (Harada 1973), which prohibits two accusative

³ Miyagawa’s explanation is that the verb *suru* that appears in the unincorporated construction has a full θ -grid and assigns the agent role to its subject, which in the case of unaccusative verbal nouns results in a conflict of thematic roles. This explanation conflicts with the proposal of Grimshaw & Mester (1988) that *suru* lacks a θ -grid in unincorporated periphrastics. Miyagawa (1989) and Tsujimura (1990) give an alternative explanation that is consistent with Grimshaw & Mester’s proposal. Yet a third explanation is given by Dubinsky (1989).

objects in the same clause. Causatives of transitive verbs must have dative causees, as shown by (10) and (11), while intransitive verbs permit either dative (12) or accusative (13) causees.

- (10) Kumiko-wa Taroo-ni kusuri-o nomaseta
 Kumiko-T Taroo-D medicine-A caused-to-drink
 Kumiko made Taro take the medicine.
- (11) *Kumiko-wa Taroo-o kusuri-o nomaseta
 Kumiko-T Taroo-A medicine-A caused-to-drink
 Kumiko made Taro take the medicine.
- (12) Kumiko-wa Taroo-o ikaseta
 Kumiko-T Taroo-A caused-to-go
 Kumiko made Taro go.
- (13) Kumiko-wa Taroo-ni ikaseta
 Kumiko-T Taroo-D caused-to-go
 Kumiko made Taro go.

Intransitive incorporated periphrastics behave like other intransitive verbs in allowing both accusative (14) and dative (15) causees, indicating that the verbal noun does not count as an object of *suru*. In this respect the periphrastic as a whole behaves like a single verb.

- (14) Kumiko-wa Taroo-o sanpo saseta
 Kumiko-T Taroo-A walk caused-to-do
 Kumiko made Taro take a walk.
- (15) Kumiko-wa Taroo-ni sanpo saseta
 Kumiko-T Taroo-D walk caused-to-do
 Kumiko made Taro take a walk.

An obvious hypothesis that accounts for the absence of case-marking on the verbal noun is that incorporated periphrastics are derived from their unincorporated counterparts by ellipsis of the accusative particle *o*, a process that occurs frequently in Japanese casual speech. However, O-Ellipsis fails to explain the case-marking of the object of incorporated periphrastics. Recall that the direct object of an unincorporated periphrastic is obligatorily genitive, as in (8) above. Application of O-Ellipsis to the verbal noun *benkyoo* will leave the direct object in the genitive, as in (16), which is an acceptable casual speech counterpart to (8).

- (16) Eigo-no benkyoo- ϕ site-iru.
 English-G study- ϕ doing-be
 (He) is studying English.

What O-Ellipsis does not explain is why the direct object in the incorporated form may be accusative, or why the causative of an intransitive incorporated periphrastic may be accusative, since O-Ellipsis does nothing to affect the case of the object NP.⁴

In any case, O-Ellipsis is possible only in casual style, while incorporated periphrastics are found in every stylistic register, including the most formal. Moreover, as Kageyama (1977b) points out, NPs from which *o* has been elided are typically followed by a noticeable pause, but this pause is not present after the verbal nouns of incorporated periphrastics. O-Ellipsis also fails to account for the various other monoverbal properties discussed below.

A second way in which incorporated periphrastics behave like single verbs is with respect to Scrambling. Japanese is rigidly verb final, but the order of NPs and adverbs is otherwise fairly free. In particular, direct objects may be separated from the verb by an adverb. In (17) the adverb *itumo* ‘always’ follows the subject. Moving it between the direct object and the verb, as in (18), is perfectly acceptable. The same is true of unincorporated periphrastics, as illustrated in (19), where *itumo* intervenes between the verbal noun and *suru*.

- (17) Taroo-wa itumo eigo-o manande-iru.
 Taroo-T always English-A is-studying
 Taroo is always studying English.
- (18) Taroo-wa eigo-o itumo manande-iru.
 Taroo-T English-A always is-studying
 Taroo is always studying English.
- (19) Taroo-wa eigo-no benkyoo-o itumo site-iru.
 Taroo-T English-G study-A always is-doing
 Taroo is always studying English.

The same is not true of incorporated periphrastics. The adverb can appear after the subject, as in (20), or between the direct object and the verbal noun, as in (21), but not between the verbal noun and *suru*, as in (22). In other words, the verbal

⁴ One might think that the reason that the direct object of an unincorporated periphrastic must be genitive is that the verbal noun is already accusative and that the Double-O Constraint (Harada 1973) precludes there being two accusative NPs in the same clause, resulting in the assignment of another, perhaps default, case to the direct object. O-Ellipsis would therefore have the effect of licensing accusative case on the direct object. However, violations of the Double-O Constraint in other cases, such as causative constructions, are not eliminated by O-Ellipsis. This hypothesis also fails to account for the fact that in the unincorporated construction the object belongs to the same NP as the verbal noun, as demonstrated by the impossibility of inserting an adverb between the object and the VN, whereas in the incorporated construction the object and the VN do not form a constituent and may be separated.

noun in the incorporated periphrastic construction does not behave like an ordinary direct object with respect to Scrambling; it is inseparable from *suru*, as if it were part of the same word.

- (20) Taroo-wa itumo eigo-o benkyoo site-iru.
 Taroo-T always English-A study is-doing
 Taroo is always studying English.
- (21) Taroo-wa eigo-o itumo benkyoo site-iru.
 Taroo-T English-A always study is-doing
 Taroo is always studying English.
- (22) *Taroo-wa eigo-o benkyoo itumo site-iru.
 Taroo-T English-A study always is-doing
 Taroo is always studying English.

Similarly, as Hasegawa (1979) notes, it is not possible to passivize or relativize the verbal noun.

A third argument comes from Right Node Raising. Right Node Raising deletes all but the rightmost occurrence of a verb and raises the rightmost occurrence. Thus, from a conjoined sentence like (23) we can derive (24) by deleting the verb of the first clause.

- (23) Taroo-wa huransugo-o mananda sosite
 Taro-T French-A studied and
 Hiromi-wa doitugo-o mananda.
 Hiromi-T German-A studied
 Taro studied French and Hiromi studied German.
- (24) Taroo-wa huransugo-o ϕ , Hiromi-wa doitugo-o mananda.

Kageyama (1977b;133), points out that: “...Gapping must apply to whole S-J verbs.” and gives sentence (26), derived from (25), in which the simplex verb *manabu* has been replaced with the periphrastic verb *benkyoo suru*, by deleting the whole periphrastic verb, both verbal noun and *suru*, from the first clause.⁵

- (25) Taroo-wa huransugo-o benkyoo sita sosite Hiromi-wa doitugo-o benkyoo sita.
- (26) Taroo-wa huransugo-o ϕ ϕ , Hiromi-wa doitugo-o benkyoo sita.

⁵ Kageyama refers to periphrastic verbs as Sino-Japanese or S-J verbs. What he refers to as “Gapping” I have taken to be Right Node Raising. For arguments that in general so-called “Backwards Gapping” is really Right Node Raising, see Maling (1972). Kuno (1980) argues the point for Japanese.

Another way in which incorporated periphrastics behave like single verbs is with respect to *ai*-Prefixation. The prefix *ai* attaches to verbs to derive verbs meaning ‘to V together, to V mutually’. With intransitive verbs it always means “to V together”, while with transitive verbs it means ‘to V mutually’, provided that the reciprocal reading make sense. If the reciprocal reading is semantically deviant, some speakers get the joint action reading, while others consider the form to be ill-formed. Some examples of the prefixation of *ai* to non-periphrastic verbs are given in (27).⁶

(27)

aiarasou	quarrel with each other
aihagemu	encourage each other
aihakaru	plan together
aihureru	touch each other
aikirameku	flash together
aimukau	face each other
aimusubu	join together with
aitasukeru	help each other
aitatakau	fight with each other
aiyorokobu	rejoice together

Nothing can intervene between *ai* and the verb. (28) is ungrammatical because the adverb *itumo* intervenes between *ai* and the verb.

(28) *ai itumo tatakatta
 together always fought
 They always fought with each other.

Nonetheless, in the incorporated periphrastic construction the verbal noun not only *may* intervene between *ai* and the verb *suru*, as illustrated in (29), it *must* do so, as shown by the ungrammaticality of (30), where *ai* directly precedes *suru*. In contrast, in the unincorporated construction *ai* appears immediately to the left of *suru*, as shown in (31).⁷

(29) ainugo-o ai kenkyuu sita.
 ainu language-A together research did
 We studied Ainu together.

⁶ This prefix is rarely used and for many, perhaps most, speakers is restricted to a few fixed expressions. For such speakers none of the issues discussed here arise. Other speakers are able to give judgments quite confidently.

⁷ Most speakers do not permit the prefixation of *ai* to Sino-Japanese verbal nouns or periphrastics under any circumstances.

- (30) *ainugo-o kenkyuu ai sita.
ainu language-A research together did
We studied Ainu together.
- (31) eigo-no benkyoo-o ai sita.
English-G study-A ai did
(We) studied English together.

The periphrastic *ai* as a unit behaves just like an ordinary verb, in that nothing may intervene between *ai* and the verbal noun. (32) is ungrammatical because the direct object *ainugo-o* separates *ai* from the periphrastic, while (33) and (34) are ungrammatical because the adverbs *itumo* and *issyookanmei-ni* appear between *ai* and the periphrastic.

- (32) *ai ainugo-o kenkyuu sita.
together ainu-language-A research did
We studied Ainu together.
- (33) *ai itumo kenkyuu sita.
together always research did
We always did research together.
- (34) *ai issyookanmei-ni kenkyuu sita.
together hard research did
We investigated intensively together.

A final piece of evidence in favor of treating incorporated periphrastics as single verbs is the fact that in this construction the verbal noun must be a bare N, not an NP like any real verbal complement. No sort of modification of the verbal noun is possible, as illustrated by (35), (36) and (37). In (35) the verbal noun is modified by an adjective, in (36) by a relative clause, and in (37) merely by the determiner *sono* ‘that’.⁸

- (35) *Nakamoto-sensei-wa ainugo-o omosiroi kenkyuu sita.
Nakamoto-Professor-T Ainu-A interesting research did
Professor Nakamoto did an interesting piece of research on Ainu.

⁸ In these examples I have used an overt object in order to avoid the possibility of confusion with unincorporated periphrastics in which the accusative particle on the verbal noun has been elided. This raises the question of where the direct object *ainugo* ‘Ainu language’ ought to go. I have chosen to keep the NP headed by the verbal noun intact and placed the direct object immediately before it, but this arbitrary choice makes no difference, for these sentences remain ungrammatical no matter where the direct object is.

- (36) *Nakamoto-sensei-wa ainugo-o kyoomi-ga
Nakamoto-Professor-T Ainu-A interest-N
aru kenkyuu sita.
exists research did
Professor Nakamoto did the research on Ainu that interests you.
- (37) *Nakamoto-sensei-wa ainugo-o sono kenkyuu sita.
Nakamoto-Professor-T Ainu-A that research did
Professor Nakamoto did that research on Ainu.

In contrast, the verbal noun in the unincorporated periphrastic construction may be the head of a full NP, as illustrated by (38)-(40), which are the unincorporated counterparts of (35)-(37).

- (38) Nakamoto-sensei-wa omosiroi ainugo-no kenkyuu-o sita.
Nakamoto-Professor-T interesting Ainu-G research-A did
Professor Nakamoto did an interesting piece of research on Ainu.
- (39) Nakamoto-sensei-wa kyoomi-ga aru ainugo-no
Nakamoto-Professor-T interest-N exists Ainu-G
kenkyuu-o sita.
research-A did
Professor Nakamoto did the research on Ainu that interests you.
- (40) Nakamoto-sensei-wa sono ainugo-no kenkyuu-o sita.
Nakamoto-Professor-T that Ainu-G research-A did
Professor Nakamoto did that research on Ainu.

In sum, the facts of case-marking, Scrambling, Right Node Raising, *ai*-Prefixation and phrase structure militate in favor of treating incorporated periphrastics as single verbs.⁹

3. Evidence Against Lexical Incorporation

In spite of the largely syntactic evidence cited above for treating incorporated periphrastics as single verbs, there is considerable phonological and morphological evidence that they are not words.¹⁰

⁹ Kageyama (1977b) gives an argument based on Passivization that is a special case of the argument from case-marking presented here.

¹⁰ In order to forestall objections from those familiar with Japanese, let me note that there is actually a third type of periphrastic, often conflated with the incorporated periphrastics under

3.1. Pitch Accent

Standard Japanese has a pitch accent system, in which every minor phrase begins Low, rises to High, and continues High until at some point it may descend again to Low. The only distinctive property is where, if at all, this fall from High to Low occurs. The syllable on which this fall occurs is referred to as the *accented* syllable. Words with no fall are referred to as *unaccented*.

In noun stems the location of the accent is unpredictable, but in verbs there is only one bit of lexical accentual information, namely whether or not the stem is accented. Given this information, the accentuation of verbs is predictable. This is true of all derivational types, including compound verbs. Some suffixes are said to be *dominant* in that they assign an accent without regard to the properties of the stem. An example is the politeness-to-addressee suffix *-más*, which bears the accent no matter what verb stem it is attached to. Thus, the non-polite present tense forms of the accented verb stem *yom* ‘to read’ and the unaccented verb stem *yob* ‘to call’, are different, the former being *yómu* with initial accent, the latter *yobu* with no accent, but the corresponding polite forms *yomimásu* and *yobimásu* have the same tone pattern.

Accents are present on lexical entries and are assigned by morphological rules, but the LH(L) tone pattern is a property not of words but of minor phrases. When two or more words come together in a single minor phrase, all but the leftmost accent are deleted, without exception, a process I will refer to as *Accent Resolution*.

Accent Resolution is not influenced by lexical properties like dominance. Thus, if we combine *yónde*, the participle of *yom* with *mimásu* the polite form of *mi* ‘to see’ into a single minor phrase meaning ‘try reading’, the accent surfaces on the syllable /yon/ since it bears the leftmost accent. The dominant suffix *mas* does not trigger deletion of accents to its left — rather, it deletes itself.¹¹

discussion, that is, in my view, truly lexical, and which hence fails all of the tests for phrasal status (Poser ms.). These include forms that wear their lexicality on their sleeve like *nessuru* ‘heat’, where the final vowel of the corresponding noun *netu* ‘heat’ is absent and the /t/ of the stem assimilates to the /s/ of *suru*, and *anzuru* ‘be anxious’, in which the /s/ of *suru* become voiced. They also include forms like *aisuru* ‘love’, which on its face looks no different from a phrasal “incorporated” periphrastic. These lexical periphrastics differ from their phrasal counterparts in a total of eighteen properties. They are readily identified due to the fact that, with only a very few exceptions, the lexical periphrastics are those whose nominal part is underlyingly monosyllabic. Far from representing counterexamples to the claims presented here, these truly lexical periphrastics serve to emphasize the phrasal status of the majority of periphrastics.

¹¹ The facts about Japanese pitch accent mentioned here are for the most part well known. See McCawley (1968) and Poser (1984) for details.

The accentuation of incorporated periphrastics is anomalous if they are treated as ordinary verbs. As the examples in the first column of (41) illustrate, the accent of an incorporated periphrastic is the accent of the verbal noun (Hirayama 1960;910). If the verbal noun is unaccented, then the present affirmative form is also unaccented since the verb *suru* is unaccented, e.g. *benkyoo suru* ‘study’. If an accented form of *suru* is used with an unaccented verbal noun, the accent appears on *suru*, e.g. *benkyoo simásita* ‘studied’, where the politeness-to-addressee suffix *mas* contributes an accent.

(41)

séiri suru	put in order	*seiri suru	*seiri súru
zíkí suru	register	*ziki suru	*ziki súru
íki suru	waive	*iki suru	*iki súru
kitó suru	scheme	*kito suru	*kito súru

If the periphrastics were accented like other verbs, they would either be unaccented in the present tense, as in the third column in (41), or accented on the syllable /su/ of *suru* as in the fourth column in (41), which is where the accent falls in this form of ordinary accented verbs.

Moreover, dominant suffixes have no effect on the location of the accent if the verbal noun is accented, as illustrated by the forms in (42), which are the polite counterparts of those in (41). Notice that the accent remains on the verbal noun; it does not shift to the suffix *mas* even though *mas* is a dominant suffix.

(42)

séirisimasu	zíkisimasu	íkisimasu	kitósimasu
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If incorporated periphrastics are phrases, their accentuation is exactly what is expected. The verb *suru* alone will undergo the lexical rules that determine the accentuation of verbs, including attraction of the accent to dominant suffixes like *mas*. The verbal noun and *suru* will then be combined at the phrasal level into a single minor phrase which will undergo Accent Resolution, deleting all but the leftmost accent without regard to dominance.

In sum, the accentuation of incorporated periphrastics is unlike that of any other category of verb, but falls out without further stipulation if they are phrases.

3.2. *renyookei* Reduplication

Japanese has a construction in which the entire verb stem is reduplicated in order to convey repetitive or continuous action occurring simultaneously with another

action. In (43), for example, *nakinaki* is a reduplicated form of the verb *nak-* ‘to cry’. The sentence indicates that Makoto cried continuously as he made his way home. What is reduplicated is the form known in Japanese as the *renyookei*, which is the bare stem of the verb together with an epenthetic /i/ if the stem is consonant-final. If the *renyookei* is monomoraic, the vowel is lengthened. This lengthening is illustrated in (44), where the stem of the verb *i-* ‘to shoot (arrows)’ is lengthened in both halves of the reduplication since it contains only a single mora.

- (43) Makoto-wa nakinaki uti-e kaette itta.
 Makoto-T crying-crying home-AD return-ing went
 Makoto went home crying.
- (44) Busi-wa ya-o ii-ii uma-ni notte itta.
 Warrior-T arrows-A loosing-loosing horse-D riding went
 The warrior rode by loosing arrows as he went.

Kageyama (1977ab) points out that when an incorporated periphrastic is reduplicated only the *suru* portion is copied, as in (45). As (46) shows, the verbal noun may not be copied.¹² He observes further that the *renyookei* of *suru* is treated as the entirety of the verb by the rule that governs lengthening in that both copies of the *renyookei* are lengthened.

- (45) Makoto-wa dokusyō sii-sii aruita.
 Makoto-T reading doing-doing walked
 Makoto walked while reading.
- (46) *Makoto-wa dokusyō si dokusyō si aruita.

In this respect incorporated periphrastics are analyzable into the verbal noun and the verb *suru*, which is unexpected if they constitute single verbs but precisely what we should expect if they are phrasal and only the verb *suru* is accessible to the morphological rule of reduplication.

3.3. Nominalizations

Japanese has a number of highly productive lexical nominalizations. These include the so-called *renyookeisi*, which consists segmentally of the bare verb stem,

¹² Strictly speaking (46) is grammatical, though there is reason to believe that it represents a different process than the *renyookei* reduplication to which I refer here. (46) is grammatical only if the two copies of the verb constitute separate intonational minor phrases, whereas in (45) the verbal noun together with the two copies of *suru* form a single minor phrase. This parallels the pattern with simplex verbs, where reduplication with two minor phrases involves repetition but not necessarily simultaneity with the action of the main verb of the sentence. Unlike (45), (46) permits such non-simultaneous readings.

which undergoes epenthesis if it is consonant-final (Poser 1984). *renyoomeisi* are often *nomina actionis*, but a variety of thematic types occur, as illustrated by the examples in (47).

(47) Thematic Types of *renyoomeisi*

Verb	Gloss	Noun	Gloss	Thematic Type
iru	parch	iri	parching	action
kariru	borrow	kari	borrowing	action
kumoru	become cloudy	kumori	cloudiness	result
moru	serve, dish up	mori	a serving	theme
oou	cover	ooi	a cover	instrument
tetudau	help	tetudai	helper	agent
tumu	load	tumi	shipment,load	theme

Still more productive is the manner nominalization produced by suffixation of *kata*, which is 100% productive. Typical examples are *sikata* ‘manner of doing’ from *s-* ‘do’, *tabekata* ‘manner of eating’ from *tabe-* ‘eat’, and *morikata* ‘manner of serving’ from *mor-* ‘serve’.

These nominalizations take place at a fairly late point in the derivation since they are applicable to all types of verb, whether derived by derivational affixation or compounding. For example, we may construct the deverbal noun *yomihazimesasekata* ‘manner of causing to begin to read’ by first forming the compound *yomihazime-* ‘begin to read’, adding to it the causative suffix *sase*, and then nominalizing the resulting verb.

What is peculiar about incorporated periphrastic verbs is that they do not undergo *any* lexical nominalization, even the highly productive formation of *renyoomeisi*, as illustrated in (48) or the manner nominalization in *-kata*, as illustrated in (49).

(48) *renyoomeisi*

*untensi	driving
*benkyoosi	studying
*ryokoosi	traveling

(49) *kata* nominalizations

*untensikata	manner of driving
*benkyoosikata	manner of studying
*ryokoosikata	manner of traveling

Insofar as *renyomeisi* are *nomina actionis* we might attribute the ungrammaticality of derivatives of incorporated periphrastics to blocking by the underlying verbal noun, but blocking cannot account for the absence of derivatives with other thematic roles, or for the unacceptability of the manner nominals in *-kata*.

The unacceptability of lexical nominalizations of incorporated periphrastics cannot be attributed to any general problem with nominalizability of these predicates, for the very same nominalizations are readily formed from *suru* alone, which may then take a genitive verbal noun as complement. The manner nominalizations in (50) are perfectly acceptable. Here the verb *suru* has been nominalized separately and as a noun marks its complement the verbal noun with the genitive case marker *no*.

- (50)
- | | |
|-------------------|---------------------|
| unten no sikata | manner of driving |
| benkyoo no sikata | manner of studying |
| ryokoo no sikata | manner of traveling |

Similarly, phrasal nominalizations of incorporated periphrastics are acceptable. (51) exemplifies this with a *koto* nominalization, which has the phrase structure of a relative clause. *koto* ‘thing’ is the nominal head of the NP in which it is preceded by an S.

- (51) Yumiko-wa unten sita koto-ga nai
 Yumiko-T driving did *koto*-N not-exist
 Yumiko has never driven.

To what then should we attribute the impossibility of making lexical nominalizations of incorporated periphrastics? In the absence of any other explanation, I suggest that we should attribute this to the fact that they are not lexical items, and hence are not available for lexical morphological processes.

4. Syntactic Complexity of Incorporated Periphrastics

The evidence hitherto presented shows that incorporated periphrastics do not behave like lexical items, but leaves open the possibility that they might be incorporated at the interface between the lexicon and the syntax. I propose to show here that incorporated periphrastics remain analyzable in the syntax and indeed in discourse structure.

Before turning to the evidence itself it is necessary to mention two methodological points. The examples that I will offer are all of forms of ellipsis, in which the

verbal noun is omitted where it would otherwise be expected to occur, leaving behind *suru* alone. In order for such examples to be probative, two conditions must be met.

First, it must be the case that *suru* alone could not occur as a pro-form for the entire verb. In example (52) it appears at first glance that the verbal noun *rensyuu* has been elided from the second clause, showing the periphrastic *rensyuu suru* to be analyzable. However, as (53) shows, the same sort of construction is possible with the non-periphrastic verb *tazuneru*, indicating that *dekinakatta* is a pro-form for the entire verb of the first clause. Thus, examples like (52) do not demonstrate the analyzability of periphrastic verbs.

(52) rensyuu siyoo to site dekinakatta.
 practice do-SUBJ COMP do-ing was-not-able-to-do
 I tried to practice but could not.

(53) Tanaka-san-o tazuneyoo to site dekinakatta
 Tanaka-Mr.-A visit-SUBJ COMP do-ing was-not-able-to-do
 I tried to visit Mr. Tanaka but could not.

In order to eliminate this possibility, in each case I will demonstrate the impossibility of the use of a pro-form in the construction in question.

The second methodological consideration is the need to avoid confusing ellipsis of the verbal noun in the incorporated construction with ellipsis of the verbal noun in the unincorporated construction. The necessity of dealing with this issue was brought out by Miyagawa (1987) in his discussion of an argument of Kageyama (1982).

Kageyama (1982) offers the example in (54) as evidence of the syntactic analyzability of incorporated periphrastics.

(54) Gakkai-de Amerikazin-wa yoku hatugen
 conference-LOC Americans-TOP often speaking-out
 suru ga Nihonzin-wa amari ϕ sinai.
 do but Japanese-TOP much ϕ do-neg

At conferences Americans often speak out but Japanese seldom do.

Here the verbal noun has been deleted from the second conjunct. If *hatugen suru* were a word, this would violate the Anaphoric Island Condition (Postal 1969) as well as more recent lexical integrity constraints. Hence Kageyama concludes that *hatugen suru* is not a word.

Miyagawa (1987) however points out that (54) might be derived from a sentence in which the second conjunct contains an *unincorporated* periphrastic, i.e. (55). If what is deleted is the full NP *hatugen-o*, the argument disappears.

- (55) Gakkai-de Amerikazin-wa yoku hatugen
 conference-LOC Americans-TOP often speaking-out
 suru ga Nihonzin-wa amari hatugen-o sinai.
 do but Japanese-TOP much speaking-out do-NEG
 At conferences Americans often speak out
 but Japanese seldom speak out.

Miyagawa goes on to point out that gapping of the type in (54) is not possible when the periphrastic verb is unaccusative and hence has no unincorporated counterpart. Thus, (56) is ungrammatical since the incorporated periphrastic *seikoo suru* ‘succeed’ has no unincorporated counterpart.

- (56) *Taroo-wa itumo seikoo suru ga
 Taroo-TOP always success does but
 Hanako-wa tokidoki-sika ϕ sinai.
 Hanako-TOP sometimes-only ϕ do-NEG
 Taroo always succeeds but Hanako only sometimes does.

Thus, for speakers like Miyagawa who consider (56) ungrammatical, the ellipsis of the verbal noun observed in (54) is the result of ellipsis of the unincorporated construction, which of course has no bearing on the incorporated construction.

The possibility of contamination by the unincorporated construction may be avoided in two ways. One is Miyagawa’s technique of using unaccusative verbal nouns since these cannot appear in the unincorporated construction. This technique is available only for intransitive verbs. The other, available only for transitive verbs, is to use sentences containing an accusative object, which would not be possible in the unincorporated construction.

4.1. Whether Constructions

The notion expressed in English by the phrase ‘whether or not’ is typically expressed in Japanese by the sequence: *Verb - Interrogative Particle - Negative Verb - Interrogative Particle*, the whole being case-marked in a manner appropriate to its role in the clause.¹³ In (57) the verb *iku* ‘go’ is repeated in the negative form

¹³ There is a variant of this construction, not relevant here, in which instead of the negative copy of the verb the adverbial *wh*-word *doo* is used, e.g. *iku ka doo ka o siranai*. Both constructions

ikanai, and the whole sequence is marked accusative, as is appropriate for the object of the verb *siru* ‘know’. If we wished to say ‘It depends on whether or not he goes.’ we could substitute the verb *yoru* ‘depend on’ for *siru*, in which case the accusative *o* would be replaced with the dative *ni* since *yoru* requires a dative object.

- (57) iku ka ikanai ka o siranai
 go Q go-neg Q A know-neg
 I don’t know whether or not I’ll go.

When the verb is non-periphrastic, it is not possible to substitute a form of *suru* for the second, negative, copy of the verb, as the ungrammaticality of (58) illustrates.

- (58) *iku ka sinai ka o siranai
 go Q do-neg Q A know-neg
 I don’t know whether or not I’ll go.

If, however, the verb is periphrastic, the second copy of the verbal noun may be omitted, leaving only *suru*. Hence, both (59) and (60) are grammatical. The contrast between (58) and (60) shows that the second *suru* in (60) is not a PRO-form, whence it must be a copy of the *suru* of the periphrastic verb in the first half of the whether-construct. This shows that incorporated periphrastics are analyzable into a nominal and a verbal part in the syntax.

- (59) seikoo suru ka seikoo sinai ka o siranai
 success do Q success do-neg Q A know-neg
 I don’t know whether or not I will succeed.
- (60) seikoo suru ka ϕ sinai ka o siranai
 success do Q ϕ do-neg Q A know-neg
 I don’t know whether or not I will succeed.

The fact that (60) is grammatical even though the verb is the unaccusative *succeed* shows that it cannot be interpreted as involving ellipsis of the full NP of the unincorporated periphrastic.

4.2. Right Node Raising

Kageyama’s argument from Right Node Raising for monoverbal status relies on the possibility of raising both the verbal noun and *suru*; he never considers whether

appear to constitute examples of case-marking of \bar{S} , since the interrogative particle *ka* fails such tests for nominal status as inducing the preceding copula to appear in the attributive form or permitting *ga/no* Conversion, in which nominative case in adnominal clauses is optionally replaced by genitive case.

it is possible to raise only *suru*, which we would not expect if the periphrastic is truly incorporated. In point of fact, it is possible to raise *suru* alone, stranding the verbal noun, as (61) shows. (62) makes the same point, but using an unaccusative verbal noun so as to rule out the possibility that we are actually dealing with the unincorporated construction. Sentences like this are a bit odd because of the redundancy of repeating the verbal noun. This redundancy is removed in sentences like (63) with different verbal nouns in the two clauses.¹⁴

- (61) Taroo-wa huransugo-o benkyoo ϕ ,
 Taroo-T French-A study ϕ
 Hiromi-wa doitugo-o benkyoo sita.
 Hiromi-T German-A study did
 Taroo studied French and Hiromi German.

- (62) Hanako-wa sangatu-ni tanzyoo,
 Hanako-T March-D birth
 Mayumi-wa gogatu-ni tanzyoo sita.
 Mayumi-T May-D birth did
 Hanako was born in March and Mayumi in May.

- (63) Hanako-wa sangatu-ni tanzyoo,
 Hanako-T March-D birth
 Mayumi-wa gogatu-ni siboo sita.
 Mayumi-T May-D death did
 Hanako was born in March, and Mayumi died in May.

4.3. Simple Conjunction

At the beginning of this section I discussed Kageyama’s example (54) of simple coordination with ellipsis of the verbal noun in the second conjunct, and Miyagawa’s critique, in which he argued that this was actually ellipsis of the verbal noun in the unincorporated construction, since parallel examples with unaccusative verbs, such as (56) (repeated below as (64)), are ungrammatical. There may be a dialect split here, for slightly over half of my informants consider this sentence perfectly grammatical, while the others, for the most part, consider it a bit odd but not ungrammatical. For those speakers who accept (64) we have yet another syntactic phenomenon for which incorporated periphrastics are analyzable.

¹⁴ Not all speakers accept (63), suggesting that for them Right Node Raising cannot analyze incorporated periphrastics.

- (64) Taroo-wa itumo seikoo suru ga
 Taroo-TOP always success does but
 Hanako-wa tokidoki-sika ϕ sinai.
 Hanako-TOP sometimes-only ϕ do-NEG
 Taroo always succeeds but Hanako only sometimes does.

4.4. Too-Clauses

Incorporated periphrastics are analyzable not only within sentences but across sentence boundaries. Consider, for example, a sequence of sentences like that in (65), in which both sentences have the same periphrastic verb. The incorporated periphrastic verb is analyzable in such cases in that it is necessary to repeat only the verb *suru*, as in (66); the verbal noun may be omitted. The unaccusativity of the verb *seikoo suru* ‘succeed’ rules out the possibility of contamination by the unincorporated construction.¹⁵

- (65) Taroo-wa seikoo sita. Ziroo-mo seikoo sita
 Taroo-T success did Ziroo-too success did
 Taroo succeeded. Ziroo too succeeded.
- (66) Taroo-wa seikoo sita. Ziroo-mo ϕ sita
 Taroo-T success did Ziroo-too ϕ did
 Taroo succeeded. Ziroo did too.

In contrast, if the verb of the first clause is not periphrastic, replacement with *suru* alone in the second clause is not permitted, as illustrated by (67) and (68).

- (67) Taroo-wa tabemasita. Ziroo-mo tabemasita
 Taroo-T ate Ziroo-too ate
 Taroo ate. Ziroo too ate.
- (68) *Taroo-wa tabemasita. Ziroo-mo ϕ sita
 Taroo-T ate Ziroo-too did
 Taroo ate. Ziroo too ate.

Since *suru* alone is not an acceptable pro-verb, we must attribute the acceptability of sentences like (66) to discourse deletion of the verbal noun, which implies that the incorporated periphrastic is analyzable in the syntax.

4.5. Responses to Yes-No Questions

Even more striking is the fact that incorporated periphrastics are analyzable not only across sentence boundary but across speakers. In Japanese, the answer to

¹⁵ Some of my informants do not accept (66) but accept comparable sentences with unergative verbal nouns.

a yes-no question is normally not just *yes* (*hai*) or *no* (*ie*); rather, the verb of the question is repeated in the answer, in the affirmative or negative form as appropriate. Consider the question in (69), in which the speaker asks whether someone was born using the non-periphrastic verb *umareru*. The answer in (70), which repeats the verb of the question, is acceptable. The answer in (71), in which the verb *suru* replaces *umareru*, is ungrammatical, for Japanese lacks a counterpart to English Do-Support, which makes the English equivalent of (71) grammatical, provided that the subject, required in English but not in Japanese, be supplied.

(69) umaremasita ka
 was-born Q
 Was he born ?

(70) Hai, umaremasita.
 yes was-born
 Yes, he was born.

(71) *Hai, simasita.
 yes did
 Yes, he was.

If, however, the question is asked using the periphrastic counterpart of *umareru*, namely *tanzoo suru*, as in (72), both responses to the question are grammatical; the verbal noun is optional. The contrast between (71) and (74) shows that the grammaticality of (74) must be attributed to the presence of *suru* in the question, which means that the incorporated periphrastic of the question is analyzable even across speakers.

(72) tanzyoo simasita ka
 birth did Q
 Was he born?

(73) Hai, tanzyoo simasita.
 yes birth did
 Yes, he was born.

(74) Hai, simasita.
 yes did
 Yes, he was born.

Incorporated periphrastics thus behave like phrases in eight respects, distributed across different components of the grammar. They exhibit phrasal phonology, morphology, syntax, and discourse structure.¹⁶

¹⁶ In addition to the two arguments that I have cited, Kageyama (1977b) offers an argument for syntactic incorporation that I do not accept. He proposes that in Deep Structure the verb

5. The Structure of Phrasal Incorporated Periphrastics

When confronted with a conflict between monoverbal and complex behaviour as we are here, there are a number of approaches available. One set of approaches attempts to accommodate the conflict by providing two different representations, one complex, one simplex. Most commonly the two representations are segregated, so that only one or the other is available in a particular part of the grammar. The traditional approach to incorporation by means of incorporation rules is of this type. Prior to the application of the incorporation rule the structure is complex; subsequent to its application the structure is simplex.

A similar approach is the Autolexical approach due to Sadock (1985, 1991), in which incorporation is seen as resulting not from the application of a structure-changing or structure-building rule, but from the independence of the representations in different components of the grammar together with principles that allow the representations of an utterance in different components to be misaligned in certain ways. In this approach to noun incorporation, the noun and the verb are independent words in morphological structure but match a single verb in syntactic structure.

The Autolexical approach is like the rule-based approach in that it associates a complex representation with some components of the grammar and a simplex representation with other components of the grammar. Indeed, it differs mainly in

suru takes as complement a complete S whose head is the verbal noun. To this structure Equi NP Deletion must apply in order to delete the subject of the lower S, according to Kageyama, before Incorporation. He takes the fact that Equi, a syntactic transformation, must precede Incorporation to be evidence for Incorporation in the syntax. This argument is subject to two objections. First and foremost, even if we accept Kageyama's Deep Structure, he gives no evidence at all that Equi must precede Incorporation. Equi neither feeds nor bleeds Incorporation in his formulation, so it is hard to see any basis for an ordering argument. Second, the motivation offered for this Deep Structure is not persuasive. Kageyama's goal is to account for the ungrammaticality of relative clauses like (i).

- (i) *Taroo-ga eigo-o sita benkyoo
Taroo-N English-A did study
The studying of English that Taroo did.

Since on his account *benkyoo* is the head of the embedded S, the ungrammaticality of (i) can be accounted for by appealing to the independently motivated prohibition of extraction of heads. However, the ungrammaticality of (i) is equally well explained by the impossibility of extracting part of a lexical item, or a zero-level phrasal category.

two ways.¹⁷ It is more restrictive in that it permits mismatches to occur only at the interfaces between components, whereas the incorporation rule approach allows the mismatch to occur internal to a component, insofar as rules within components may be ordered. It is less restrictive in that there are no implications as to the location of mismatches. In the rule-based approach, once the incorporation rule has applied all subsequent components must treat the structure as simplex. For example, a lexical incorporation rule will have the effect that the resulting form will be simplex for the syntax, the semantics, the discourse component, and the phrasal phonology. The Autolexical approach imposes no such constraint.

From the evidence that we have seen so far, it should be clear that no analysis of the segregation type is possible for Japanese, since the periphrastics are analyzable at every level of representation from phonology to discourse.

The other main approach is to provide for both representations at the same time. A true co-analysis would provide two distinct representations in the same component at the same derivational stage. To my knowledge this has not been proposed for the analysis of incorporation.

An alternative to true co-analysis is to integrate the two representations into a single representation. For example, a periphrastic verb could be represented as a V node dominating both an N (the verbal noun) and a V. Depending on whether a rule saw the upper or lower V, the periphrastic would appear simplex or complex.

Of course, there remains a possibility that we have not yet considered, namely that of resolving the conflict between the complex behaviour and the simplex behaviour in favour of one or the other, e.g. by demonstrating that the putatively monoverbal properties of periphrastics do not in fact call for a monoverbal analysis. Following a proposal due to Hasegawa (1979), that is what I propose to do here. I suggest that the apparently monoverbal properties of ‘incorporated’ periphrastics can be explained without recourse to constituency of the verbal noun and *suru* of any sort at any level of representation.

Consider first the apparently monoverbal behaviour of periphrastics with respect to *ai*-Prefixation. One property that we need to explain is why it is that *ai* can attach to the periphrastic at all if the periphrastic is not a lexical item. The obvious proposal is that *ai* does not attach to the periphrastic as a whole but rather attaches only to the verbal noun, that is, that the structure is (75) rather than (76).

(75) [*ai* VN] [*suru*]

¹⁷ Of course, the constraints imposed on incorporation rules in the one approach and on possible mismatches in the other approach may create other differences, but these will presumably not be intrinsic to the two approaches.

(76) *ai* [VN*suru*]

This hypothesis predicts that we should be able to attach *ai* to verbal nouns when they stand alone, without *suru*. This prediction appears at first glance to be false, since sentences like (77), in which the verbal noun with *ai* attached is referential, are ungrammatical.

(77) *Tanaka-sensei-to Tamura-sensei no
 Professor Tanaka-AND Professor Tamura-GEN
 ai-kenkyuu-wa mezasii.
 joint-research-T is splendid
 Professors Tanaka and Tamura’s joint research is splendid.

However, there are grammatical examples of prefixation of *ai* to verbal nouns, such as those in (78), where *ai* is prefixed to a deverbal noun.¹⁸

(78)

aibiki	lovers’ secret meeting	hiku	pull
aizumi	living together	sumu	live
ainori	riding together	noru	ride
aibore	mutual love	horeru	love
aiyadori	lodging together	yadoru	lodge
aiuti	striking each other simultaneously	utu	strike

Moreover, prefixation of *ai* to verbal nouns is generally acceptable when the verbal noun is non-referential, as in (79) where the verbal noun serves as a predicate in a purpose clause and even assigns case in the absence of *suru*.

(79) Tanaka-sensei-to Tamura-sensei-wa ainugo-o
 Professor Tanaka-AND Professor Tamura-TOP Ainu-A
 ai-kenkyuu-ni karahuto-e ikimasita.
 joint-study-D Sakhalin-AD went
 Profs. Tanaka and Tamura went to Sakhalin to study Ainu together.

The second property that we need to explain is the fact that *ai* cannot appear between the verbal noun and *suru*. I propose that this is the result of subcategorization failure. Recall that the prefix *ai* creates verbs with reciprocal or joint action

¹⁸ The noun *aioi* ‘growing old together’ is a rare example of prefixation of *ai* to a noun that is not a verbal noun. There is no verb *aiou* from which this could be a derived noun, nor is there any verb *ou* ‘grow old’ from which it might come. However, there is a noun *oi* ‘age’.

readings, where reciprocal formation involves binding of the subject and object, which is an operation on the verb’s argument structure. Consequently, *ai* subcategorizes for an argument structure. If, as proposed by Miyagawa (1987), *suru* has no argument structure, *ai* will be unable to attach to it. Subcategorization for an argument structure also explains why it is that *ai* can attach to verbs and to verbal nouns but not to other nouns — it attaches to precisely those categories that have argument structures.

I conclude that the apparently monoverbal behaviour of periphrastics with respect to *ai*-prefixation can be explained without recourse to incorporation.

Another way in which the incorporated periphrastics appear to function as single verbs is that both the verbal noun and *suru* may be elided in elliptical constructions or copied in constructions like the *whether*-construction that appear to involve copying. As I have already pointed out, Kageyama (1977ab) made this argument on the basis of Right Node Raising. The argument might take either of two forms: either that copying of the verbal noun is obligatory, or that copying of anything other than the verb alone is unexpected. The former is clearly not at issue, since the evidence presented for analyzability of periphrastics in the syntax and in discourse consists precisely of the fact that for each of the five constructions discussed copying of the verbal noun is not required. Hence, the only potential argument for monoverbal status here is that implicitly made by Kageyama for Right Node Raising, namely that copying of anything other than the verb is unexpected, and hence that the constituency of the verbal noun and the verb *suru* is necessary to license copying of the verbal noun.

The fact that the verbal noun may Right Node Raise together with *suru* does not require us to treat it as part of a constituent with *suru* since Right Node Raising applies not only to the verb but to its complements. In (80) only the verb *ageta* is raised, but in (81) both the direct object *bara* and the verb are raised, and in (82) both the indirect object *Hanako* and the verb are raised. In (83) both the direct object and the indirect object are raised along with the verb.

(80) Taroo-wa Hanako-ni yuri-o, Ziroo-wa Yukiko-ni bara-o ageta.
 Taroo-T Hanako-D lily-A Ziroo-T Yukiko-D rose-A gave
 Taroo gave Hanako lilies and Ziroo gave Yukiko roses.

(81) Taroo-wa Hanako-ni, Ziroo-wa Yukiko-ni
 Taroo-T Hanako-D Ziroo-T Yukiko-D
 bara-o ageta.
 rose-A gave
 Taroo gave Hanako roses and Ziroo gave Yukiko roses.

- (82) Taroo-wa yuri-o, Ziroo-wa bara-o Hanako-ni ageta.
 Taro-T lily-A Ziro-T rose-A Hanako-D gave
 Taroo gave Hanako lilies and Ziroo gave Hanako roses.
- (83) Taroo-wa kinoo, Ziroo-wa kyoo Hanako-ni bara-o ageta.
 Taroo-T yesterday Ziroo-T today Hanako-D roses-A gave
 Taroo gave Hanako roses yesterday and Ziroo gave
 Hanako roses today.

whether-constructions are similar in that the verbal noun may be repeated, though it need not be. It is true that most of the time one copies only the verb in *whether*-constructions, but this is due merely to the redundancy of repeating other portions of the sentence.

- (84) asamesi-o tabeta ka asamesi-o tabenakatta ka ni yoru.
 breakfast-A ate Q breakfast did-not-eat Q D depend
 It depends on whether or not he ate breakfast.
- (85) Taroo-ga asita kuru tumori de aru ka Taroo-ga
 Taro-N tomorrow come intention be Q Taroo-N
 asita kuru tumori de wa nai ka ni yoru
 tomorrow come intention not-be Q D depend
 It depends on whether or not Taro plans to come tomorrow.

It should not be surprising that simple conjunction of full sentences is possible.

- (86) Sumiko-wa *Tonkoo-o* yonda ga
 Sumiko-T *Tun Huang-A* read but
 Kimiko-wa mada *Tonkoo-o* yomanakatta.
 Kimiko-T yet *Tun Huang-A* did-not-read
 Sumiko has read *Tun Huang* but Kimiko has not yet read *Tun Huang*.

too-clauses are similar.

- (87) Harada-san-wa ronbun-o kaita. Tutiya-san mo ronbun-o kaita.
 Harada-Mr-T paper-A wrote Tutiya-Mr too paper-A wrote
 Harada wrote a paper. Tutiya too wrote a paper.

The same is true of answers to Yes/No questions. Although it may be redundant, it is perfectly grammatical to repeat more than the verb of the question in the response. The answer to (88) may thus be either (89) or (90):

- (88) asagohan-o tabemasita ka
 breakfast-A studied Q
 Have you eaten breakfast ?

- (89) Hai, tabemasita.
 yes ate
 Yes, I have eaten (breakfast).
- (90) Hai, asagohan-o tabemasita.
 yes breakfast-A ate
 Yes, I have eaten breakfast.

Thus, the fact that the verbal noun may be repeated in these various constructions when the verb *suru* is repeated does not motivate treatment of the periphrastic verb as a whole as a constituent.

There remain three respects in which the periphrastics appear to behave like single verbs, namely the fact that the verbal noun must be a bare N, the requirement that the VN be adjacent to *suru*, and the absence of case-marking on the VN and its presence on the object. Taking up the suggestion put forward by Hasegawa (1979;18):

The fact that a VN does not act like an ordinary NP with respect to certain rules if it appears directly before *su* does not mean that it is part of a verb. It simply means that a VN in such a string is not an NP and in fact, the generalization seems to be that the VN directly followed by *su* is a bare N.

I propose that we take the bareness of the N to be the crucial property of the periphrastic construction, and that we consider whether we may account for the other two properties given this fact, or even derive them from it.

Consider first the adjacency requirement. If the phrase structure rule that introduces the bare N makes it adjacent to the verb, and if no movement rule can apply to it, since movement rules (or their equivalents in theories that do not use this characterization) normally apply only to N^{max} , the adjacency requirement will fall out without there being any constituency of the VN with *suru*. The fact that the VN is a bare N will suffice to distinguish it from the heads of NPs.

The precise formulation of the adjacency requirement depends on the theory of phrase structure that we adopt. In theories that do not separate linear precedence and immediate dominance specifications, we may write a rule along the lines of (91), which is a simplified version of Hasegawa (1979)'s rule for expansion of VP:

$$(91) \quad VP \Rightarrow (NP)(NP)(N)V$$

In theories such as Relational Grammar, GPSG (Gazdar et al. 1985), and HPSG (Pollard & Sag 1987), which separate immediate dominance and linear precedence

statements, two linear precedence rules are necessary, one to constrain NPs to precede N, the other to restrict the verb to final position.

To constrain NPs to precede N is easy. In theories that use the bar-levels of the \bar{X} theory, the rule may be formulated as in (92):

$$(92) \quad [BAR \ 2] < [BAR \ 0]$$

while an equivalent formulation in the IDLP theory of Pollard & Sag (1987) is (93), which uses the feature $[LEX]$ instead of bar levels.

$$(93) \quad [-LEX] < [+LEX]$$

In theories in which lexical categories must be heads rules like (92) and (93) suffice to constrain the verb to final position, but in a theory like that under consideration here it is necessary to find some way to refer to heads other than as non-maximal projections. One way to do this is to introduce a $[HEAD]$ feature. The fact that both N and NP must precede V will then result from a rule like (94), which constrains everything to precede the head:

$$(94) \quad X < [+HEAD]$$

Although details vary, the necessary adjacency condition appears to be simply statable in all current approaches to phrase structure.

The absence of case-marking on the VN follows directly from its being a bare N, insofar as only NP and not N is case-marked.¹⁹

What of the fact that the periphrastic may assign case to its object, apparently a verbal property? One option is to say that it is the verbal noun that assigns case. This is plausible since, as we have already seen, verbal nouns assign case in the absence of *suru* when they bear temporal suffixes or appear in purpose clauses.

The aspect of this analysis (and of Hasegawa's) that is most disturbing is the stipulation that the verbal noun be a naked N. Introducing a naked N^0 as a non-head violates the widely accepted \bar{X} theory, which, with the exception of a special rule schema for coordination, constrains phrase structure rules to follow the schema (95) (Jackendoff 1977;255), which introduces non-maximal projections only as heads.

¹⁹ Hasegawa (1979) treats case-marked NPs as constituents consisting of an NP and a post-position, the structure of which is given by the phrase structure rules. She thus provides for case-marking only of NPs and not of bare Ns, but implicitly treats this as a language-particular fact.

(95) $X^N \rightarrow (C_1) \dots (C_j) X^{N-1} (C_{j+1}) \dots (C_k)$, where $1 \leq n \leq 3$, and for all C_i , either $C_i = Y^3$ for some lexical category Y or C_i is a specified grammatical formative.

(Jackendoff considers the maximum bar-level to be three, so Y^3 is equivalent to Y^{max} .)

Should we in fact permit phrase structure rules to introduce non-head lexical categories outside of coordination constructions in much the same way as they introduce maximal projections, or should we attempt to find some more constrained way of introducing lexical categories?

A possible way of constraining the introduction of non-head lexical categories is to back off a bit from the proposal that there is no incorporation here at all, and to suppose that the structure of incorporated periphrastics is V dominating N V, where N is the verbal noun and V is *suru*, as in (96).

(96) N V

This approach would account for the adjacency requirement in essentially the same way as the radical approach but would be more restrictive in making the adjacency requirement universal. It would account for the case-marking facts in the same way as well, although it offers the alternative of saying that it is the superordinate V that assigns case. It offers the possibility of constraining the insertion of non-head lexical categories by restricting them to expansions of other lexical categories. That is, we may posit a rule schema allowing the expansion of a zero-level category only into other zero-level categories.

I know of two apparent difficulties for this proposal. The first is the proposal by Di Sciullo & Williams (1987;78-84) to permit syntactic expansion of zero-level categories into non-zero level categories. For example, they posit a rule for French expanding N as VP. If Di Sciullo & Williams are correct, the complex V analysis will still be available for Japanese, but it will not offer any explanation of the fact that the VN must be bare. However, the evidence that Di Sciullo & Williams present for the syntactic complexity of the words they discuss is less than convincing. They present no examples of clearly phrasal structure (such as word-internal relative clauses or sentential complements). The argument that they present in favor of such phrasal expansion of zero-level categories is that the structure of such objects is determined by syntactic principles rather than by morphological principles. One can agree with

this observation without accepting the conclusion that zero-level categories may contain non-zero projections. Suppose, for example, that instead of permitting N to expand as VP we permit N to expand as V N, in conformity with the requirement that zero-level categories expand only into other zero-level categories. As a piece of syntactic structure, the well-formedness and meaning of the resulting object will be determined by syntactic principles. Thus, although the form of Di Sciullo & Williams’ proposal violates the proposed constraint, the actual cases for which they wish to account appear to be consistent with it.

Another apparent difficulty for the complex V approach comes from Miner (1983)’s analysis of what he calls “noun stripping” in Chamorro. According to Miner, in Chamorro, when the object is indefinite, a special form of the verb is used, usually formed by the prefixation of *man*. Such verbs become intransitive, as evidenced by the use of the absolutive subject pronouns, and, crucially, only a bare N is possible as object. The object noun may not have any article or modifiers. As (97) shows, in such sentences the subject intervenes between the verb and its object, from which Miner concludes that the stripped N and the verb need not be adjacent.

- (97) *man li’e’ yu’ lepblu*
 AP saw I book
 I saw a book.

If Miner is right that this is a construction in which the object noun must be a bare N, then it looks very much like the Japanese periphrastics, the difference being that the Chamorro noun is not a verbal noun. On Miner’s analysis, Chamorro appears to be a counterexample to the claim that bare Ns are always adjacent to the verb, as he points out. If this is the case, the bare N and the verb cannot form a constituent unless we are willing to permit discontinuous constituents.

It appears, however, that Miner has made an invalid inference from the discussion of this construction in Topping (1973:239-242), in which the examples indeed contain no object NPs that cannot be construed as bare Ns. According to Sandra Chung (personal communication 1989), the objects that appear in this construction, which she considers actually to be an antipassive construction, need not be bare Ns. She offers examples like (98), in which the object NP contains an adjective, and (99), in which the object NP contains a relative clause.

- (98) *mam ahan si Dolores nuebu na kareta*
 AP buy the Dolores new LINKER car
 Dolores bought a new car.

- (99) map odda' yu' salappi' ni hana'falingu si Elsie
AP find I money that lose the Elsie
I found some money that Elsie lost.

Since Chamorro does not have bare Ns, it does not present a problem for the complex V analysis.

In sum, the Japanese incorporated periphrastic construction requires no constituency of the VN with *suru* at any level of representation. It requires only that it be possible for phrase-structure rules to introduce naked Ns. Positing a complex structure of $V \Rightarrow VN_{suru}$ provides a possible route to restricting the circumstances under which non-head zero-level categories may be introduced, but I emphasize that the virtue of the complex V analysis is strictly theoretical — the superordinate V is not required by any fact of Japanese.²⁰

6. Conclusion

The so-called ‘incorporated’ periphrastics of Japanese, generally considered to be lexically incorporated, turn out not to be incorporated at all. Not only are they not lexically incorporated, but they remain analyzable at every level of representation. Their putatively mono-verbal properties turn out not to be diagnostic of constituency – in fact there is no evidence for constituency of the verbal noun and the verb *suru* at all.

This analysis has two theoretical implications. First, it provides evidence of the necessity of permitting phrase structure rules to introduce non-head lexical categories, contrary to the \bar{X} theory. Although not necessitated by the facts of Japanese, analyzing the periphrastics as consisting of the verbal noun and verb *suru* dominated by V^0 permits the introduction of non-head lexical categories to be limited to the expansion of lexical categories.²¹

Second, it has implications for the study of noun incorporation, in particular, for what cases we take to constitute real incorporations. Although some of the cases

²⁰ Peter Sells (personal communication 1989) suggests that Japanese may make use of expansion of V as X V for $X = A$ and $X = V$ as well, and that in the cases of $X = V$ the expansion must be recursive. The possibility of recursion is another difference between the complex V analysis and the radical approach.

²¹ This analysis resembles that of Baker (1988) in the structure that it permits, but differs from it in two respects. First, for Baker the structure is derived by Chomsky-adjunction in the syntax, whereas I take it to be base-generated. More importantly, Baker cannot account for the fact that his ‘incorporations’ fall into two classes, those that have the morphological and phonological properties of words, and those that do not, and that the former but not the latter are syntactically opaque.

of noun incorporation in the literature have clearly lexical properties, in many cases little evidence is given that the constructions in question are true lexical incorporations. Even in Sapir’s seminal (1911) paper, in most cases no explicit argument for incorporation is given. In a fair number of cases, the properties cited as arguing for incorporation are very similar to those used, wrongly as we have seen, to argue that Japanese periphrastics are lexically incorporated. For example, Rosen (1989:310) cites as evidence of incorporation in Niuean the facts that:

- (a) the incorporated noun is uninflected for number;
- (b) the incorporated noun is not case-marked.
- (c) the incorporated noun is adjacent to the verb, though in a VSO language such as this this is not the expected word order;

That is, the ‘incorporated’ noun is a bare N, and it is adjacent to the verb, the very properties that have been taken to argue for the incorporation analysis of Japanese periphrastics. A number of the cases discussed in Mithun (1984)’s survey are of the same type. The Japanese example should constitute a warning that these properties are not diagnostic of true incorporation.

False examples of incorporation like the Japanese periphrastics may be common. In a series of papers (Miner 1982, 1983, 1986) Miner has proposed to distinguish what he calls “noun stripping” from true incorporation. Many of the cases to which he applies this term have been considered by previous authors to involve incorporation because the noun lacks classifiers, definiteness markers, number markers, and other morphology otherwise obligatory in the language, as well as modifiers of any type. He points out, however, that unlike clear cases of incorporation, there is in these cases no morphological evidence of incorporation (that is to say, no verbal affixes appear peripheral to the ‘incorporated’ noun) and that the verb and the noun form separate phonological words. Although he does not present the sort of evidence of syntactic analyzability that I have given for Japanese, he proposes that “noun stripping” is a purely syntactic phenomenon, distinct from true incorporation.

It thus appears that what has been called noun incorporation may consist of two distinct cases. True incorporations would exhibit the properties of morphological and phonological words, and would, as has been argued by Di Sciullo & Williams (1987) and Rosen (1989), be syntactically opaque. The remaining cases, including the Japanese periphrastics, which show no signs of constituting morphological or phonological words, would be syntactically transparent. If this is correct, there is no need for such devices as syntactic incorporation or autolexical component misalignment, only for the possibility of introducing bare Nouns as non-heads.

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