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INALIENABLE OBJECT CONSTRUCTION IN JAPANESE[*]

This paper discusses the Inalienable Object (IO) construction in Japanese and argues that an adequate analysis of this construction necessitates postulating post-lexical incorporation and adjectivization. It will be shown that, while the IO construction in Japanese ostensibly resembles ordinary SOV sentences, it exhibits a number of properties which depart from those of the canonical verbal construction. The analysis which captures all the properties of the IO construction crucially depends on the modular conception of word formation found in Shibatani and Kageyama (1988), thereby constituting a piece of evidence for the theory.

1. Introduction

The locus of word formation has been an issue of great controversy in morphological theories. Positions vary from a strong lexicalist view, which takes the lexicon to be the only place of word formation (Jensen and Stong-Jensen, 1984; and Di Sciullo and Williams, 1987 among others), to a modular theory of word formation, which argues that word formation takes place both at lexical and post-lexical levels[1] (Shibatani and Kageyama, 1988; Kageyama, 1993).

The strong lexicalist hypothesis maintains that phrasal syntax cannot have access to the internal structure of words. Thus, word formation rules such as compounding and conversion can never occur during the course of syntactic derivation whether such derivation is in the overt syntax or at LF. On the other hand, the modularist theory allows the morphological rules to access multiple grammatical components, presumably all of the following: the lexicon, syntax (overt or covert), and phonology.

This paper presents supportive evidence for the latter position, a modular theory of word formation. The particular construction we discuss is the Inalienable Object (IO) construction in Japanese. The IO construction may best be understood as a phrasal counterpart of the English Possessional Adjective such as *blue-eyed* and *pretty-faced*. The analysis called for by the Japanese IO construction casts doubt on the strong lexicalist hypothesis, since it involves word formation outside of the lexical component, in the course of syntactic derivation. On the other hand, the proposed

[1] Here, the term "lexical" is used to refer to forms created in the lexicon, whereas "post-lexical" is used to refer to forms created in other components such as syntax or phonology.

analysis of the IO construction is compatible with the modularist conception of word formation.[2]

In Section 2, we will first introduce the general structure of the IO construction. In Section 3, we will show that, while the IO construction in Japanese at first glance resembles ordinary SOV sentences, it exhibits many properties which differentiate it from canonical verbal construction. In Section 4, we will then argue that the only plausible analysis which captures all the properties of the IO construction crucially depends on the modular conception of word formation. Specifically, we claim that the IO construction is a type of light verb construction, and it instantiates cases of incorporation and adjectivization that are not LEXICAL but POST-LEXICAL. Section 5 serves as a summary and conclusion.

2. Inalienable Object (IO) construction

Examples of the Japanese IO construction are given in (1).[3]

(1) a. ao-i   me-o   si-ta   syoozyo
        blue-AI eye-ACC do-PART girl
        'blue-eyed girl'

    b. syoozyo-ga ao-i   me-o   si-te-i-ru
        girl-NOM   blue-AI eye-ACC do-PART-be-PRS
        'The girl is blue-eyed.'

The IO construction can be construed in two ways: pre-nominal modification and predicative function. When it appears pre-nominally, it has the general pattern shown in (2a), where NP_1-ACC followed by *si-ta* is an inalienable property (e.g., attribute or body-part noun) of N_2. When the IO construction serves a predicative function, the pattern in (2b) is used, in which NP_2 is the subject and the predicate consists of NP_1-ACC followed by *si-te-i-ru*. Here, again, NP_1 denotes an inalienable property of NP_2.

(2) a. Pre-nominal IO: [$_{NP1}$ modifier+N_1]-ACC si-ta N_2

    b. Predicative IO: NP_2-NOM [$_{NP1}$ modifier+N_1]-ACC si-te-i-ru

Note that the citation form for both *si-ta* and *si-te-i-ru* is generally considered to be *suru* 'do.' We must stress that this citation form never occurs in the relevant construction. Nonetheless, we will refer to *si-ta* and *si-te-i-ru* collectively as *suru* for expository

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[2] It must be noted that the type of phrasal compounds we discuss in this paper differs in shape from the "post-syntactic compounds" introduced in Shibatani and Kageyama (1988) given below:

(i)   [Amerika:hoomon] -no ori   cf. Amerika-o hoomon-no ori
        America   visit GEN occasion   ACC
        'an occasion of visiting America'

For Shibatani and Kageyama (1988), the exclusion of case particles is an important characteristic of post-syntactic compounds, as opposed to purely syntactic constructions. We do not share this view. The use of inflectional affixes 'frozen' inside words is widely attested (as in German Fugenelementen (Beard, 1995)). According to our analysis, the accusative case particle, which has lost its grammatical function, does seem to appear inside phrasal compounds. Nonetheless, we are in agreement with Shibatani and Kageyama in their general grammatical model.

[3] Gloss abbreviations: AI = adjectival inflection, PART = participle, NOM = nominative case, ACC = accusative case, GEN = genitive case, COP = copula, TOP = topic, PRS = present tense, PST = past tense, COMP = complementizer.

purposes, and we will postpone our discussion of the actual forms *si-ta* and *si-te-i-ru* until later (See Section 3.5.).

The IO construction in Japanese is semantically similar to the English Possessional Adjectives such as *blue-eyed* and *pretty-faced*. The entire construction modifies an entity by defining some inalienable property of that entity. That the property in question must be inalienable is illustrated by the ungrammaticality of (3).

(3) a. *[siro-i ie]-o   sita   onnanoko
        white-AI house-ACC do-PART girl
        'girl with a white house'
    b. *[white-house]-d girl

3. Properties of the IO construction
3.1. *Suru* is a light verb

To our knowledge, little attention has been given to the Japanese IO construction in the literature, and existing studies of it are superficial. These equate the IO construction with ordinary SOV sentences. For example, Kageyama (1993) and Uchida and Nakayama (1993) make no distinction between (4a), which we call the IO construction, and (4b), which exemplifies an ordinary SOV sentence.

(4) a. Mary-ga ao-i   me-o   si-te-i-ru.   (IO construction)
        M.-NOM blue-AI eye-ACC do-PART-be-PRS
        'Mary is blue-eyed.'
    b. Mary-ga kirei-na iyaringu-o si-te-i-ru. (Ordinary SOV)
        M.-NOM pretty-AI earrings-ACC do-PART-be-PRS
        'Mary is wearing pretty earrings.'

Note that *suru* in (4b) has the sense of "wear," and it assigns the theta-roles (AGENT, THEME) to its arguments. In this sense, *suru* in (4b) is a regular full-fledged verb. However, characterization that *suru* in the IO construction is a full-fledged verb is counter-intuitive. Rather, it seems that the subject NP gets a THEME theta-role from the accusative-marked NP, and *suru* is void of meaning. This becomes clear when we try to substitute *suru* with a content verb which has a similar meaning. As the ungrammaticality of (5) indicates, no content verb can replace *suru* in (5). On the other hand, (6) shows that a heavy verb *suru* can be substituted by a content verb.

(5) *Mary-ga ao-i   me-o   mot/tuke -te-i-ru.
      M.-NOM blue-AI eye-ACC have/wear -PART-be-PRS
      'Mary has blue eyes/is blue-eyed.'

(6) Mary-ga kirei-na iyaringu-o mot/tuke/hame -te-i-ru.
      M.-NOM pretty-AI earrings-ACC have/wear/put-on -PART-be-PRS
      'Mary had/was wearing/put on pretty earrings.'

The contrast between (5) and (6) indicates that *suru* in the IO construction, unlike *suru* in ordinary SOV sentences, neither assigns theta-roles nor has a specified meaning on its own.

Traditionally, this type of *suru* which is void of meaning and does not have its own argument structure has been called a "light verb" in Japanese. Discussions of light verbs are particularly prevalent in the literature on the Verbal Noun (VN) construction in Japanese, which we will come back to in Section 4.1. Here, let us note that the presence of the light verb *suru* requires a special mechanism of theta-role assignment and any analysis of the IO construction should take it into account.

143

3.2. NP-ACC and *suru* are inseparable

We now turn to the second property of the IO construction which differentiates it from ordinary SOV sentences. That is, the accusative-marked NP in the IO construction cannot be separated from the light verb *suru*. For example, the accusative-marked NP is invisible to a syntactic movement operation such as scrambling, a common phenomenon in Japanese, by which the constituents of a sentence are freely rearranged via IP adjunction (Saito, 1985).[4] However, scrambling cannot be applied to the accusative-marked NP in the IO construction. Compare (7) and (8).

(7) *ao-i me-o$_i$ Mary-ga t_i si-te-i-ru.
     blue-AI eye-ACC M.-NOM   do-PART-be-PRS
     'Mary has blue eyes/is blue-eyed.'

(8) kirei-na iyaringu-o$_i$ Mary-ga t_i si-te-i-ru.
     pretty-AI earrings-ACC M.-NOM   do-PART-be-PRS
     'Mary is wearing pretty earrings.'

The ungrammaticality of (7) indicates that scrambling of the accusative-marked NP is disallowed in the IO construction. On the other hand, scrambling of the object NP is possible in an ordinary SOV sentence, as in (8). Any analysis of the IO construction should address the reason why the accusative-marked NP in the IO construction does not undergo movement.

3.3. ECM compatibility

A third fact peculiar to the IO construction is that it can serve as a complement clause in the so-called ECM construction. In Japanese, the subject of an embedded clause can be marked exceptionally as accusative. However, the embedded predicates that allow this possibility are limited to adjectives and nominal + copula *da* (Kuno, 1973). Hence (9a) and (9b) are grammatical, whereas, (9c), in which a verb appears as the complement predicate, is ungrammatical.

(9) a. John-wa [Mary-o kawai-i] to   omot-ta.   (adjective)
         J.-TOP   M.-ACC pretty-AI COMP think-PST
         'John thought Mary to be pretty.'

    b. John-wa [Mary-o tensai-da]   to   omot-ta. (nominal + copula *da*)
         J.-TOP   M.-ACC genius-COP COMP think-PST
         'John thought Mary to be a genius.'

    c. *John-wa [Mary-o gakkoo-ni ki-ta]   to   omot-ta.   (verb)
         J.-TOP   M.-ACC school-to come-PST COMP think-PST
         'John thought Mary to have come to school.'

Now, observe the asymmetry between (10) and (11).

(10) John-ga [Mary-o ao-i   me-o   si-te-ir-u]   to   omot-ta.
      J.-NOM M.-ACC blue-AI eye-ACC do-PART-be-PRS COMP think-PST
      'John thought Mary to be blue-eyed.'

(11) *John-ga [Mary-o kirei-na iyaringu-o   si-te-ir-u]   to   omot-ta.
      J.-NOM   M.-ACC pretty-AI earrings-ACC do-PART-be-PRS COMP think-PST
      'John thought Mary to be wearing pretty earrings.'

In (10), the IO construction appears as the complement clause of the ECM construction, whereas in (11) an ordinary SOV sentence is embedded in the ECM construction. The grammaticality of (10) and the ungrammaticality of (11) show that

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[4] Except for the verb, which must be placed at the end of the sentence.

the IO construction, but not an ordinary SOV sentence, is compatible with ECM. That the IO construction is compatible with ECM is, in fact, surprising for the following two reasons: (i) (10) contains two accusative marked NPs, which violates the "Double *o* Constraint" (Harada, 1973), a strict ban against two accusative-marked NPs in a single clause, and (ii) the complement predicate in (10) does not appear to be an adjective nor a nominal + copula. A satisfactory analysis of the IO construction should address both the reason why the IO construction can override the Double-*o* constraint and why its predicate behaves similarly to adjectives or nominal + copula.
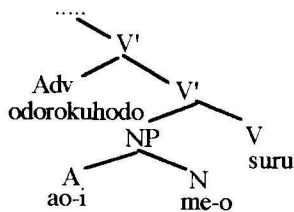
3.4. Modification by degree adverbs

The forth property unique to the IO construction concerns adverbial modification. Consider (12).

(12) a.   Mary-ga odorokuhodo   ao-i   me-o   si-te-i-ru.
        M.-NOM to a surprising degree blue-AI eye-ACC do-PART-be-PRS
        Reading 1: 'Mary is very blue-eyed.'
        Reading 2: 'Mary has very blue eyes.'

    b.   odorokuhodo   Mary-ga ao-i   me-o   si-te-i-ru.
        to a surprising degree M.-NOM blue-AI eye-ACC do-PART-be-PRS
   Reading 1: 'Mary is very blue-eyed.'

The sentence in (12a) is ambiguous. In the first reading, the adverb *odorokuhodo* 'to a surprising degree' has scope over the entire predicate, adjoined to the projection of *suru*. In the second reading, it takes a narrower scope which covers only the pre-nominal adjective *ao-i* 'blue.' In the latter case, the adverb is adjoined to the projection of the adjective, rather than to the projection of *suru*. The relevant structural configurations are illustrated in (13a) and (13b), respectively.[5]

(13)

    a. Reading 1: wide scope   b. Reading 2: narrow scope
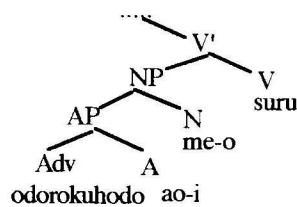
Notice that when *odorokuhodo* appears sentence initially, the second reading disappears, as in (12b). The unavailability of the second reading can be attributed to the fact that *odorokuhodo* is more deeply embedded for this particular reading, as shown in (13b). Extraction from that position is not licensed, as it breaks a constituent (i.e., NP).

That the structure in (13a) is possible is a property specific to the IO construction. The relevant class of degree adverbs modify mainly adjectives and adverbs, but not verbs. Consider (14) for an illustration of this point.

(14) a. Mary-ga odorokuhodo   kirei-na iyaringu-o si-te-i-ru.
      M.-NOM to a surprising degree pretty-AI earrings-ACC do-PART-be-PRS
      'Mary is wearing very pretty earrings.'   (= Reading 2: narrow scope)

    b. *odorokuhodo   Mary-ga kirei-na iyaringu-o   si-te-i-ru.

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[5] We assume a minimal tree structure following Chomsky (1995).

to a surprising degree M.-NOM pretty-AI earrings-ACC do-PART-be-PRS

That (14a) is grammatical is trivial since its structure should parallel the one in (13b), not (13a). Notice that there is only one reading available for (14a), namely, the narrow scope reading. When the adverb is fronted and the narrow reading is no longer available, the sentence becomes ungrammatical as in (14b). Thus, we can conclude that the wide-scope reading of degree adverbs is not available for ordinary SOV sentences. Why then is modification by the same adverb possible for the IO construction? An analysis of the IO construction should answer this question.

3.5. *Suru* is obligatorily in participial form

Finally, let us turn to a discussion of the form of *suru* in the IO construction. The possible and impossible forms of *suru* in the two types of IO construction are shown in (15a) and (15b), respectively. Compare the patterns in (15) with those in (16).

(15)   *suru* in IO construction

a.	Pre-nominal IO:	ao-i me-o	***su-ru**	Mary
		ao-i me-o	**si-ta**	Mary
		ao-i me-o	**si-te-i-ru**	Mary
		ao-i me-o	**si-te-i-ta**	Mary
b.	Predicative IO:	Mary-ga ao-i me-o ***su-ru**		
		Mary-ga ao-i me-o ***si-ta**		
		Mary-ga ao-i me-o **si-te-i-ru**		
		Mary-ga ao-i me-o **si-te-i-ta**		

(16)   *suru* in ordinary SOV

a.	Pre-nominal:	kirei-na iyaringu-o	**su-ru**	Mary
		kirei-na iyaringu-o	**si-ta**	Mary
		kirei-na iyaringu-o	**si-te-i-ru**	Mary
		kirei-na iyaringu-o	**si-te-i-ta**	Mary
b.	Predicative:	Mary-ga	kirei-na iyaringu-o	**su-ru**
		Mary-ga	kirei-na iyaringu-o	**si-ta**
		Mary-ga	kirei-na iyaringu-o	**si-te-i-ru**
		Mary-ga	kirei-na iyaringu-o	**si-te-i-ta**

Notice that *su-ru* in both the pre-nominal IO and the predicative IO, as well as *si-ta* in the predicative IO are not available,[6] as shown in (15), but all these forms are possible in ordinary SOV sentences, as shown in (16).

Let us examine the pattern in (15) more closely. First, notice that *si-ta* in pre-nominal IO is possible, whereas *si-ta* in the predicative IO is not, though in both cases the form *si-ta* is used. Second, notice that the grammatical *si-ta* in the pre-nominal IO does not have the past tense interpretation which is normally associated with the function of *-ta* in Japanese. Third, the *su-ru* form is excluded in both the pre-nominal IO and the predicative IO. Fourth, in the predicative IO, the presence of *-i-ru / -i-ta* 'be' is obligatory. Finally, the pre-nominal IO allows the *si-ta* form, as well as the *si-te-i-ru/ta* form, while the same does not hold for the predicative IO.

These observations can be explained if we postulate that *suru* in the IO construction must take the participle forms, *si-ta ~ si-te*, assuming that *-ta* , similarly to English *-ed*, is both the past tense suffix and the participle suffix. First, that *si-ta* is allowed in the pre-nominal IO but not in the predicative IO receives a natural account: bare participles

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[6] The pattern is much more rigid than those of the so-called Type 4 verbs (Kindaichi, 1976).

may appear in a reduced relative clause, but not in a matrix clause. Second, the ungrammaticality of *su-ru* follows, as the form *su-ru* is not a participle form.[7] If we assume that *-te* before *-i* 'be' is an allomorphic variant of *-ta*,[8] the reason that the forms *-i-ru /-i-ta* 'be' are obligatory in the predicative IO is clear: in the predicative IO, *su-ru* in the participle form must be supported by a tensed auxiliary. Finally, we can now properly characterize the two types of pre-nominal IO: *si-ta* appears in a reduced relative clause, whereas *-i-ru /-i-ta* 'be' appear in full (i.e., tensed) relative clauses.

We have argued that the various restrictions on the form of *suru* which are specific to the IO construction amount to the fact that a participle form is obligatory for *suru* in this construction. In Section 4.2, we will discuss why this should be the case.

3.6. Summary to Section 3

The following summarizes all the properties of the IO construction we have discussed so far.

<u>Properties of the IO construction</u>

A. *Suru* is a light verb.

B. Accusative-marked NP is not extractable.

C. The IO construction overrides the Double *-o* constraint.

D. The IO construction overrides the restriction on the complement predicate in ECM

E. Degree adverbs can modify *suru*.

F. *Suru* must take a participial form.

4. Analysis

We have so far demonstrated that the IO construction departs from canonical SOV sentences in a number of ways. It is our task now to propose an analysis which can account for the observed properties. We believe that the properties of the IO construction listed in Section 3.6 can be divided into the following two groups: (i) those which can be explained if we postulate that the NP-ACC and *suru* form a unit tighter than ordinary object-verb pair, and (ii) those which follow if we posit that the IO predicate is an adjective. The properties A, B, and C above constitute the first group, and D, E, F, the second group. We will argue that the two groups of properties, follow from the postulation of two post-lexical morphological operations, INCORPORATION and ADJECTIVIZATION, respectively. We will show that both operations are required for theta-role discharge, and thus, can independently be motivated. In accordance with the modularist view, but contradicting the strong lexicalist view, we will conclude that the proposed incorporation and subsequent adjectivization necessarily occur at a post-lexical level since the incorporated nominal in this case is a phrasal compound of the type Adjective + Noun.

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[7] It seems that the distinction between the present participle form *-ing* and the past participle form *-ed* is neutralized in Japanese, and *-ta* is used uniformly in both cases. In passing, *-ta* does not mark "passive participles" since Japanese has an independent passive morpheme *-rare*.

[8] One supportive fact for this treatment of *-ta~-te* variation is that the verbal stem form is identical in two cases.

4.1. Incorporation of A + N compound

We argue that the first group of properties can be captured if we postulate that the light verb *suru* induces an incorporation of the theta-role-bearing nominal. In order to facilitate our discussion, let us briefly refer to a parallel analysis proposed for another type of the light verb construction: the Verbal Noun (VN) construction. Verbal nouns, similar to English deverbal nominals such as *destruction* and *examination*, can take arguments and assign theta-roles to the arguments. An example of VN construction is given in (17).

(17) Mary-ga John-to kaiwa-o   su-ru
     M. NOM J.-with conversation-ACC do-PRS
     'Mary talks with John.'

In (17), the theta-roles assigned to the NPs *Mary* and *John* come from the VN *kaiwa* 'conversation,' not the light verb *suru*. *Suru*, therefore, does not assign any theta-role of its own.

Assuming a strict locality condition for theta-role assignment (Chomsky, 1981) such that the arguments must appear inside the projection of the head in order to receive a theta-role, (17) is puzzling, at first glance. In (17), *Mary* and *John* seem to be base-generated inside the projection of the light verb *suru*, not the VN. There must be an operation which enables VN to transfer its theta-roles to the (otherwise empty) argument structure of the light verb. In recent works under the Minimalist Program (Chomsky, 1995), the process has been identified with Baker's (1988) incorporation. Saito and Hoshi (1994), as well as Dubinsky (1994), argue that VN in (17) undergoes LF incorporation into *suru*. This process is illustrated in (18).

(18)
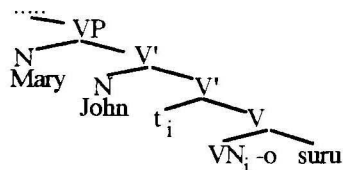
We do not have space to reproduce the detail of the LF incorporation analyses. Here, we want to stress that if incorporation is tied to the requirement of theta-role discharge, it must be the case that it is always triggered in the light verb construction. As we have observed earlier, *suru* in the IO construction, too, is a light verb. The THEME argument, which is assigned to the external argument in the predicative IO construction, comes from the inalienable property NP, not from the verb *suru*. *Suru* in the IO construction incorporates the inalienable property nominal. The resulting complex predicate inherits the argument structure of the nominal in much the same way *suru* inherits the argument structure of verbal nouns via incorporation.

The extension of the incorporation analysis to the IO construction enables us to capture the properties A, B, and C of the IO construction given in Section 3.6. First, that *suru* is a light verb (property A) motivates the incorporation analysis. Second, that the accusative marked nominal is not extractable (property B) results from the fact that the incorporated nominal is invisible to movement operations. Third, that the Double *o* constraint does not hold (property C) receives an explanation as the accusative case

marker, attached to the incorporated nominal, can be said to be "frozen" and lose its ordinary syntactic function.[9]

There are two questions we need to address when we apply the incorporation analysis to the IO construction: Q1: What exactly incorporates into the light verb *suru*? Q2: At what level does the incorporation take place? Let us first address Q1. Incorporation is a head-to-head operation. In the case of VN construction, what incorporates into the light verb *suru* is the verbal noun itself, and nothing else. In the case of the IO construction, too, we assume that a nominal head incorporates into *suru*. However, there is evidence that the incorporated nominal in this case is a compound of the type Adjective + Noun (A + N). Backward gapping in Japanese is known to respect morphological integrity but not syntactic constituency and, therefore, can serve as a strong "wordhood" test (Kageyama, 1989). Deleting a noun is normally allowed without deleting the adjective which modifies it. However, the same does not hold in the IO construction. Hence, the contrast between (19) and (20).[10]

(19) *Mary-wa [ao-i   me-o]   si-te-i-ru-si,   (A + N in IO)
       M.-TOP   [blue-AI eye-ACC] do-PART-be-PRS-and
       Jane-wa [kuro-i me-o]   si-te-i-ru
       J.-TOP [black-AI eye-ACC]   do-PART-be-PRS
       'Mary has blue eyes, and Jane, black ones'

(20) Mary-wa kirei-na iyaringu-o si-te-i-ru-si,   (Regular A and N)
       M.-TOP   pretty-AI earrings-ACC do-PART-be-PRS-and
       Jane-wa kawai-i iyaringu-o si-te-i-ru
       J.-TOP cute-AI earrings-ACC do-PART-be-PRS
       'Mary is wearing pretty earrings, and Jane, cute ones'

The *Backward Gapping* test indicates that A + N in the IO construction form a morphological unit, that is, a compound. We thus propose that what undergoes incorporation is this A + N compound. (21) demonstrates the relevant derivations.

(21)

"A + N compounding"   "incorporation"
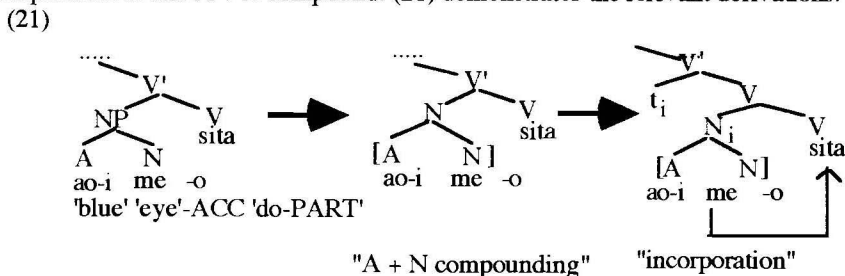
Since the A + N compound is the input of incorporation, we need to determine when it is formed before we can address Q2, that is, when the incorporation takes place. There are various facts which suggest that the relevant compound formation takes place post-lexically, operating on phrases. We mention two such properties here.

First, the phonological properties of the A + N compound in the IO construction is very different from those of lexical compounds. Lexical compounds in Japanese often

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[9] cf. footnote 2.

[10] To ensure a backward gapping reading, a pause is required between the adjective and the noun in the second conjunct. It is with this pause that (19) is unacceptable. Without the pause, the sentence is grammatical but the resulting reading is "Mary is blue, and Jane is black-eyed."

undergo "sequential voicing" or *Rendaku* (Kubozono, 1993, 1995; Vance, 1987). Rendaku is a process where the first sound of the second element of the compound, generally a native Japanese word, becomes voiced, as illustrated in (22). As shown in (23), however, this process does not take place in the case of the A + N compound in the IO construction.

(22) maru + kao --> [marugao]   (k > g)
     'round' 'face' 'round-face'

(23) maru-i + kao-o --> [maru-i-kao-o]   (*maru-i-gao-o)
     'round' 'face-ACC' 'round-face-ACC'

Second, while lexical compounds are subject to the Anaphoric Island Constraint (AIC) which disallows anaphoric and deictic pro-forms to appear word-internally (Postal, 1969), the A + N compounds in the IO construction are not. Observe the difference between (24) and (25).

(24) a.   [sara-arai]-wa   muzukasi-i.
           dish-washing-TOP difficult-AI
           'Dish-washing is difficult.'

     b.   *[sore$_i$-arai]-wa muzukasi-i.
           it-washing-TOP   difficult-AI
           '*It-washing is difficult.'

(25) a.   uti-no   kabe-wa [ao-i-iro-o]   si-te-ir-u.
           home-GEN wall-TOP blue-AI-color-ACC do-PART-be-PRS
           'The wall of my house is blue-colored.'

     b.   uti-no   kabe-wa [konna-iro-o]   si-te-ir-u.
           home-GEN wall-TOP 'like this'-color-ACC do-PART-be-PRS
           Lit. 'The wall of my house is 'like-this' colored.'
           'The wall of my house has a color like this.'

In (25b), the deictic pro-AP *konna* can appear inside the IO construction, contra the AIC. We take the behavior of the A + C compound with respect to the AIC, as well as *Rendaku*, to be an indication of its phrasal origin. Since the relevant compound shows both word-like and phrase-like properties, we conclude that it is a phrasal compound that is formed post-lexically in the course of syntactic derivation.

Now let us return to the question of at what level the incorporation takes place. If the A + N compound is formed lexically, it would be possible for the subsequent operations to take place either in the lexical component or in the post-lexical component. However, since the A + N compound is formed post-lexically, it immediately follows that the incorporation, too, occurs post-lexically.

4.2. Adjectivization

Let us now turn to the explanation for the second group of properties. Our assumption has been that the A + N compound in the IO construction intrinsically bears an internal theta-role, THEME. After the incorporation, *suru* inherits this internal theta-role. Recall that it is the subject NP of the predicative IO which eventually realizes this THEME theta-role. This means that there still is a step missing in our derivation in (21). We somehow need to assign the internal THEME theta-role to the subject NP. One may postulate that the subject NP is base-generated as an internal argument and undergoes movement. However, this option is not tenable since *suru* clearly assigns accusative case. Burzio's generalization (Burzio, 1986) states that a verb assigns accusative case if and only if it has an external theta-role, and vice versa. As

suru assigns accusative case, it should follow that it also assigns an external theta-role. How is it possible for *suru* to "externalize" the inherited internal THEME theta-role?

We propose that the answer to this question is a morphological operation, adjectivization. Specifically, we claim that, when the category of the IO predicate is changed from verb to adjective, its thematic structure is altered in such a way that its internal theta-role gets externalized. This characterization of "adjectivization" is due to the insight of Levin and Rappaport (1986). They argued that the externalization of the internal theta-role observed in the English adjectival passive formation is a by-product of the adjectivization of passive participles, resulting from the interaction between the properties of passive morpheme and the general property of adjectives such that they obligatorily assign external theta-roles.

The postulation of adjectivization can, at the same time, account for the properties D, E, and F of the IO construction in Section 3.6. That the IO construction can appear as the complement clause of the ECM construction (property D) is no longer puzzling, as the IO predicate is an adjective, in accordance with the restriction posed on the embedded ECM predicate. That *suru* in the IO construction can be modified by adjective/adverb-oriented degree adverbs (property E) is no longer surprising for the same reason. Finally, that *suru* in the IO construction obligatorily takes the participle form (property F) receives a natural account if we hypothesize that the input of adjectivization must be a participle. Since de-verbal adjectives often take the participial form (e.g., English participial adjectives *broken heart, bent stick, surprising fact*), such a proposal seems to be in accord with the facts in other languages.

We have argued earlier that preceding two operations, A + N compounding and incorporation both take place at post-lexical levels. Again, as a logical consequence, adjectivization must be post-lexical, too.

5. Summary and conclusion

In this paper, we have discussed the Japanese Inalienable Object construction. We have analyzed the relevant construction by postulating two post-lexical operations: noun incorporation and adjectivization. The A + N compounds in the IO construction exhibit both word-like and phrase-like properties, suggesting that they are a phrasal compound, post-lexically formed in the course of syntactic derivation. As a logical consequence, the subsequent two operations, incorporation and adjectivization, also take place post-lexically. Since the end-product is an adjective, the IO construction can be said to be a phrasal counterpart of the English Possessional Adjective (e.g., *blue-eyed*).

The analysis which is necessitated by the IO construction has an important implication for the theory of word formation. To the extent that our analysis holds, we have shown evidence against the strong lexicalist hypothesis, which denies the occurrence of word formation outside the lexical component. On the other hand, our analysis is compatible with the modular theory of word formation (Shibatani and Kageyama, 1988; Kageyama, 1993). It is crucial for our analysis of the IO construction that the morphological rules can operate outside the lexical component. One can restate the often-asked question "Does syntax have access to morphology?" as "Does morphology have access to syntax?" Our answer is clearly yes.

References

Baker, M. (1988) *Incorporation: A Theory of Grammatical Function Changing.* University of Chicago Press.

Beard, R. (1995) *Lexeme-Morpheme Base Morphology.* Albany, NY: SUNY Press.

Bresnan, J. and Mchombo, S. A. (1995) The Lexical Integrity Principle: Evidence from Bantu. *Natural Language and Linguistic Theory, 13,* 181-252.

Burzio, L. (1986) *Italian Syntax: A Government-Binding Approach.* Dordrecht: Kluwer academic Publishers.

Chomsky, N. (1981) *Lectures on Government and Binding.* Dordrecht: Foris.

Chomsky, N. (1995) *The Minimalist Program.* Cambridge, Mass.: MIT Press.

Di Sciullo, A. M., and Williams, E. *On the definition of word.* Cambridge, Mass.: MIT Press.

Dubinsky, S. (1989) Compound *suru* verbs and evidence for unaccusativity in Japanese. *CLS 25,* 98-111.

Dubinsky (1994) Syntactic underspecification: A minimalist approach to light verbs. *MIT Working Papers in Linguistics, 24,* 61-81.

Harada, S.-I. (1973) Counter Equi NP Deletion. *Annual Bulletin 7,* Research Institute of Logopedics and Phoniatrics, University of Tokyo, 113-147.

Jensen, J. and Stone-Jensen, M. (1984) Morphology is in the Lexicon! *Linguistic Inquiry, 15,* 474-498.

Kageyama, T. (1977) Incorporation and sino-Japanese verbs. *Papers in Japanese Linguistics 5,* 117-155.

Kageyama, T. (1982) Word Formation in Japanese. *Lingua, 57,* 215-258.

Kageyama, T. (1989) The place of morphology in the grammar: verb-verb compounds in Japanese. *Yearbook of Morphology, 2,* 73-94.

Kageyama, T. (1993) *Bunpoo to Gokeisei.* Tokyo: Hitsuji Shoboo.

Kuno, S. (1973) *The structure of the Japanese language.* Cambridge, Mass.: MIT Press.

Kubozono, H. (1993) *The organization of Japanese Prosody.* Tokyo: Kuroshio Publishers.

Kubozono, H. (1995) *Go-keesee to Onin-koozoo* (Word Formation and Phonological Structure). Tokyo: Kuroshio Publishers.

Levin, B. and Rappaport, M. (1986) The Formation of Adjectival Passives. *Linguistic Inquiry, 17,* 623-662.

Lieber, R. (1992) *Deconstructing Morphology: Word Formation in Syntactic Theory.* Chicago: University of Chicago Press.

Matsumoto, Y. (1991) A syntactic account of light verb phenomena in Japanese. *Journal of East Asian Linguistics, 5,* 107-149.

Miyagawa, S. (1987) Lexical categories in Japanese. *Lingua, 73,* 29-51.

Postal, P. M. (1969) Anaphoric Islands. *CLS, 5,* 205-239.

Saito, M. (1985) *Some asymmetries in Japanese and their theoretical consequences.* PhD dissertation, MIT.

Saito, M. and Hoshi, H. (1994) Japanese light verb construction and the minimalist program. A chapter in the research report of the 1991-1993 project on Japanese grammar at the University of Connecticut, submitted to BBN Systems and Technologies.

Shibatani, M. and Kageyama, T. (1988) Word formation in modular theory of grammar: Post-syntactic compounds in Japanese. *Language, 64,* 451-484.

Teramura, H. (1984) *Nihongo-no sintakkusu to imi Vol 2.* Tokyo: Kurosio-shuppan.

Uchida, Y. and Nakayama, M. (1993) Japanese verbal noun constructions. *Linguistics, 31,* 623-666.

Vance, T. J. (1987) *An Introduction to Japanese Phonology.* Albany, NY: State University of New York Press.