

On the Japanese Verb *Suru* *

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0. Introduction

Our general goal in this paper is to clarify the nature of the Japanese verb *suru*. The verb *suru* can occur in three different syntactic frames which seem to have a near-paraphrase relation to each other, illustrated in (1) below:

- (1) a. John-wa Bill-to-no aiseki-o shita.
John-Top Bill-with-Gen table-sharing-Acc *suru*-Past
'John shared a table with Bill.'
- b. John-wa Bill-to aiseki-o shita.
John-Top Bill-with table-sharing-Acc *suru*-Past
- c. John-wa Bill-to aiseki shita.
John-Top Bill-with table-sharing *suru*-Past

The Japanese verb *suru* has recently attracted the increasing attention of theoretical linguists and not a few new facts on *suru* have begun to come to light. In particular, Grimshaw and Mester (1988) has made an interesting claim that there are at least two types of *suru*, one of which is "heavy" and the other is "light", exemplified in (1a) and (1b) above respectively. According to their account, heavy *suru* is a regular transitive verb, and hence an independent θ -marker, whereas light *suru* is thematically incomplete and acquires the capacity of θ -marking through a process of complex predicate formation, which they call "Argument Transfer." With respect to the example (1c), they state without detailed discussion that the Noun *aiseki* yields all its θ -assigning capacities to *suru* through complex predicate formation, and the output *aiseki-suru* is a verbalized version of the Noun. In opposition to Grimshaw and Mester, Terada (1990) argues that there is no distinction between "heavy" and "light" *suru*, and that there is no process like "Argument Transfer." According to her account, two *suru*'s in (1a) and (1b) are the same in that they are regular transitive verbs

like any other verbs. With respect to (1c), however, she claims that *suru* in *aiseki-suru* is an unaccusative verb, and that the complex *aiseki-suru* is derived by syntactic Noun Incorporation.

The problem to be addressed in this paper is where we should draw a clear-cut line of division among three examples in (1). Grimshaw and Mester's line is between (1a) and (1b-c). Terada's is between (1a-b) and (1c). And our answer is, following Grimshaw and Mester's one, between (1a) and (1b-c); the distinction between "light" and "heavy" *suru* is plausible. As will be shown below, the nominals which these two types of *suru* take behave contrastively in a number of syntactic phenomena; so, this bifurcation seems to be well motivated. We will go a step further and provide a principled basis for this twofold differentiation of *suru*, and explain why the two differentiated types show such different behavior.

In Section 1, we will argue that it is necessary to distinguish light *suru* from heavy *suru*. In Section 2, we will propose distinct internal structures for the nominals which the two types of *suru* take. In Section 3, we will discuss the nonreferential property of the nominals which light *suru* takes. In Section 4, we will show some consequences of our analysis of light *suru*. In Section 5, we will present the analysis of the incorporated version as in (1c). Section 6 is a brief summary.

1. Heavy and light *Suru*'s

In this section we will discuss the twofold differentiation of *suru*. First we will briefly review Grimshaw and Mester's (henceforth G&M) argument on this differentiation. Next we will examine Terada's claim against G&M that there is no distinction between "heavy" and "light", and then bring forth counterarguments to her account. We will provide further syntactic evidence in support of the distinction between "heavy" and "light".

1.1. G&M identify the verb *suru* in (2a) as a light verb and claim that the light verb is devoid of θ -roles in its lexical entry. When the light verb cooccurs with a nominal that has an argument structure, the

θ -role of the nominal can be transferred to the light verb, whereby the verb acquires θ -marking properties. In other words, the argument structure of the nominal licenses the argument array that occurs with *suru*, even though the arguments occur outside the maximal projection of the nominal. This relation can be captured when we compare (2a) with (2b), where the same set of arguments is seen to occur in nominalization:

- (2) a. John-wa Mary-ni hanashi-o shita
 John-Top Mary-to talk-Acc suru-Past
 'John talked to Mary.'
 b. John-no Mary-e-no hanashi
 John-Gen Mary-to-Gen talk
 'John's talk to Mary' (G&M 1988: 207)

On the other hand, other Japanese verbs are heavy in that all arguments of the nominal must appear inside the object NP. For example, in (3a), where the argument *Mary* occurs inside the NP, is grammatical, but (3b), where *Mary* occurs outside and is marked with *-ni*, is ungrammatical:

- (3) a. John-wa Mary-e-no hanashi-o wasureta.
 John-Top Mary-to-Gen talk-Acc forgot
 'John forgot the talk to Mary.'
 b. *John-wa Mary-ni hanashi-o wasureta.
 John-Top Mary-to talk-Acc forgot (G&M 1988: 208)

G&M recognize the existence of another case of *suru*, in which it is a heavy verb, a θ -marker of the usual kind. It takes two arguments, a subject argument and an object argument. The object of heavy *suru* does not allow outside arguments. In the example below, the Goal argument *Tokyo* of the nominal *ryokoo* remains inside the object NP:

- (4) John-ga Tokyo-e-no ryokoo-o shita.
 John-Nom Tokyo-to-Gen trip-Acc suru-Past
 'John made the trip to Tokyo.'

Although G&M do not notice it, the sentence above can be paraphrased as in (5a), in which a heavy verb *okonau* substitutes for *suru*; the heavy status of *okonau* is confirmed by the fact it does not allow outside arguments, as shown in (5b):

- (5) a. John-ga Tokyo-e-no ryokoo-o okonatta.
 John-Nom Tokyo-to-Gen trip-Acc okonau-Past
 'John made the trip to Tokyo.'
- b.?*John-ga Tokyo-e ryokoo-o okonatta.
 John-Nom Tokyo-to trip-Acc okonau-Past
 'John made the trip to Tokyo.'

G&M also claim that heavy *suru* places the agentivity requirement on the subject. They explain the ungrammaticality of (6), saying that the subject (*densha* 'train') violates the agentivity requirement.

- (6) *Densha-wa Oosaka-e-no toochaku-o shita.
 train-Nom Oosaka-to-Gen arrival-Acc suru-Past
 'The train arrived in Oosaka.'

Pursuing G&M's line of reasoning, it follows that both cases of *suru* are possible when the subject is agentive. Because of the differences between light and heavy *suru*, disambiguation can usually be achieved with nonagentive subjects and/or outside arguments. To put it simply, if the subject is nonagentive, *suru* is always light. And if the sentence occurring with *suru* contains any arguments outside the object NP, other than the external argument, *suru* is necessarily light.

We will follow G&M in claiming that heavy *suru* should be distinguished from light *suru*, and will present further support for this claim later. Before doing so, we must examine an alternative, which has been proposed by Terada (1990).

1.2. Terada (1990) argues that all *suru*'s in the N -o *suru* forms are "regular" transitive verbs, contrary to G&M, and that there is no

distinction between heavy and light. As was seen above, G&M claim that *suru* is always light when the subject is nonagentive. However, Terada disagrees with this claim, saying that the transitive *suru*, namely *suru* in the *o suru* form, necessarily requires an agent subject. Let us consider the following examples which she cites:

- (7) a. *Kono deeta-ga atarashii mondai-no shisa-o shiteiru.
 this data-Nom new problem-Gen suggestion-Acc suru-Prog
 'This data suggests a new problem.'
- b. *Ya-ga mato-ni meichuu-o shita.
 arrow-Nom target-to strike-Acc suru-Past
 'An arrow struck the target.'
- c. *Maria-ga kirisuto-no jutai-o shita.
 Maria-Nom Christ-Gen conception-Acc suru-past
 'Maria conceived Christ.'
- d. *Kanseiteo-wa SOS-no jushin-o shita.
 control tower-Top SOS-Gen reception-Acc suru-Past
 'The control tower received an SOS.'
- e. *Dainamaito-ga gunjukichi-no bakuha-o shita
 dynamite-Nom military base-Gen blast-Acc suru-Past
 'Dynamite blasted the military base.'

The ungrammaticality of these sentences leads Terada to argue that the transitive *suru* requires an agent subject. According to Terada, the reason for the ungrammaticality is as follows; each subject in the above sentences is not an agent, that is, in (7a) it is a Source, in (b) it is a Theme, in (c) an Experiencer, in (d) a Goal, in (e) an Instrument. We agree with her judgements about these examples, but we do not think that these examples provide compelling counterevidence to the distinction between heavy and light *suru*'s. As was noted earlier, heavy *suru* imposes the agentivity requirement on the subject. All the examples but (b) do not contain any arguments outside the object NP, so these should be regarded as cases of heavy *suru*. The reason why (7a, c, d, e) are ungrammatical is simply because heavy *suru* requires an agent subject. (Notice here that our term heavy *suru* should be clearly

distinguished from Terada's transitive *suru*.)

How about (7b)? Does the ungrammaticality suggest, as Terada claims, that there is nothing at all like light *suru*? In (7b) the Goal argument *mato-ni* clearly occurs outside the object NP. Under our and G&M's assumption that if the sentence occurring with *suru* contains any arguments outside the object NP, *suru* is always light, it follows that *suru* in (7b) is light. To defend the distinction between heavy and light, we must explain what makes the sentence (7b) ungrammatical. Fortunately, Miyagawa (1989) and Tsujimura (1990) elegantly account for this ungrammaticality. They maintain that this ungrammaticality results from the fact that the θ -role bearing nominal, *meichuu* 'strike' is ergative. If the nominal is ergative, no external thematic role transfers to *suru*. *Suru* in (7b), which assigns no θ -role to its subject does not assign Case to its object, by virtue of Burzio's Generalization in (8).

(8) *Burzio's Generalization*

A verb assigns an external thematic role iff it can assign Case.

Therefore (7b), which has an Accusative Case marker *-o*, is ungrammatical.

Let us turn to the second argument made in Terada (1990) against the distinction between heavy and light *suru*'s. The argument is concerned with NP-external phenomenon. She argues that the *prima facie* NP-external PPs are really not the arguments of N but the arguments of the verb *suru*.

- (9) a. Takashi-wa yakuza-to [mayaku-no baibai]-o shita.
 Takashi-Top gang-with drug-Gen business-Acc *suru*-Past
 'Takashi did business in drugs with the gang.'
- b. Takashi-wa kuruma-de [koojoo-no shisatsu]-o shita.
 Takashi-Top car-by factory-Gen inspection-Acc *suru*-Past
 'Takashi inspected the institution by car.'
- c. Takashi-wa Sapporo-de [raamen-no shishoku]-o shita.

Takashi-Top Sapporo-at noodle-Gen sampling-Acc suru-Past
 'Takashi sampled noodles at Sapporo.'

(Terada 1990: 117)

According to her claim, the verb *suru* can have its own arguments; a comitative argument in (9a), an instrumental argument in (9b) and a locative in (9c). The strongest evidence for her claim comes from the following examples:

- (10) a. Takashi-wa Taoka Kiyoshi-to [Yamaguchi-gumi-to-no
 Takashi-Top Taoka Kiyoshi-with Yamaguchi Group-with-Gen
 mayaku-no baibai]-o shita
 drug-Gen business -Acc suru-Past
 'Takashi did business in drugs with Yamaguchi Group with
 Taoka Kiyoshi.
- b. Takashi-wa jiman-suru tame-ni karita roorusuroisu-de
 Takashi-Top boast for borrowed Rolls-Royce-by
 [kuruma-de-no koojoo-no shisatsu]-o shita.
 car by-Gen factory-Gen inspection-Acc suru-Past
 'Takashi did the inspection of the factory by a car by
 Rolls-Royce, which he borrowed to show off.'
- c. Takashi-wa sono yumeina mise-de [Hokkaido-de-no
 Takashi-Top that famous store-at Hokkaido-at-Gen
 raamen-no shishoku]-o shita.
 noodle-Gen sampling-Acc suru-Past
 'Takashi did the sampling of noodles in Hokkaido at that
 famous restaurant.'

(Terada 1990: 119)

She holds that if NP-external PPs were transferred arguments of N, as in the "argument transfer" account, a PP with the same θ -role as the NP-external PP should not appear inside of the NP, and that once the θ -roles are transferred to *suru*, they are no longer available NP-internally. The grammatical status of (10a-c) has allured her to conclude that a nominal and *suru* have independent argument structures.

However, this argument do not force us to abandon the distinction between heavy and light *suru*'s, because the sentences above should be regarded as cases of heavy *suru* in the light of the distinction. And it is not unreasonable to maintain that the two PPs occurring in each sentence above are not really arguments of the nominal, but in fact adjuncts; one of the two PPs is an adjunct in the matrix, and the other is an adjunct in the NP headed by the nominal. Accordingly the sentences above do not involve argument transfer, and her argument is off the point.

What is more relevant to the distinction between heavy and light *suru*'s is the following examples, which Terada judges as ungrammatical:

- (11) a. ?*Jinushi-wa Takashi-kara [tochi-no baishuu]-o shita.
 landlord-Top Takashi-from land-Gen acquisition-Acc suru
 'The landlord bought land from Takashi.'
 b. ?*Yakuza-wa shuhutachi-ni [nise daiya-no hanbai]-o shita
 gang-Top housewives-to fake diamond-Gen sales-Acc suru
 'The gang sold fake diamonds to housewives.'

(Terada 1990: 117-118)

From these examples, Terada has made a claim that a comitative, instrumental, or locative PP can be an argument of *suru*, while a Source, or a Goal PP cannot. We disagree, however, with Terada on judgement about the grammaticality of the sentences in (11). These sentences seems to us perfectly grammatical. Moreover, we can easily find out other examples, where Source or Goal arguments appear outside the object NPs, like the following:

- (12) a. Iinkai-wa sono gakkou-kara shutujyouken-no
 committee-Top the school-from right of participation-Gen
 hakudatsu-o shita.
 deprivation-Acc suru-Past
 'The committee deprived the school of the right of participation.'

- b. Taro-wa Akiko-ni tomodachi-no syoukai-o shita.
Taro-Top Akiko-to friends-Gen introduction-o suru-Past.
'Taro introduced his friends to Mary.'
- c. Gakkou-wa seitotachi-ni kami-o nobasu kyoka-o shita.
school-Top students-to hair-Acc lengthen permission-Acc
'The school gave permission to let their hair grow to the
students.'
- d. John-wa murabito-ni ookami-ga kuru-to-no keikoku-o shita
John-Top villager-to wolf-Nom come-Comp-Gen warn-Acc suru
'John warned the villagers that the wolf was coming.'

These examples clearly provide evidence for the existence of light *suru*. We are obliged to think that each PP outside the object NP in (11) and (12) is not an argument of *suru* but originally an argument of the Noun heading the direct object NP. In other words, the argument structure of the Noun licences the argument that occurs outside NP. Therefore what G&M call Argument Transfer seems to be involved in these examples.

Terada herself notices that a Goal PP could sometimes occur outside the object NP when the Noun denotes 'saying' of any sort, and holds that the NP-external Goal PP in this case is also an argument of the verb *suru* on the observation that it can appear with an NP-internal PP with the same θ -role. Her examples are as follows:

- (13) a. ?Yakunin-wa bakkin-ga 1000-doru ijoo-mo tamatteiru
official-Top fine-Nom \$1000 more accumulated
Takashi-ni [hooritsu-ihansha-e-no keikoku]-o shita.
Takashi-to law-violator-to-Gen warning -Acc suru-Past
'The official did the warning to law violators to Takashi,
whose fine had accumulated to more than \$1000.'
- b. Jimuchoo-wa Takashi-ni [rijikai-e-no
head clerk-Top Takashi-to board of trustees-to-Gen
hookoku]-o shita.
report -Acc suru-Past
'The head clerk did the report to the board of trustees to
Takashi.'

(Terada 1990: 170)

If the verb *suru* and the Noun took a Goal argument independently, as Terada claims, the following sentences would be acceptable. However this is not the case:

- (14) a. **Yakunin-wa Takashi-ni [Akiko-e-no keikoku]-o shita.*
 official-Top Takashi-to Akiko-to-Gen warning -Acc *suru*
 'The official did the warning to Akiko to Takashi.'
 b. **Jimuchoo-wa Takashi-ni [Akiko-e-no hookoku]-o shita.*
 head clerk-Top Takashi-to Akiko-to-Gen report -Acc *suru*
 'The head clerk did the report to Akiko to Takashi.'

This sharply contrasts with the following sentence, where heavy *suru* is involved and the NP-external PP is not the argument of the Noun *aiseki* but an adjunct, as we have stated above:

- (15) *Taro-wa John-to [Mary-to-no aiseki]-o shita.*
 Taro-Top John-with Mary-with-Gen table-sharing-Acc *suru*-Past
 'Taro did the table-sharing with Mary with John.'

Then, what makes the sentences in (13) acceptable? We suggest that it is an analogy between *suru* and such saying verbs as *iu* 'to say' or *tsutaeru* 'to tell'. Not only can we substitute *iu* or *tsutaeru* for *suru* in (13), but also the sentences in (14) becomes acceptable when *suru* is replaced by *iu* or *tsutaeru*. The upshot is that the examples in (13) provide, at best, equivocal support for Terada's analysis, and that when a Goal PP or a Source PP appears outside the object NP as in (11) and (12), it is an argument of the Noun heading the object NP. (11) and (12) are in fact the instances of light *suru*.

Up to this point, we have argued against Terada (1990) that light *suru* must be distinguished from heavy *suru*. In what follows, we will show in favor of this distinction that the nominal which these two types of *suru* take behave contrastively in a number of syntactic phenomena.

1.3. Let us consider the following pair of sentences:

- (16) a. John-wa Bill-to-no aiseki-o shita.
 John-Top Bill-with-Gen table-sharing-Acc suru-Past
 'John shared a table with Bill.'
- b. John-wa Bill-to aiseki-o shita.
 John-Top Bill-with table-sharing-Acc suru-Past

In light of our distinction, *suru* in the (a) example is heavy, whereas *suru* in the (b) example is light. *Suru* in (a) takes [*Bill-to-no aiseki*] as a direct object, while *suru* in (b) takes only *aiseki*, since *Bill-to* is not marked with genitive Case *-no* and hence is not part of the direct object. For convenience we will refer to the nominal in (a) as *heavy nominal*, and the nominal in (b) as *light nominal*. We will see in this subsection that the two types of nominal show some differences in terms of syntactic operations.

First, as G&M observe, light nominals behave differently from heavy nominals with respect to topicalization. Whereas heavy nominals can freely be topicalized, light nominals resist topicalization. This is illustrated in (17):

- (17) a. Bill-to-no aiseki-wa John-ga shita.
 Bill-with-Gen table-sharing-Top John-Nom suru-Past
- b. ?*Aiseki-wa John-ga Bill-to shita.
 table-sharing-Top John-Nom Bill-with suru-Past

This difference between heavy and light nominals can be seen in other examples, regardless of what kind of argument is involved. In (18) and (19) the relevant argument is a Goal, and in (20) and (21) it is a Theme (or Proposition). In these examples the same sort of discrepancy can be observed: ¹

- (18) a. Nihongun-ga tyuugoku-e-no shinryaku-o shita.
 Japanese forces-Nom China-to-Gen invasion-Acc suru-Past.
 'The Japanese forces invaded to China.'

- b. Tyuugoku-e-no shinryaku-wa nihongun-ga shita.
China-to-Gen invasion-Top Japanese forces-Nom suru-Past.
- (19) a. Nihongun-ga tyuugoku-e shinryaku-o shita.
Japanese forces-Nom China-to invasion-Acc suru-Past
b.?*Shinryaku-wa nihongun-ga tyuugoku-e shita.
invasion-Top Japanese forces-Nom China-to suru-Past
- (20) a. John-ga [ookami-ga kuru-to]-no hookoku-o shita.
John-Nom wolf-Nom come-Comp-Gen report-Acc suru-Past
'John reported that the wolf was coming.'
b. [Ookami-ga kuru-to]-no hookoku-wa John-ga shita
wolf-Nim come-Comp-Gen report-Top John-Nom suru-Past
- (21) a. John-ga [ookami-ga kuru-to] hookoku-o shita.
John-Nom wolf-Nom come-Comp report-Acc suru-Past
b.?*Hookoku-wa John-ga [ookami-ga kuru-to] shita.
report-Top John-Nom wolf-Nom come-Comp suru-Past

Second, heavy and light nominals show some differences with respect to scrambling. Heavy nominals can be scrambled, while light nominals seem to disallow scrambling, as illustrated below: ²

- (22) a. Bill-to-no aiseki-o John-ga shita.
Bill-with-Gen table-sharing-Acc John-Nom suru-Past
b.??Aiseki-o John-ga Bill-to shita.
table-sharing-Acc John-Nom Bill-with suru-Past

(22a) and (22b) are the results of scrambling of the heavy nominal in (16a) and the light one in (16b) respectively. In (22a) the heavy nominal *Bill-to-no aiseki-o* is easily scrambled. This is not the case with the light nominal *aiseki-o*, as can be seen in (22b). The same contrast can be seen in other examples like the following:

- (23) a. [Ookami-ga kuru-to]-no hookoku-o John-ga shita.
wolf-Nim come-Comp-Gen report-Acc John-Nom suru-Past
b.?*Hookoku-o John-ga [ookami-ga kuru-to] shita.

report-Acc John-Nom wolf-Nom come-Comp suru-Past

Notice that the external PP *Bill-to* in (16b) can be scrambled as usual:

- (24) Bill-to John-ga aiseki-o shita.
 Bill-with John-Nom table-sharing-Acc suru-Past

Third, the asymmetry between heavy and light nominals can also be seen with respect to passivization. While heavy nominals can be passivized, light nominals cannot, as shown in (25):³

- (25) a. Bill-to-no aiseki-ga John-niyotte sareta.
 Bill-with-Gen table-sharing-Nom John-by suru-Pass-Past
 b. ?*Aiseki-ga John-niyotte Bill-to sareta.
 table-sharing-Nom John-by Bill-with suru-Pass-Past

In contrast to the case of scrambling in (24), the following contrast can be observed:

- (26) a. ??Bill-ga John-niyotte aiseki-o sareta.
 Bill-Nom John-by table-sharing-Acc suru-Pass-Past
 b. Bill-ga John-ni aiseki-o sareta.
 Bill-Nom John-by table-sharing-Acc suru-Pass-Past

Here the grammaticality of the sentences clearly correlates with the difference *niyotte* and *ni*, which is attached to *John* in the (a) and (b) examples respectively. This contrast is a matter of interest, though not crucial to the issue at hand.

Fourth, the difference between heavy and light nominals can be observed through relativization. Only heavy nominals relativize, as illustrated below:⁴

- (27) a. John-ga shita Bill-to-no aiseki
 John-Nom suru-Past Bill-with-Gen table-sharing
 'the table-sharing with Bill that John did'

- b.?*John-ga Bill-to shita aiseki
 John-Nom Bill-with suru-Past table-sharing
 'the table-sharing that John did with Bill'

Fifth, heavy and light nominals behave contrastively in pseudo-cleft constructions. Heavy nominals can be pseudo-clefted, whereas light nominals do not allow pseudo-clefting. This is illustrated in (28):⁵

- (28) a. John-ga shita-no-wa Bill-to-no aiseki-da.
 John-Nom suru-Past-Gen-Top Bill-with-Gen table-sharing-Prt
 'What John did was table-sharing with Bill.'
 b.??John-ga Bill-to shita-no-wa aiseki-da.
 John-Nom Bill-with suru-Past-Gen-Top table-sharing-Prt
 'What John did with Bill was table-sharing.'

Although the contrast between the (a) and (b) sentences is not as clearly observed here as in other constructions above, the significant difference in grammaticality can be seen between (a) and (b).

Sixth, adverbials, such as *hajimete* 'for the first time', can intervene between heavy nominals and *suru*, while they cannot between light nominals and *suru*. This is shown in (29):

- (29) a. John-wa Bill-to-no aiseki-o hajimete shita.
 John-Top Bill-with-Gen table-sharing-Acc did
 'John shared a table with Bill for the first time.'
 b.??John-wa Bill-to aiseki-o hajimete shita.
 John-Top Bill-with table-sharing-Acc suru-Past

Some native speakers may not perceive the difference in grammaticality between (a) and (b). Nonetheless, it is important to note that when an intonational pause is placed before *hajimete*, the difference becomes more evident.

We have reviewed so far that heavy and light nominals show some different behaviors with respect to a number of syntactic operations. Here we should point out that these differences cannot be captured in

Terada's (1990) view that there is no distinction between heavy and light *suru*, and that *suru* is just a regular transitive verb like any others. According to her analysis, heavy and light nominals would be on a par, namely both would be treated as the arguments which *suru* takes. It is highly unreasonable to suppose that the same things behave differently in a number of syntactic phenomena. Taking these matters into account, we discard Terada's view.

We hasten to add two related facts concerning the twofold differentiation between heavy and light *suru*'s. First, when the external PP is omitted from each sentence in (17b), (22b), (25b), (27b), (28b) or (29b), the sentence seems to become more acceptable, as shown below:

- (30) a. ?Aiseki-wa John-ga shita.
 table-sharing-Top John-Nom suru-Past
 b. Aiseki-o John-ga shita.
 table-sharing-Acc John-Nom suru-Past
 c. ?Aiseki-ga John-niyotte sareta.
 table-sharing-Nom John-by suru-Pass-Past
 d. ?John-ga shita aiseki
 John-Nom suru-Past table-sharing
 e. John-ga shita-no-wa aiseki-da.
 John-Nom suru-Past-Gen-Top table-sharing-Prt
 f. John-wa aiseki-o hajimete shita.
 John-Top table-sharing-Acc for the first time suru-Past

In these examples, it is likely that the nominal *aiseki* behaves like heavy nominals that was observed earlier. Therefore, because *suru* takes as a direct object the nominal which includes no arguments inside, it does not necessarily follow that *suru* is light and the nominal is a light nominal. ⁶ We cannot decide a priori which *suru* is involved in the following sentence:

- (31) John-ga aiseki-o shita.
 John-Nom table-sharing-Acc suru-Past

Second, the distinction between heavy and light could be extended to other verbs than *suru*. For example, the Japanese verb *kakeru* can be either heavy or light, depending on what kind of nominals the verb takes. In light of this distinction, *kakeru* in (32a) is a heavy verb on one hand, and that in (32b) is light on the other hand. The status of two kinds of *kakeru* is confirmed by the facts parallel to those seen in the case of *suru*. The sentences in (33a) and (33b) are the results of topicalization of those in (32a) and (32b) respectively, those in (34), of relativization, (35), of passivization:

- (32) a. John-ga kabe-ni e-o kaketa.
 John-Nom wall-on picture-Acc kakeru-Past
 'John hung the picture on the wall.'
- b. John-ga Taro-ni kitai-o kaketa.
 John-Nom Taro-on hope-Acc kakeru-Past
 'John laid his hope on Taro.'
- (33) a. e-wa John-ga kabe-ni kaketa.
 picture-Top John-Nom wall-on kakeru-Past
- b.?*kitai-wa John-ga Taro-ni kaketa.
 hope-Top John-Nom Taro-on kakeru-Past
- (34) a. John-ga kabe-ni kaketa e
 John-Nom wall-on kakeru-Past picture.
 'the picture that John hung on the wall'
- b.?*John-ga Taro-ni kaketa kitai
 John-Nom Taro-on kakeru-Past hope
 'the hope that John laid on Taro'
- (35) a. e-wa John-niyotte kabe-ni kakerareta.
 picture-Top John-by wall-on kakeru-Pass-Past
 'The picture was hung on the wall by John.'
- b.?*kitai-wa John-niyotte Taro-ni kakerareta.
 hope-Top John-by Taro-on kakeru-Pass-Past
 'The hope was laid on Taro by John.'

To sum up this subsection, the nominals which two types of *suru*

take behave contrastively in a number of phenomena; so the bifurcation between heavy and light is well motivated. In what follows we will provide a specific analysis of this bifurcation.

2. Light Nominals Reconsidered

What is the nature of the differences between heavy and light nominals? How can we account for the fact that these two types of nominals behave differently with respect to a number of syntactic operations?

We may suppose that while heavy nominals are arguments of the usual kind, light nominals are non-arguments. Light nominals are not arguments of the verb *suru* but rather elements that help to specify the meaning of the verb. In other words, without the help of light nominals the verbal head *suru* does not have enough meaning to stand on its own, and they have only a vague or ambiguous meaning. Along this line, G&M have argued that light nominals occurring with *suru* are the source of θ -marking, and that the Noun that heads such nominals must itself be a θ -role assigner. Heavy nominals, on the other hand, are θ -marked by heavy *suru* in the same way where arguments of other verbs are θ -marked by them. Thus they do not have the capacity of θ -marking externally.

This reminds us of the distinction between abstract and concrete Nouns. This distinction concerning θ -assigning capacities was originally dealt with by Anderson (1983), who argued that only abstract Nouns act as θ -assigners. Concrete Nouns like 'dog' and 'chair' do not have this θ -assigning capacities. What is relevant in the present discussion is that *suru* can take both types of these nominals. The following examples are the cases where *suru* takes a concrete Noun. The concrete status of the nominals is guaranteed by the fact that it can be modified by a numeral, as shown in (36a), by an adjective, as in (36b), or by a demonstrative, as in (36c). Moreover it can be modified by a number of modifiers at the same time, as shown by (36d):

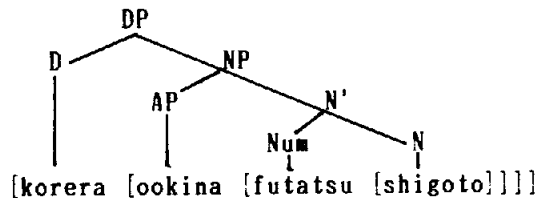
- (36) a. John-ga futatsu-no shigoto-o shita.
 John-Nom two-Gen work-Acc suru-Past

- 'John did two pieces of work.'
- b. John-ga ookina shigoto-o shita.
 John-Nom big work-Acc suru-Past
 'John did big work.'
- c. John-ga korera-no shigoto-o shita.
 John-Nom these-Gen work-Acc suru-Past
 'John did these pieces of work.'
- c. John-ga korera-no ookina futatsu-no shigoto-o shita.
 John-Nom these-Gen big two-Gen work-Acc suru-Past
 'John did these big two pieces of work.'

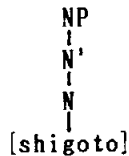
Then what we have called heavy nominals share some properties with concrete Nouns, whereas light nominals are similar to abstract Nouns.

It seems evident that the difference between heavy and light nominals may not simply be a matter of nominals being arguments or non-arguments. We would like to claim that it may rather depend on the structural differences between the two. In this respect, following the analysis which has been made by Ihionu (1989) for the so-called "inherent complement verbs" in Igbo, we make the following proposal: while heavy nominals are DP's, light nominals are bare NP's as shown in (37):⁶

(37) a. heavy nominals



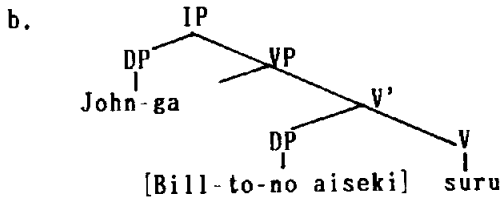
b. light nominals



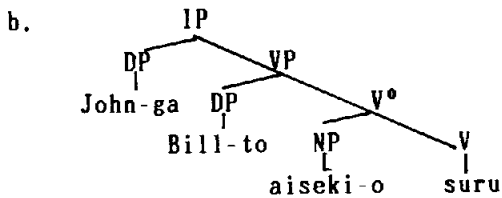
It follows that heavy *suru* selects a DP of the usual kind, whereas

light *suru* selects a bare NP as a lexical property and as a result this relation must hold at D-structure. The structures of the relevant examples, which we assume, are schematized in (38) and (39).

- (38) a. John-ga Bill-to-no aiseki-o shita.
 John-Nom Bill-with-Gen table-sharing-Acc *suru*-Past



- (39) a. John-ga Bill-to aiseki-o shita.
 John-Nom Bill-with table-sharing-Acc *suru*-Past



(38) is the case of heavy *suru*. The V *suru* θ -marks and case-marks the complement DP [Bill-to-no aiseki] as any other verbs do. (39) is the case of light *suru*. This poses a problem with respect to thematic and hierarchical structure. As we noted above, a light nominal is not an argument but rather an element that helps to specify the meaning of the verb, so the light nominal forms a semantic complex with the verbal head *suru*.⁷ It is not clear at this point what category the verbal head projects in accordance with the Projection Principle. But we do know that is some projection of V. Since the nominal (NP) before the verb in (39) is not an argument of the V, the complex which consists of V and NP is not VP. It cannot be a V' of the sort in (38b), either. Therefore, it is not unreasonable to assume that it is a V⁰ as represented in (39b). As a result the complex V⁰ θ -marks its argument *Bill-to*, whereas the head V *suru* Case-marks the NP *aiseki*. Namely Case-marking and θ -marking are done by different elements.

Our crucial assumption here is that a light nominal and the verb *suru* exit from the lexicon as a complex unit. The motivation for this assumption comes from the fact that the combinational possibility is fixed to some extent between a nominal and a light verb in Japanese as well as in other languages. The examples in (40) are those of Japanese light verbs. Note that the light verbs cannot be interchanged with each other. And the examples in (41) are those of English ones, which show some idiosyncrasies: *

- (40) a. kouryo / doryoku -o harau
 consideration effort -Acc pay
 b. hakushu / aizu -o okuru
 hand-clapping sign -Acc send
 c. hannou / konran -o okosu
 reaction confusion -Acc cause
 d. tyuumoku / shiji -o atsumeru
 attention support -Acc collect

- (41) a. give the rope a pull/ *give the window an open
 b. give someone a kiss/ *give someone a kill
 c. have a drink/ *have an eat
 d. have a walk/ *have a speak

One consequence of this assumption is as follows; because the complexes are formed through some kind of complex predicate formation in the lexicon, they must subject to the Lexical Integrity Hypothesis (LIH), which states that:

- (42) No constituent structure rule may order any element into or out of lexical categories such as N, A, V.

(Simpson 1983: 74)

To put it differently, syntactic processes are blind to the internal structure of words. Given that the complex consisting of a light nominal and V is a V^0 , the facts observed in the last section would be

straightforwardly accounted for by the LIH. It would follow that a number of syntactic operations do not apply to a componential part, i.e. a light nominal. The relevant data are repeated here:

- (43) a.?*Aiseki-wa John-ga Bill-to shita. (=17b)
 table-sharing-Top John-Nom Bill-with suru-Past
 b.??Aiseki-o John-ga Bill-to shita. (=22b)
 table-sharing-Acc John-Nom Bill-with suru-Past
 c.?*Aiseki-ga John-niyotte Bill-to sareta. (=26b)
 table-sharing-Nom John-by Bill-with suru-Pass-Past
 d.?*John-ga Bill-to shita aiseki (=27b)
 John-Nom Bill-with suru-Past table-sharing
 e.??John-ga Bill-to shita-no-wa aiseki-da. (=28b)
 John-Nom Bill-with suru-Past-Gen-Top table-sharing-Prt.
 f.??John-ga Bill-to aiseki-o hajimete shita (=29b)
 John-Nom Bill-with table-sharing suru-Past

However, the situation does not seem so simple. Among the examples above, the (a), (c), and (d) sentences are worse to some extent than (b), (e), and (f). What is responsible for the difference in grammaticality? The LIH would predict that all the sentences above are ungrammatical in the same degree. So we seem to get into a paradoxical situation with respect to the LIH.

Interestingly enough, a difference of the same kind has been observed in the Inherent Complement of Igbo by Ihionu (1989). Let us see the following examples cited from there:

- (44) a. Obi [_{VP} gba-ra Eze ukwu]
 Obi kick-Past Eze leg
 'Obi kicked Eze.'
 b. Ukwu_i [c'ka [_{IP} Obi [_{VP} gba-ra Eze e_i]]]
 leg Comp Obi kick-Past Eze
 'It's a kick that Obi gave to Eze.'
 c. *Kedu ukwu_i Obi gba-ra Eze e_i
 Which leg Obi kick-Past Eze

'Which leg did Obi kick Eze with?' (Ihionu 1989)

According to his analysis, in (44a) the V *gba* and the nominal *ukwu* form a semantic unit at some underlying stage, what he calls 'inherent complement verb' (ICV), though the ICV complex is broken up by a direct argument *Eze*. Notice that the nominal can be clefted as shown in (44b), whereas it cannot be WH-moved as in (44c). On this observation, he claims that WH-movement destroys the semantic unity between the V and the nominal, treating the N more or less like an independent argument of the V, while in clefting or focusing, the semantic relationship between the two is still preserved.

Although his explanation is no more than descriptive, the same explanation may be available in the cases observed in (43). It can be said that topicalization, passivization, and relativization destroy the semantic unity between the nominal *aiseki* and the V *suru*, as in (43a), (43c), (43d) respectively. On the other hand, scrambling, pseudo-clefting, and insertion of modifiers preserve the semantic unity, as shown by (43b), (43e), and (43f). This is partially supported by the fact observed in Kearns (1988) that light verb constructions in English also cannot undergo passivization. This is illustrated in (45):

- (45) a. John gave the table wipe.
 b. *A wipe was given the table by John.

It would follow that the Lexical Integrity Hypothesis is weakened, so that the syntactic operation applies to the complex *aiseki-o suru* as long as it does not destroy the semantic relationship between the two components of V^0 .

Another possible avenue to account for the contrast in (43) is to appeal to the referentiality. A topicalized element should be referential. The same holds true of a passivized element and a relativized one. In contrast, scrambling, pseudo-clefting, and insertion do not obey such a restriction.⁹ The light nominal *aiseki*, as we mentioned earlier, has a predicate-like character, so it is nonreferential. This may be why the nominal resists topicalization,

passivization, and relativization, while it tends to allow scrambling, pseudo-clefting, and insertion. This results in the contrast in (43).

It is not clear at this point which is promising in explaining the contrast in question. Rather it would be better to suppose that both factors, lexical integrity and referentiality, are involved in the contrast. We should emphasize here that the two accounts do not conflict with each other, but they are complementary to each other.

3. Nonreferential Requirement

We have touched on the idea that light nominals should be nonreferential. In this section we will show that this nonreferential requirement on light nominals has empirical coverage over a number of examples concerning the distribution of arguments.

G&M has made three crucial generalizations pertinent to the distribution of arguments. Of the three generalizations, the following is relevant to our discussion:

- (46) For Nouns that take a Theme and a Goal, if the Theme argument is realized outside NP, the Goal must also be realized outside NP. (G&M 1988: 215)

The examples, which they regard as relevant, follow in (47).

- (47) a. Sono deeta-ga wareware-ni [kare-no riron-ga machigatte
that data-Nom us-to he-Gen theory-Nom mistaken
iru-to] shoomei-o shiteiru.
be-Comp proof-Acc suru.
'That data proves to us that his theory is mistaken.'
- b. Sono deeta-ga wareware-ni [[kare-no riron-ga machigatte
that data-Nom us-to he-Gen theory-Nom mistaken
iru-to]-no shoomei]-o shiteiru.
be-Comp-Gen proof-Acc suru.
- c. *Sono deeta-ga [kare-no riron-ga machigatte iru-to]
that data-Nom he-Gen theory-Nom mistaken be-Comp
[wareware-e-no shoomei]-o shiteiru.

us-to-Gen proof-Acc suru
 (G&M 1988: 215, 224)

In (47a), both of the two internal arguments, the Goal *wareware-ni* and the Theme, occur outside the nominal. In (47b), the Goal is outside the nominal with the Theme inside, in (47c), conversely, the Theme is outside with the Goal inside. However, we do not think that these examples are concerned with the generalization above, because even (47a) and (47b) seem to us marginal at best. In place of their examples, we present the following data, where the contrast between the (a)-(b) examples and (c) is rather clear:

- (48) a. John-wa murabito-ni [ookami-ga kuru-to] keikoku-o shita.
 John-Top villager-to wolf-Nom come-Comp warn-Acc suru
 'John warned the villagers that the wolf was coming.'
- b. John-wa murabito-ni [[ookami-ga kuru-to]-no keikoku]-o
 John-Top villager-to wolf-Nom come-Comp-Gen warn-Acc
 shita.
 suru-Past
- c.??John-wa [ookami-ga kuru-to] [murabito-e-no keikoku]-o
 John-Top wolf-Nom come-Comp villager-to-Gen warn-Acc
 shita.
 suru-Past

These data appears to be accounted for by the generalization (46). G&M would claim that the combination of an outside Theme and an inside Goal is ill-formed. Instead, our claim is that it is the nonreferential property of light nominal that is responsible for the ungrammaticality of (48c). Because a light nominal and *suru* form a complex predicate, the light nominal should be nonreferential. In (48c), however, the inside Goal argument *murabito-e-no* contributes to the referentiality of the nominal, as a result, the nominal as a whole becomes referential to a certain extent. This is why (48c) is not grammatical. This analysis is reinforced with the following fact: when we replace *murabito-e-no* in (48c) by a more specific phrase *Mary-e-no* as in (49), we get a less

grammatical sentence:

- (49) *John-wa [ookami-ga kuru-to] [Mary-e-no keikoku]-o shita.
 John-Top wolf-Nom come-Comp Mary-to-Gen warn-Acc suru

The same contrast can be seen in the following pair of sentences:

- (50) a. ??Higaisha-wa [baishookin-o shiharae-to] [kuni-e-no
 sufferer-Top indemnity-Acc pay-Comp country-to-Gen
 yookyuu]-o shita.
 requirement-Acc suru-Past
 'The sufferer required the country to pay the indemnity.'
 b. *Higaisha-wa [baishookin-o shiharae-to] [Taro-e-no
 sufferer-Top indemnity-Acc pay-Comp Taro-to-Gen
 yookyuu]-o shita.
 requirement-Acc suru-Past
 'The sufferer required Taro to pay the indemnity.'

To substantiate our claim further, let us examine the examples which fall outside the generalization (46).

- (51) a. ??Kare-wa [genpatsu-o haishisu-beki-da-to]
 he-Top atomic power-acc abandon-should-Prt-Comp
 [nijikan-no syuchoo]-o shita.
 two hours-Gen claim-Acc suru-Past
 'He made a claim for two hours that atomic power should be
 abandoned.'
 b. *Kare-wa [genpatsu-o haishisu-beki-da-to]
 he-Top atomic power-acc abandon-should-Prt-Comp
 [niji-kara yoji-made-no syuchoo]-o shita.
 two o'clock-from four-to-Gen claim-Acc suru-Past
 'He made a claim from two to four that atomic power should
 be abandoned.'

- (52) a. ??Kare-wa [genpatsu-o haishisu-beki-da-to]

he-Top atomic power-acc abandon-should-Prt-Comp
 [daigaku-de-no enzetsu]-o shita.
 university-at-Gen speech-Acc suru-Past
 'He made a claim at the university that atomic power should
 be abandoned.'

- b. *Kare-wa [genpatsu-o haishisu-beki-da-to]
 he-Top atomic power-acc abandon-should-Prt-Comp
 [Tsukuba daigaku-de-no enzetsu]-o shita.
 Tsukuba university-at-Gen speech-Acc suru-Past
 'He made a claim at University of Tsukuba that atomic power
 should be abandoned.'

(46) affords no explanation of the ungrammaticality of the sentences above, even of the contrast between (a) and (b), because the inside phrases are not arguments but adjuncts. But our analysis correctly predicts that even an adjunct phrase must not appear inside the light nominal if it loses the nonreferential property of the nominal. Furthermore, the contrast between (a) and (b) is straightforward in our terms. In (51) the inside phrase *nijikan-no* of the (a) sentence is less specific than *niji-kara yoji-made-no* of the (b) sentence. Likewise, the inside phrase *daigaku-de-no* in (52a) is not so specific as *Tsukuba daigaku-de-no* in (52b). Therefore the (a) sentences are not so bad as the (b) sentences in each pair. It follows that such examples provide further evidence that light nominals should be nonreferential.

Let us turn to other cases like (53) and (54).

- (53) *John-wa [ookami-ga kuru-to] [sono keikoku]-o shita.
 John-Top wolf-nom come-Comp the warn-Acc suru-Past
 (54) *John-wa [ookami-ga kuru-to] [kinou Mary-kara kiita
 John-Top wolf-Nom come-Comp yesterday Mary-from heard
 keikoku]-o shita.
 warn-Acc suru-Past

'John gave the warning, which he heard from Mary yesterday,
 that the wolf was coming.'

In (53) the nominal *keikoku* is modified by the determiner *sono*. Notice that the Theme argument occurs outside the nominal, and the light status of the nominal *keikoku* is warranted. Our analysis correctly predicts the ill-formedness of (53), saying that the determiner makes the nominal referential. In (54) since the relative clause *kinou Mary-kara kiita* attaches to the nominal, the sentence becomes ungrammatical in exactly the same manner.

We have argued that the light nominal which light *suru* takes should be nonreferential because of the predicate-like character of the complex.

4. Some Consequences of V^o Analysis

In this section we will show some consequences of treating as V^o the light *suru* complex with a light nominal.

Inagaki et al. (in preparation) formulates the following condition on Case-marking on the observation of Japanese causative construction.

(55) Condition on Structural Case-marking (CSC)

A verb can assign at most one structural Case.

This condition explains a well-known paradigm like the following:

- (56) a. *John-ga Mary-o Bill-o hihan-sase-ta (koto)
 John-Nom Mary-Acc Bill-Acc criticize-Caus-Past that
 'John made Mary criticize Bill.'
- b. John-ga Mary-ni Bill-o hihan-sase-ta (koto)
 John-Nom Mary-Dat Bill-Acc criticize-Caus-Past that

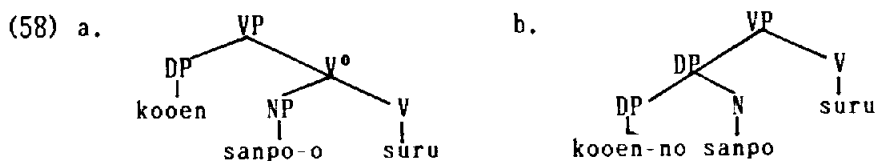
We will not attempt a full explanation of these constructions here. Nevertheless, an outline of a reasonable analysis will be enough to proceed. In Inagaki et al.'s analysis, essentially following Baker (1988), causative predicates are formed through a process of Verb Incorporation, one case of X^o movement. So in (56), the V *kihansuru* merges into the causative morpheme *sase*, and the complex V *hihan-sase* turns up. Then how can we explain the contrast in grammaticality between

(56a) and (56b)? The difference between the two sentences is that the causee argument *Mary* is marked by accusative Case *-o* in (56a), whereas it is marked by dative Case *-ni* in (56b). Given that an *o*-phrase is structurally Case-marked by a complex verb, while a *ni*-phrase is θ -marked and inherently Case marked by *sase*, the contrast follows from the condition in (55): In (56b) *Mary* is inherently Case-marked by *sase* and *Bill* is structurally Case-marked by the complex V *hikan-sase*, so nothing wrong happens. In (56a), on the other hand, both *Mary* and *Bill* must get Cases from the complex V, because both are marked with structural accusative Cases. This is exactly what the condition (55) prohibits.

Then let us turn to the case which is relevant to our discussion. First, consider the following pair of sentences.

- (57) a. *Mary-ga kooen-o sanpo-o shita.*
 Mary-Nom park-Acc walk-Acc suru-Past.
 'Mary took a walk at the park.'
 b. *Mary-ga kooen-no sanpo-o shita.*
 Mary-Nom park-Nom walk-Acc suru-Past

In the light of our analysis, the *suru* in the (a) example is light, whereas that in (b) is heavy. The *suru* in (a) forms a complex V° with the nominal *sanpo*, and it assigns structural Case to the nominal inside V° . (Presumably the outside nominal *kooen-o* is assigned inherent accusative Case. But this matter does not concern the discussion here.) The *suru* in (b) Case-marks the nominal *kooen-no sanpo* in the same way as other verbs do. This is illustrated in (58a) and (58b), respectively (irrelevant portions are omitted):

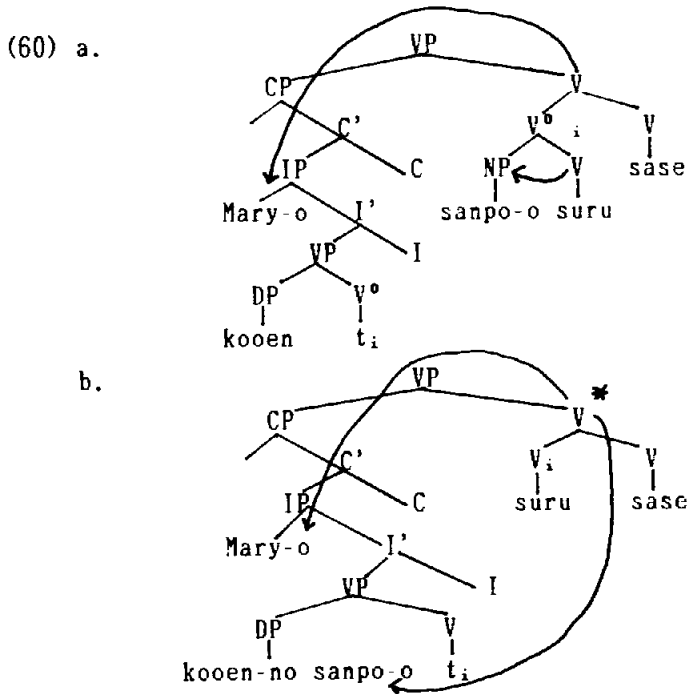


Now let us embed the two sentences above in causative constructions.

(59a) corresponds to (57a), and (59b) corresponds to (57b).

- (59) a. John-ga Mary-o kooen-o sanpo-o sase ta.
 John-Nom Mary-Acc park-Acc walk-Acc suru-Caus-Past
 'John made Mary take a walk at the park.'
 b. *John-ga Mary-o kooen-no sanpo-o sase-ta.
 John-Nom Mary-Acc park-Nom walk-Acc suru-Caus-Past

The S-structure representations of (59a) and (59b), which we assume, are as in (60a) and (60b), respectively:



The explanation of the contrast in (59) proceeds as follows: suppose that in (60a) the lower V° with the NP *sanpo* moves successive cyclically onto the higher V *sase*. As mentioned above, the V *suru* internally Case-marks *sanpo*. The complex V *sanpo-o sase* Case-marks *Mary* in the embedded CP. Namely *sanpo* and *Mary* are Case-marked by the different verbs. Thus no violation of CSC results. In (60b), on the other hand, the V *suru* solely incorporates into the higher V . Now both

Mary and *kooen-no sanpo* must get Case from the complex V. However this is blocked by CSC, so that (60b) is not well-formed.

Crucial here is that the nominal *sanpo* and light *suru* forms a complex V^o and moves together as a unit into the higher V. If we didn't assume so, the contrast found in (59) would remain unexplicable.

5. N-Incorporation

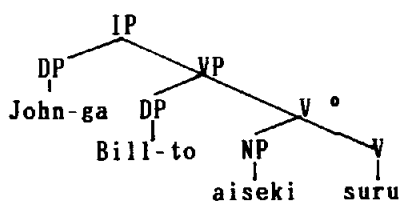
Although the focus of the foregoing discussion has been on the phrasal *susu* complex, there is another version of the constructions involving *suru*, illustrated in (1c) and repeated as (61), in which *suru* and a Noun form a single compound word.

- (61) John-ga Bill-to aiseki shita.
 John-Nom Bill-with table-sharing suru-Past
 'John shared a table with Bill.'

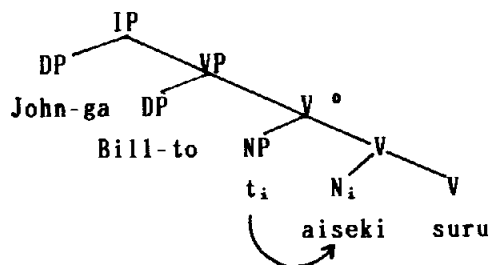
We will argue in this section that the Baker-style Noun Incorporation (NI) is involved in the N- *suru* form. ¹⁰

Specifically we will propose (62a) as the D-structure for (61), and (62b) as the S-structure after the application of NI (irrelevant portions are omitted):

(62) a.



b.



Notice here that the proposed D-structure (62a) is the same as that which was proposed for the sentence below:

- (63) John-ga Bill-to aiseki-o shita.
 John-Nom Bill-with table-sharing-Acc suru-Past

The heart of our proposal is that the sentences (61) and (63) have the same D-structure representation. In both cases the complex made of *aiseki* and *suru* exits from lexicon as V^0 and it is mapped onto D-structure.

Let us begin by introducing the Case theory proposed in Baker (1988). He argues that the Visibility Condition of Chomsky (1986) needs to be generalized somewhat, by extending the notion of what counts as "visibility" to include agreement systems and incorporation as well as Case assignment. In this spirit he introduces the notion of Case-indexing and proposes (64) and (65).

(64) *The Principle of PF Interpretation*

Every Case indexing relationship at S-structure must be interpreted by the rules of PF.

(Baker 1988: 116)

(65) *The Visibility Condition (revised)*

B receives a theta role only if it is Case-indexed.

(ibid: 117)

(64) and (65) together imply that all arguments must be "PF identified." The PF identification includes verbal agreement, directional adjacency, Case-assignment, and NI.

Let us see how this system works in (62). In the D-structure (62a), the NP in the object position of the V *suru* must be PF-identified in the course of derivation. There are two possible ways which are allowed in Japanese. One is Case-assignment. If the NP is assigned an accusative Case by *suru*, the sentence (63) is derived. The other way is NI. If the head of NP *aiseki* is incorporated into the V, the sentence (61) is derived. However an important question immediately arise: is the NP in

the object position of V an argument to be PF identified? As was seen earlier, the NP shows different behaviors from those of an ordinary NP. So we have attributed this to the structural difference between NP and DP. Does this imply that the NP is not an argument and need not be PF-identified? Our answer is "no". An intuitive core idea behind the theoretical statement of Visibility is as follows: the reason NPs must be Case-indexed is because Case-indexing helps identify how the NP is to be interpreted in the structure. The NP *aiseki* must be interpreted in some way related to the V *suru*, though the relation is not precisely a predicate-argument relation in an ordinary sense. Therefore it is not unreasonable to assume that the NP *aiseki* must be PF identified.

Now our task is to find other cases to which this analysis can be extended. The following pairs of sentences are the promising candidates.

- (66) a. Shatyoo-wa isu-ni koshi-o kaketa.
 president-Top chair-on buttock-Acc kakeru-Past
 'The president sat on the chair.'
 b. Shatyoo-wa isu-ni koshi kaketa.
 president-Top chair-on buttocks kakeru-Past
- (67) a. John-wa kane-mouke-ni sei-o dasita.
 John-Top money-getting-to efforts-Acc dasu-Past
 'John made efforts to get money.'
 b. John-wa kane-mouke-ni sei dasita.
 John-Top money-getting-to efforts dasu-Past

These examples are exactly parallel to the case at hand. For example, the NP *koshi* in (66) is assigned an accusative Case by *kakeru*, as in the (a) example, or otherwise it is incorporated into the V, as in (b).

Kageyama (1982) deals with these alternations in great detail and makes an important observation that compound verbs impose severe constraints on the grammatical functions of incorporated nouns. He gives a rough idea of what this functional constraint looks like, as in (68):

- (68) a. subject of intransitive verbs: about 25 %
 eg. *hara-datu* 'to get angry', *sikata-nai* 'there is no

other choice'

- b. subject of transitive verbs: no example
- c. direct object: about 50 %
eg. *hone-oru* 'to take pains', *tema-doru* 'to take time'
- d. indirect object: no example
- e. adverbials: about 25 %
eg. *tabi-datu* 'to go on a journey', *se-ou* 'to carry on one's back', *te-watasu* 'to hand'

(Kageyama 1982: 244)

Particularly noteworthy is the total absence of the incorporation of transitive subject and indirect object. This fact reminds us of Baker's account of distribution of NI. Baker assumes that the illicit movement is a violation of the Empty Category Principle (ECP). Briefly, and setting aside details not directly relevant here, the story on this view is the following: The empty category, or the trace, left by an incorporated subject or indirect object noun is not "properly governed" by the verb; this violates the ECP, which requires empty categories to be properly governed. An object trace, by contrast, is properly governed, as required. Given this, the distribution of NI in Japanese is straightforwardly accounted for. These examples clearly shows that NI in Japanese is syntactic in character.

NI in Japanese, however, must be distinguished from that in the Iroquoian languages discussed extensively in Baker (1988). There is a clear difference between the referential value of the noun in the case of Japanese NI and that of the noun in the Iroquoian languages. This difference is shown by the fact that NI in Iroquoian can strand certain kinds of NP material, holding the semantic dependency between N and the stranded element. The relevant examples are like the followings:

- (69) a. [Yede seuan-ide] a-mu-ban.
that man-Suf 2sS-see-Past
'You saw that man.'
- b. Yede a-seuan-mu-ban.
that 2sS:A-man-see-Past (Southern Tiwa)

- (70) a. Wa?-k-nuhs-ahni:nu: [John lao-nuhs-a?].
 AOR-1sS-house-buy John 3M-house-Suf
 'I bought John's house.'
- b. Wa-hi-nuhs-ahni:nu: John.
 AOR-1sS/3M-house-buy John (Oneida)
 (Baker 1988: 92, 96, 97)

In these examples, the (a) sentences are unincorporated counterparts of the (b) sentences. In (69b), the incorporated noun is modified by a demonstrative outside the verb complex. In (70b), the external noun phrase is interpreted as the possessor of the incorporated noun. These examples show a clear contrast with the cases in Japanese, as in (71) and (72):

- (71) a. *Shatyoo-wa isu-ni sono koshi-o kaketa.
 president-Top chair-on the buttock-Acc kakeru-Past
- b. *Shatyoo-wa isu-ni sono koshi kaketa.
 president-Top chair-on the buttocks kakeru-Past
- (72) a. *John-wa kane-mouke-ni jibun-no sei-o dasita.
 John-Top money-getting-to self-Gen efforts-Acc dasu-Past
- b. *John-wa kane-mouke-ni jibun-no sei dasita.
 John-Top money-getting-to self-Gen efforts dasu-Past

The fact that even unincorporated counterparts as well as incorporated ones are not grammatical, as shown above, may suggest that they have different D-structures from those of (71) and (72). It is quite conceivable that the noun *koshi* and the verb *kakeru* exit from lexicon as V^0 just like the case of *suru*.

The Iroquoian languages permit 'referentially transparent' NI productively, whereas Japanese does not allow it. It is not clear at this point why this is so, and where this difference comes from. However, taking into account the existence of such a distributional constraint as in (68), NI in Japanese is not lexical but syntactic in character.

6. Summary

In this paper we have attempted to explicate the properties of the Japanese verb *suru*. In Section 1, we have established the distinction between heavy and light *suru*'s, especially by observing that the two types of *suru* behave differently in a number of syntactic phenomena. In Section 2, we have proposed distinct internal structures for the two types of nominals which each *suru* takes, and claimed that while heavy *suru* is a θ -marker as other verbs, light *suru* forms a V^0 with a nominal and does not function as a θ -marker. This proposal has allowed us to give an account of their different behaviors. In Section 3, we have demonstrated that the nonreferential requirement on light nominals affords an explanation of a number of examples bearing on the distribution of arguments. In Section 4, we saw some consequences of treating as V^0 the complex comprised of light *suru* and a light nominal. In Section 5, on the basis of the analysis of the light complex, we have claimed that NI is involved in the N-*suru* form.

NOTES

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¹ S. Homma pointed out to me, referring to the following sentences, that if the sentences in (17b) and (18b) are modified to those which represent habitual meaning, the grammaticality rises:

- (i) ?Aiseki-wa yoku kappuru-ga yakuza-to suru.
 table-sharing-Top usually couple-Nom gang-with suru-Pres
 'A pair of lovers usually shares a table with gangs.'
- (ii) ?Shinryaku-wa nihongun-ga Ajia-no achikochi-e
 invasion-Top Japanese forces-Nom Asia-Gen here and there-to
 shita-monoda
 suru-Past-used to

'The Japanese forces used to invade to many places in Asia.'

I have no explanation for why these contrasts occur, but it is conceivable that the referentiality of the topicalized phrases has some bearing on the contrasts.

² Some native speakers judge (22b) as grammatical. The reason might be as follows: the sentence (16b) has two possible readings. One is the reading in which the *suru* is heavy and *Bill* is a comitative adjunct. The other is the reading in which the *suru* is light and *Bill* is an argument of the N *aiseki*. For me, the only possible reading is the latter one. Those who judges (22b) as grammatical might allow the former reading. It is quite difficult to disambiguate the two readings, because the subject is agentive. However, Y. Takano called my attention to the following sentences:

- (i) a. Bakudan-ga sono toshi-ni keikoku-o shita.
 bomb-Nom the city-to warning-Acc suru-Past
 '(lit.) The bomb did the warning to the city.'
- b. *Keikoku-o bakudan-ga sono toshi-ni shita.
 warning-Acc bomb-Nom the city-to suru-Past

In the examples above, the verb *suru* is obligatorily light because the subject is not agentive. The ungrammaticality of (b) clearly shows that light nominals disallow scrambling.

³ Y. Takano pointed out to me that (25a) has another reading in which the subject is missing, i.e., (25a) corresponds to the following sentence:

- (i) (Mary-wa) Bill-to-no aiseki-ga John-niyotte
 Mary-Top Bill-with-Gen table-sharing-Nom John-by
 sareta.
 suru-Pass-Past

To illustrate that heavy nominals can undergo passivization, we present the following sentence which include the verb *nasu*. *Nasu* can be analyzed

as the one which corresponds to heavy *suru*.

- (ii) Bill-to-no aiseki-ga John-niyotte nasareta.
 Bill-with-Gen table-sharing-Nom John-by nasu-Pass-Past

⁴ Y. Takano also called my attention to the following sentence:

- (i) ?John-ga murabito-ni shita keikoku
 John-Nom villager-to suru-Past warning
 'the warning that John did to the villagers'

We can clearly observe a difference in grammaticality between (27b) and the sentence above. The difference between *keikoku* and *aiseki* causes the contrast, but it is not clear at this point in what sense *keikoku* and *aiseki* differ from each other, and we leave this for future research.

⁵ The same contrast as the one observed in footnote 4 can be seen between (28b) and (i):

- (i) ?John-ga murabito-ni shita-no-wa keikoku-da.
 John-Nom villager-to suru-Past-Gen-Top warning
 'What John did to the villagers was warning.'

⁶ One may suppose that while heavy nominals are full NPs, light nominals are Ns. However recall that the following sentence (= (11a)) is the case of light nominal in our definition because the argument *Takashi-kara* occurs outside the nominal and then the verb is light *suru* :

- (i) Jinushi-wa Takashi-kara [tochi-no baishuu]-o shita.
 landlord-Top Takashi-from land-Gen acquisition-Acc suru-Past
 'The landlord bought land from Takashi.'

Thus light nominals should not be Ns rather than NPs.

⁷ Nakau (1989) makes explicit the function of what we call light nominals in his original framework on semantic roles. He defines as

"Range" the semantic role which light nominals bear and claims that Range is a participant which delimits the value range of the action denoted by the verb in such a way as to specify that action more narrowly. Our analysis is essentially in accordance with his spirit.

⁸ Wierzbicka (1982) deals with these light verbs extensively and claims that these light verbs exhibit systematic behavior governed by strict semantic rules. If these rules are to be treated in lexicon, our analysis will be further motivated. See Wierzbicka (1982) for the relevant discussion.

⁹ The story is not so simple, because we immediately encounter the examples like the following:

- (i) a. A unicorn is considered to be honest.
- b. A unicorn that can eat cakes might be a strange animal.

In (ia) the generic NP is passivized, and in (ib) the NP is modified by a relative clause. It is not clear at this point how what we call "referential" relates to the distinction between generic and specific. However, *a unicorn* in the above examples can be taken as referential in the sense that it refers to unicorns in possible worlds.

¹⁰ Terada (1990) also claims that NI is involved in the N-*suru* form. However our analysis should be distinguished from hers. In our analysis, the N-*o-suru* form and the N-*suru* form have the same derivational source, whereas in her analysis, they have distinct derivational sources. Although we will not get into details, we believe that our approach is more promising.

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