Step by Step

Essays on Minimalist Syntax
in Honor of Howard Lasnik

edited by Roger Martin,
David Michaels, and
Juan Uriagereka

The MIT Press
Cambridge, Massachusetts
London, England

Uriagereka, Juan. 1988. On government. Doctoral dissertation, University of Connecticut, Storrs.

Uriagereka, Juan. 1994. Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 25, 79–123.

Uriagereka, Juan. 1997. Formal and substantive elegance in the Minimalist Program. In Chris Wilder, Hans-Martin Gärtner, and Manfred Bierwisch, eds., *The role of economy principles in linguistic theory*, 170–204. Berlin: Akademie-Verlag.

Zwart, C. Jan-Wouter. 1997. *Morphosyntax of verb movement: A minimalist approach to the syntax of Dutch*. Dordrecht: Kluwer.

Chapter 8

The Japanese Light Verb Construction and the Minimalist Program

Mamoru Saito and Hiroto Hoshi

The Japanese light verb construction has been discussed extensively in the literature.[1] The Japanese verb *su* functions exactly like the English main verb *do* in examples like (1).

(1) Mary-ga [NP suugaku-no) syukudai]-o sita. (= *su* + *ta* (past))
Mary-NOM (math-GEN homework-ACC did
'Mary did the (math) homework.'

But it can also be "void of meaning," as illustrated in (2)–(3).

(2) a. Mary-ga John-to (kyonen) kekkon-sita.
Mary-NOM John-with last year marriage-did (married)
'Mary married John (last year).'
b. Mary-ga John-to (kyonen) [NP kekkon]-o sita.
Mary-NOM John-with last year marriage-ACC did
(same)

(3) a. Mary-ga John-to (kinoo) kaiwa-sita.
Mary-NOM John-with yesterday conversation-did (talked)
'Mary talked with John (yesterday).'
b. Mary-ga John-to (kinoo) [NP kaiwa]-o sita.
Mary-NOM John-with yesterday conversation-ACC did
(same)

In these examples both *Mary-ga* and *John-to* appear as clausal arguments: if they were within a projection of a noun (e.g., *kekkon* 'marriage' or *kaiwa* 'conversation'), they would have to be accompanied by the genitive Case marker *no*.[2] In (2a) the incorporated noun *kekkon* assigns θ-roles to these clausal arguments, and *su* functions merely as a "category-changing affix." In (2b) the θ-role-assigning noun appears as the object of *su*, and *su* itself seems to be nothing more than an "expletive verb." The

construction exemplified by (2b) and (3b) is the so-called *Japanese light verb construction*.

In their classical analysis of this construction, Grimshaw and Mester (1988) propose the operation of *argument transfer*. According to this analysis, the noun *kekkon* 'marriage' in (2b) transfers its θ-roles to the verb *su*, and the verb discharges them to the clausal arguments. Grimshaw and Mester discuss some peculiar properties of this construction and attribute them to the nature of the argument transfer operation. Further supporting arguments for this analysis are found in Miyagawa 1989 and Tsujimura 1990a.

In this chapter we argue instead for an LF incorporation analysis of the light verb construction. More specifically, we present evidence that *kekkon* 'marriage' in (2b) raises to the position of *su* in LF and discharges its θ-roles at that level.[3] This analysis provides direct support for Chomsky's (1993) Minimalist Program, which proposes to eliminate the Projection Principle together with the levels of D-Structure and S-Structure. We argue that it also provides strong support for Chomsky's (1986b, 1993) Last Resort principle on movement.

In section 8.1 we briefly review the analysis proposed by Grimshaw and Mester (1988). In section 8.2 we present a piece of suggestive evidence for the LF incorporation analysis. In section 8.3 we return to the peculiar properties of the light verb construction discussed by Grimshaw and Mester and show that they follow directly from our analysis. In section 8.4 we consider the important observation made by Miyagawa (1989) and Tsujimura (1990a) that the θ-role-assigning noun in the light verb construction cannot be ergative. There, we show that the LF incorporation analysis suggests plausible directions toward explaining this fact. In section 8.5 we summarize our discussion.

8.1 Grimshaw and Mester's (1988) Argument Transfer Analysis

One interesting property of the light verb construction is that some of the arguments of the θ-role-assigning noun can remain within the projection of the noun, whereas others appear as clausal arguments. The examples in (4) illustrate this point.

(4) a. Honda-ga Amerika-de [NP Akoodo-no seisan]-o site-iru.
Honda-NOM U.S.-in Accord-GEN production-ACC doing-is
'Honda is producing Accords in the U.S.'

b. Mary-ga John-ni/-e [NP toti-no zyooto]-o sita.
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'

In (4b), for example, the theme argument *toti* 'land' is within the NP headed by the θ-role-assigning noun *zyooto* 'giving', as indicated by the presence of the genitive Case marker. The agent and goal arguments, on the other hand, appear as clausal arguments, outside the projection of *zyooto*.

Given this fact, Grimshaw and Mester (1988) propose that the θ-role-assigning noun can transfer some (and possibly all) of its θ-roles to the light verb *su*. Roughly put, when *zyooto* 'giving' transfers its agent and goal θ-roles to *su*, we obtain the lexical entry in (6) from those in (5).

(5) a. *zyooto* (agent (goal (theme)))
b. *su* ( ) ⟨ACC⟩[4]

(6) *zyooto* (theme) + *su* (agent (goal)) ⟨ACC⟩

This accounts for (4b), where *Mary-ga* and *John-ni/-e* appear in positions normally occupied by the arguments of the verb.

The theoretically important discussion in Grimshaw and Mester 1988 starts, however, with the authors' discovery that this operation of argument transfer needs to be constrained in a systematic way. If argument transfer is totally unconstrained, then the arguments of the θ-role-assigning noun should be able to be realized either within the NP headed by the noun or outside it at the clausal level, quite freely. This is so because any θ-role of the noun can optionally be transferred to *su*. But Grimshaw and Mester note the following rather surprising restrictions on the light verb construction:

(7) a. At least one internal θ-role of the noun must be assigned to an argument outside the NP.
b. If a θ-role T is assigned outside the NP, then all θ-roles that are higher than T in the thematic hierarchy must also be assigned outside the NP.

In Grimshaw and Mester's terms, (7a) means that at least one internal θ-role (in the sense of Williams 1981) must be transferred to the light verb *su*. The examples in (8) confirm this generalization.

(8) a. ?Mary-ga [NP John-to-no kekkon]-o sita. (cf. (2b))
Mary-NOM John-with-GEN marriage-ACC did
'Mary married John.'

b. ?Mary-ga [NP John-to-no kaiwa]-o sita. (cf. (3b))
Mary-NOM John-with-GEN conversation-ACC did
'Mary talked with John.'

As Grimshaw and Mester point out, examples of this kind are marginally allowed with the interpretation whereby *su* is a θ-role-assigning verb, corresponding to the English main verb *do* (hence, ? instead of *). Under this interpretation, (8b), for example, roughly means that there was a specific act of engaging in conversation with John, and Mary did it. But (8a,b) are unacceptable with the "neutral interpretation" whereby *su* is taken as a light verb. This is what (7a) predicts, since in these examples only the external argument of the θ-role-assigning noun appears at the clausal level.

If theme is the lowest θ-role in the thematic hierarchy, (7b) implies that when the theme θ-role is realized at the clausal level, all other θ-roles must also be assigned at this level. Let us use the examples in (4) to see how this prediction is borne out. It should be noted first that when the theme θ-role is realized outside the NP at the clausal level, the sentences in (4) become marginal, as shown in (9).

(9) a. ??Honda-ga Amerika-de Akoodo-o [NP seisan]-o
Honda-NOM U.S.-in Accord-ACC production-ACC
site-iru.
doing-is
'Honda is producing Accords in the U.S.'
b. ??Mary-ga John-ni/-e toti-o [NP zyooto]-o sita.
Mary-NOM John-to/-to land-ACC giving-ACC did
'Mary gave a piece of land to John.'

This is because of the presence of two accusative NPs within the sentence. The relevant "constraint" can be stated as in (10).[5]

(10) *The Double-o Constraint*
A simple sentence cannot contain more than one *o*-marked phrase.

But when the theme argument appears outside the NP and some other argument occurs inside, the result is completely unacceptable, as shown in (11)–(12).

(11) a. *Honda-ga Akoodo-o [NP Amerika-de-no seisan]-o
Honda-NOM Accord-ACC U.S.-in-GEN production-ACC
site-iru.
doing-is
'Honda is producing Accords in the U.S.'

b. *Amerika-de Akoodo-o [NP Honda-no seisan]-o
U.S.-in Accord-ACC Honda-GEN production-ACC
site-iru.
doing-is
(same)
c. *Akoodo-o [NP Honda-no Amerika-de-no seisan]-o
Accord-ACC Honda-GEN U.S.-in-GEN production-ACC
site-iru.
doing-is
(same)

(12) a. *Mary-ga toti-o [NP John-e-no zyooto]-o sita.[6]
Mary-NOM land-ACC John-to-GEN giving-ACC did
'Mary gave a piece of land to John.'
b. *John-ni/-e toti-o [NP Mary-no zyooto]-o sita.
John-to/-to land-ACC Mary-GEN giving-ACC did
(same)
c. *Toti-o [NP Mary-no John-e-no zyooto]-o sita.
land-ACC Mary-GEN John-to-GEN giving-ACC did
(same)

(11a–c) are variants of (9a), but in these examples at least one nontheme argument appears NP-internally: the locative *Amerika-de* 'in the U.S.' in (11a,c) and the agent *Honda* in (11b,c). The sharp contrast between (9a) and (11a–c) clearly shows the validity of the generalization in (7b). The contrast between (9b) and (12a–c) leads to the same conclusion.

(7a) and (7b) together imply that the subject θ-role of the θ-role-assigning noun must always be realized at the clausal level. This is so because at least one internal θ-role must be assigned at the clausal level, and the subject (external) θ-role is higher in the thematic hierarchy than any internal θ-role. We have already provided ungrammatical examples that instantiate this generalization, namely, (11b,c) and (12b,c). More examples are shown in (13b,c) and (14b,c).

(13) a. Mary-ga John-to [NP kekkon]-o sita. (= (2b))
Mary-NOM John-with marriage-ACC did
'Mary married John.'
b. *[NP Mary-no John-to-no kekkon]-o sita.
Mary-GEN John-with-GEN marriage-ACC did
c. *John-to [NP Mary-no kekkon]-o sita.
John-with Mary-GEN marriage-ACC did

(14) a. Mary-ga John-to [NP kaiwa]-o sita. (= (3b))
Mary-NOM John-with conversation-ACC did
'Mary talked with John.'
b. *[NP Mary-no John-to-no kaiwa]-o sita.
Mary-GEN John-with-GEN conversation-ACC did
c. *John-to [NP Mary-no kaiwa]-o sita.
John-with Mary-GEN conversation-ACC did

Grimshaw and Mester (1988) argue that the restrictions in (7) should be attributed to the nature of argument transfer. They first note that in the light verb construction the object NP headed by the θ-role-assigning noun is not an argument and hence must be licensed in some other way. They then propose that it is licensed by virtue of argument transfer itself. More precisely, they propose that the licensing obtains when the head noun transfers an obligatory argument, or an unsuppressed θ-role, to *su*. This proposal straightforwardly accounts for (13b) and (14b), where no θ-role is transferred to *su*. It also accounts for the generalization in (7a) if the subject θ-role of a noun is suppressed as proposed by Zubizarreta (1985) and Grimshaw (1990), among others. Let us take the following examples for illustration:

(15) a. Mary-ga John-ni/-e [NP toti-no zyooto]-o sita. (= (4b))
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'
b. ?Mary-ga [NP John-e-no toti-no zyooto]-o sita.
Mary-NOM John-to-GEN land-GEN giving-ACC did
(same)

Like (8a,b), (15b) is unacceptable with the light verb interpretation of *su*. The contrast in (15) is expected since *zyooto* 'giving' transfers an internal (unsuppressed) θ-role to *su* in (15a), but not in (15b). This is shown in (16b,c), where unsuppressed θ-roles are in full capitals.

(16) a. *zyooto* (agent (GOAL (THEME))), *su* ( ) ⟨ACC⟩ . . . input
b. *zyooto* (THEME) + *su* (agent (GOAL)) ⟨ACC⟩ . . . (15a)
c. *zyooto* (GOAL (THEME)) + *su* (agent) ⟨ACC⟩ . . . (15b)

For the generalization in (7b), Grimshaw and Mester propose that argument transfer applies in an outside-in fashion, transferring the outermost argument first and then affecting the inner ones in accordance with the hierarchy in the argument structure. If the external/internal distinction is represented structurally in the lexical specification of the predicate-argument structure, as argued in Hale 1983, then the ungrammaticality of (17), in contrast with (15a), immediately follows.

(17) *John-ni/-e [NP Mary-no toti-no zyooto]-o sita.
John-to/-to Mary-GEN land-GEN giving-ACC did
'Mary gave a piece of land to John.'

In this example the goal θ-role of *zyooto* 'giving' is transferred to *su*, but the outer agent θ-role is not, as shown in (18).

(18) *zyooto* (agent (THEME)) + *su* (GOAL) ⟨ACC⟩

Further, if the internal arguments themselves are hierarchically organized in the way proposed in Grimshaw 1990, this account extends to all instances of the generalization in (7b). Let us consider again the ungrammatical (12a), repeated in (19).

(19) *Mary-ga toti-o [NP John-e-no zyooto]-o sita.
Mary-NOM land-ACC John-to-GEN giving-ACC did
'Mary gave a piece of land to John.'

Here, the theme θ-role, but not the goal θ-role, is transferred to *su*, as shown in (20).

(20) *zyooto* (GOAL) + *su* (agent (THEME)) ⟨ACC⟩

This kind of argument transfer is barred, as goal is structurally higher than theme in the representation of argument structure.

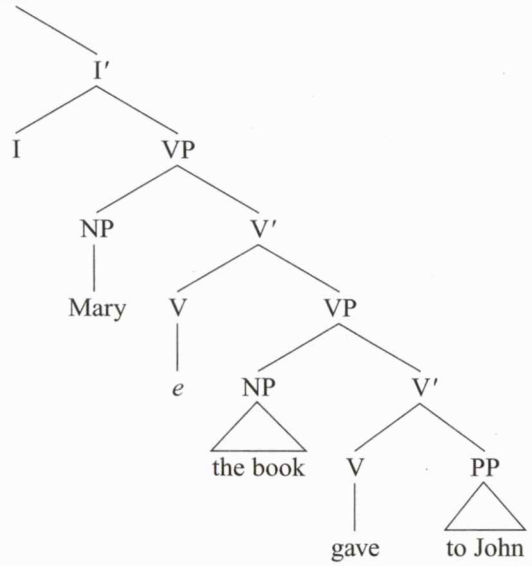
As Grimshaw and Mester note, their account for the generalizations in (7) relies crucially on some hypotheses regarding the lexical representation of argument structure. First, the external argument must be suppressed for nouns, as opposed to verbs. Second, not only the external/internal distinction but also the relative prominence relation among internal arguments must be represented structurally. Thus, the analysis illustrated above, if correct, provides support for these hypotheses, which are explored in detail in Grimshaw 1990.

8.2 LF Incorporation and the Double-*o* Constraint

Grimshaw and Mester's (1988) argument transfer analysis is based on the fundamental assumption that all θ-roles must be assigned at D-Structure, owing to the Projection Principle.[7] But as noted in Chomsky 1993, works such as Larson 1988 cast doubt on this assumption. Larson proposes that the D-Structure representation of (21), for example, is roughly as in (22).

(21) Mary gave the book to John.

(22) IP



The most relevant aspect of this analysis is that the verb *gave* raises to the higher V position at S-Structure and assigns the agent θ-role to the NP *Mary* at this level. This clearly implies that all θ-roles need not be discharged at D-Structure. Chomsky (1993) takes a further step and proposes the Minimalist Program, which dispenses with the Projection Principle and eliminates the levels of D-Structure and S-Structure altogether. The only requirement on θ-roles, then, is that they be properly assigned at LF.

Once we adopt the Minimalist Program, a completely new analysis of the light verb construction immediately suggests itself. That is, the θ-role-assigning noun, heading the direct object NP, raises to the position of *su* in LF and discharges (some of) its θ-roles at this level. According to this analysis, *zyooto* 'giving' in (23) assigns its theme θ-role within the direct object NP and then raises to the position of *su* to discharge its goal and agent θ-roles.

(23) Mary-ga John-ni/-e [NP toti-no zyooto]-o sita. (= (15a))
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'

In this section we present a piece of suggestive evidence for this LF

incorporation analysis. Then, in section 8.3, we show that Grimshaw and Mester's generalizations in (7) follow straightforwardly from the analysis.

As noted above, the light verb construction is marginal when the theme argument of the θ-role-assigning noun appears at the clausal level. The relevant examples in (9) are repeated in (24).

(24) a. ??Honda-ga Amerika-de Akoodo-o [NP seisan]-o
Honda-NOM U.S.-in Accord-ACC production-ACC
site-iru.
doing-is
'Honda is making Accords in the U.S.'

b. ??Mary-ga John-ni/-e toti-o [NP zyooto]-o sita.
Mary-NOM John-to/-to land-ACC giving-ACC did
'Mary gave a piece of land to John.'

It was also noted above that examples of this kind are ruled out by the Double-*o* Constraint, stated informally in (10). But as Sells (1988) points out, the examples in (24) are only mildly deviant, and they are much better than the "standard cases" of Double-*o* Constraint violations. Discussing the nature of Double-*o* Constraint violations in some detail, we suggest below that the better-than-expected status of (24a,b) is due to the LF incorporation of the θ-role-assigning noun.

As shown by Harada (1973) and Kuroda (1978), among others, there are two distinct kinds of Double-*o* Constraint violations. The "standard" kind, called the *abstract* Double-*o* Constraint violation, obtains when two NPs require abstract objective Case, and it results in strong deviance. The most typical case of this type of violation is observed with the causative construction. As shown in (25b), the causee in this construction can be marked by the objective (accusative) Case marker *o* or by the postposition *ni*.

(25) a. John-ga aruku.
John-NOM walk
'John walks.'

b. Mary-ga [John-ni/-o aruk]-aseta.
Mary-NOM John-to/-ACC walk-made
'Mary made John walk.'

However, when the "embedded verb" is transitive and has its own object NP, the causee cannot appear in objective Case: (26b) with *John-o* is totally ungrammatical.

(26) a. John-ga hon-o yomu.
John-NOM book-ACC read
'John reads a book.'
b. Mary-ga [John-ni/*-o hon-o yom]-aseta.
Mary-NOM John-to/-ACC book-ACC read-made
'Mary made John read a book.'

The other kind of violation is called the *surface* Double-*o* Constraint violation. Roughly put, the marker *o* in Japanese is ambiguous between the objective Case marker and an adverbial locative postposition. The latter type of *o* appears in examples like (27).

(27) John-ga hamabe-o aruku.
John-NOM beach-on walk
'John walks on the beach.'

When this type of *o* coocuurs with the objective Case marker *o*, the sentence instantiates the surface Double-*o* Constraint violation, as in (28).

(28) Mary-ga [John-ni/??-o hamabe-o aruk]-aseta.
Mary-NOM John-to/-ACC beach-on walk-made
'Mary made John walk on the beach.'

This type of violation results only in marginality.

As discussed in detail in the references cited above, there is an important respect in which the abstract and surface Double-*o* Constraint violations differ, aside from their degrees of deviance. The abstract case obtains even when one of the "*o*-marked NPs" is an empty category, whereas the surface case can be circumvented by dislocating one of the NPs. The following examples of the cleft construction illustrate this point:[8]

(29) a. *[$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga John-o t_i yom-aseta] no]-wa
Mary-NOM John-ACC read-made COMP-TOP
hon-o$_i$ da.
book-ACC is
'It is a book that Mary made John read.'
b. *[$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga t_i hon-o yom-aseta] no]-wa
Mary-NOM book-ACC read-made COMP-TOP
John-o$_i$ da.
John-ACC is
'It is John that Mary made read a book.'

(30) a. [$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga John-o t_i aruk-aseta] no]-wa
Mary-NOM John-ACC walk-made COMP-TOP
hamabe-o$_i$ da.
beach-on is
'It is the beach where Mary made John walk.'
b. [$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga t_i hamebe-o aruk-aseta] no]-wa
Mary-NOM beach-on walk-made COMP-TOP
John-o$_i$ da.
John-ACC is
'It is John who Mary made walk on the beach.'

The examples in (29) have two NPs that require abstract objective Case, and they are completely unacceptable even when one of them is a trace produced by empty operator movement. On the other hand, the examples in (30) show that an accusative NP and a locative NP with *o* are compatible as long as one of them is dislocated.

Given this background, let us consider the status of the light verb examples in (24) in more detail. These examples are only marginal and clearly are not as bad as (26b) with the *o*-marked causee. From this, Sells (1988) concludes that they are merely instances of the weak surface Double-*o* Constraint violation. It is predicted, then, that when the theme NP in the cleft construction is dislocated, the Double-*o* Constraint effect should disappear. The prediction is indeed borne out, as shown in (31).

(31) a. [$_{CP}$ Op$_i$ [$_{IP}$ Honda-ga Amerika-de t_i seisan-o site-iru]
Honda-NOM U.S.-in production-ACC doing-is
no]-wa Akoodo-o$_i$ da. (cf. (24a))
COMP-TOP Accord-ACC is
'It is Accords that Honda is producing in the U.S.'
b. [$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga John-ni/-e t_i zyooto-o sita] no]-wa
Mary-NOM John-to/-to giving-ACC did COMP-TOP
toti-o$_i$ da. (cf. (24b))
land-ACC is
'It is a piece of land that Mary gave to John.'

The grammaticality of these examples provides strong confirmation for Sells's conclusion.

However, as Sells notes, this conclusion raises an interesting question for the analysis of the light verb construction. That is, why is it that

(24a,b) are not abstract Double-*o* Constraint violations?[9] Clearly, neither of the two *o*-marked NPs is a locative adverbial. Yet it seems that only one of them needs to be licensed by abstract objective Case assignment (or checking); otherwise, we should expect an abstract violation. Here, we suggest that LF incorporation provides an answer. More specifically, we suggest that the accusative Case on the θ-role-assigning noun is licensed by its incorporation to the verb, basically along the lines proposed by Baker (1988) for other cases of noun incorporation. Then, only the accusative Case on the theme NP needs to be licensed by abstract Case assignment (or checking). Thus, we correctly predict that (24a,b) are only surface Double-*o* Constraint violations.[10]

Examples of cleft sentences such as those in (32) may seem problematic, but on the contrary, they constitute further evidence for the LF incorporation analysis.

(32) a. *[$_{CP}$ Op$_i$ [$_{IP}$ Honda-ga Amerika-de akoodo-o t_i site-iru]
Honda-NOM U.S.-in Accord-ACC doing-is
no]-wa seisan-o$_i$ da. (cf. (31a))
COMP-TOP production-ACC is

b. *[$_{CP}$ Op$_i$ [$_{IP}$ Mary-ga John-ni/-e toti-o t_i sita] no]-wa
Mary-NOM John-to/-to land-ACC did COMP-TOP
zyooto-o$_i$ da. (cf. (31b))
giving-ACC is

In (31) the theme NP is clefted, and the Double-*o* Constraint violation is circumvented, as expected. The examples in (32), on the other hand, show that when the accusative NP headed by the θ-role-assigning noun is clefted, the result is completely unacceptable. This seems surprising, given that the weak Double-*o* Constraint effect disappears when one of the *o*-marked NPs is dislocated. But this is exactly as expected under the LF incorporation analysis. The noun *zyooto* 'giving' in (32b), for example, must incorporate into the verb *su* in LF. Otherwise, the subject NP *Mary-ga* and the goal PP *John-ni/-e* fail to receive their θ-roles. But the required LF incorporation would clearly involve lowering, as the light verb *su* does not c-command the θ-role-assigning noun *zyooto*. Consequently, this incorporation is excluded by the Proper Binding Condition or a general ban on lowering. The ungrammaticality of (32a,b) and the grammaticality of (31a,b) thus provide supporting evidence for the LF incorporation analysis.[11]

8.3 Some Consequences of the LF Incorporation Analysis

Although Grimshaw and Mester's (1988) argument transfer analysis has a number of attractive features, it also has some unsolved problems. One has to do with the status of the argument transfer operation itself. It is possible that an operation of this kind is allowed by Universal Grammar. But to the extent that it is employed only to account for the light verb construction, it is a description of a fact rather than an explanation. Thus, it seems desirable to eliminate it if possible. The LF incorporation analysis, as an alternative, clearly achieves this goal. In this section we show that this analysis also solves other potential problems that arise with the argument transfer analysis.

Recall first Grimshaw and Mester's important generalizations in (7), repeated in (33).

(33) a. At least one internal θ-role of the noun must be assigned to an argument outside the NP.
b. If a θ-role T is assigned outside the NP, then all θ-roles that are higher than T in the thematic hierarchy must also be assigned outside the NP.

As briefly discussed above, their account for (33b) is that argument transfer applies in an outside-in fashion. The examples in (34) are ruled out because an inner argument of the θ-role-assigning noun is transferred to *su*, leaving behind an outer argument, as illustrated in (35).

(34) a. *John-ni/-e [$_{NP}$ Mary-no toti-no zyooto]-o sita. (= (17))
John-to/-to Mary-GEN land-GEN giving-ACC did
'Mary gave a piece of land to John.'

b. *Mary-ga toti-o [$_{NP}$ John-e-no zyooto]-o sita. (= (12a))
Mary-NOM land-ACC John-to-GEN giving-ACC did.
(same)

(35) a. *zyooto* (agent (goal (theme))), *su* ( ) ⟨ACC⟩ ... input
b. *zyooto* (agent (theme)) + *su* (goal) ⟨ACC⟩ ... (34a)
c. *zyooto* (goal) + *su* (agent (theme)) ⟨ACC⟩ ... (34b)

In (35b) the goal θ-role is transferred to *su* "across" the agent θ-role, and in (35c) the theme θ-role is transferred, leaving behind the outer goal θ-role.

Even if one accepts the hypothesis that argument transfer applies in a particular fashion (e.g., outside-in), one might wonder why this should be the case. As Grimshaw and Mester note, the effect of outside-in applica-

tion is that the basic hierarchy among the arguments is preserved even after argument transfer applies. But argument transfer makes the θ-role-assigning noun and the light verb *su* independent θ-role assigners. Thus, in (35b) *zyooto* 'giving' has two θ-roles (agent and theme), whereas *su* has one (goal). Then, it is not clear why the thematic hierarchy must be observed, after argument transfer takes place, among the arguments of two independent θ-role assigners. As the main point of the thematic hierarchy is to specify the order in which θ-roles are discharged, it is natural to assume that it only affects the structural relation among the arguments of a single θ-role assigner.

This question does not arise with the LF incorporation analysis, which in fact provides a much more straightforward explanation for the generalization in (33b). According to this analysis, there is only one θ-role assigner, namely, the θ-role-assigning noun. In the grammatical (36) the θ-roles are discharged in the way specified by the thematic hierarchy.

(36) Mary-ga John-ni/-e [NP toti-no zyooto]-o sita. (= (15a))
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'

The noun *zyooto* 'giving' discharges the theme θ-role to *toti* 'land' within the NP. Then, in LF, it raises to the position of *su* and assigns the goal θ-role to *John-ni/-e*. Finally, it discharges the agent θ-role to *Mary-ga*, the argument in the highest structural position. On the other hand, in (34a,b) θ-role assignment cannot take place consistently with the thematic hierarchy. In (34a) *zyooto* must assign the agent θ-role within the NP before it raises in LF and discharges the goal θ-role. Similarly, in (34b) it assigns the goal θ-role within the NP before it discharges the theme θ-role. Thus, the LF incorporation analysis enables us to explain the generalization in (33b) without any stipulation. The only assumption needed is that θ-roles of a single predicate are discharged in a certain order, in accordance with the thematic hierarchy.

Another remaining problem for Grimshaw and Mester's (1988) analysis has to do with their account for (33a). As noted above, they hypothesize that the NP headed by the θ-role-assigning noun is licensed by virtue of the transfer of an unsuppressed θ-role. In the grammatical (36) the goal θ-role is transferred to *su*, and thus the NP headed by *zyooto* 'giving' is licensed. But in (37) only the external agent θ-role is transferred to *su*.

(37) ?Mary-ga [NP John-e-no toti-no zyooto]-o sita. (= (15b))
Mary-NOM John-to-GEN land-GEN giving-ACC did
'Mary gave a piece of land to John.'

Since the external θ-role of a noun is suppressed, the NP headed by *zyooto* fails to be licensed. Thus, the example is unacceptable as an instance of the light verb construction.

The account illustrated above is straightforward if nouns do not have external θ-roles at all. Then, no θ-role is transferred in examples like (37). But as the external agent θ-role is realized at the clausal level in the grammatical (36), it is clear that *zyooto* 'giving' has an external θ-role and that the θ-role can be transferred to *su*. Thus, as Grimshaw and Mester note, the external θ-role of a noun must be visible to argument transfer even if it is suppressed. Then why doesn't the transfer of a suppressed θ-role count for the licensing of the NP headed by the θ-role-assigning noun? It seems difficult to come up with an answer as long as we assume the argument transfer analysis.

The LF incorporation analysis seems to provide a principled solution to this problem as well. Here, we would like to argue that the generalization in (33a) in fact can be derived as a consequence of the analysis if Chomsky's (1986b, 1993) principle Last Resort is assumed. Roughly put, Last Resort states that movement applies only when it is necessary to satisfy the morphological properties of the moved item. Thus, the movement in (38a) is possible, but that in (38b) is not.

(38) a. Mary_i seems [t_i to be intelligent].
b. *John_i seems to t_i [that Mary is intelligent].

In (38a) *Mary* needs to move to [Spec, IP] to have its Case checked. In (38b), by contrast, *John* is already in a Case position before movement and there is no need for this NP to move to [Spec, IP]. Hence, Last Resort allows only the movement in (38a). The following contrast is explained in a similar way:

(39) a. There seems to be a man in the corner.
b. *There seems to a man [that Mary is intelligent].

The expletive *there* cannot be present at LF and hence must be replaced, as a result of Full Interpretation. In (39a) the "associate NP" *a man* needs to have its Case checked and hence must move to [Spec, IP] in LF. Thus, *there* is successfully replaced. In (39b), however, *a man* is already in a Case position, and there is no reason for this NP to move to [Spec, IP]. In this case Last Resort blocks the movement. As a result, the expletive remains at LF in violation of Full Interpretation. This example clearly shows that movement cannot take place to save the overall structure, but only to fulfill a need of the moved item.

Given Last Resort, we may ask how the LF incorporation in the light verb construction is motivated. We hypothesized above that in examples like (24b), repeated in (40), the accusative Case on *zyooto* 'giving' is licensed by virtue of the LF incorporation.

(40) ??Mary-ga John-ni/-e toti-o [NP zyooto]-o sita.
Mary-NOM John-to/-to land-ACC giving-ACC did
'Mary gave a piece of land to John.'

Thus, it seems possible that the incorporation takes place so that the accusative Case on the θ-role-assigning noun can be checked. However, this hypothesis immediately faces a problem. If LF incorporation can take place for Case reasons, then we lose the account for the abstract Double-*o* Constraint violations. Let us again consider (26b), repeated in (41).

(41) *Mary-ga John-o hon-o yom-aseta.
Mary-NOM John-ACC book-ACC read-made
'Mary made John read a book.'

This example is totally impossible since there are two NPs that must be licensed by abstract objective Case assignment (or checking). We suggested above that (40) does not show the same violation because one of the accusative Cases (i.e., the one on *zyooto* 'giving') is licensed by incorporation. But if Case licensing can motivate LF incorporation, there seems to be no way to prevent the accusative Case on *hon* 'book' in (41) from being licensed in the same way. That is, the noun *hon* should be able to incorporate into the verb in LF and have its Case licensed exactly like *zyooto* in (40). We then incorrectly predict that (41) has the same grammatical status as (40). Hence, Case licensing cannot be a "proper motivation" for LF incorporation (as opposed to NP-movement to [Spec, IP]).

When we compare *zyooto* 'giving' in (40) and *hon* 'book' in (41), an obvious alternative emerges. The former noun, as opposed to the latter, is a θ-role assigner and hence must discharge its θ-roles. Then, it is quite plausible that θ-role assignment motivates the LF incorporation. The noun *zyooto* raises to discharge its theme, goal, and agent θ-roles in (40), and to assign its goal and agent θ-roles in the grammatical (36), repeated in (42).

(42) Mary-ga John-ni/-e [NP toti-no zyooto]-o sita.
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'

In (41), on the other hand, there is no reason for the noun *hon* to raise to the position of the verb, since the noun is not a θ-role assigner. Consequently, Last Resort prohibits the incorporation in this case, and as a result the accusative Case on the noun cannot be licensed by incorporation.[12]

Let us now return to the problematic (37), repeated in (43), which is unacceptable with the light verb interpretation of *su*.

(43) ?Mary-ga [NP John-e-no toti-no zyooto]-o sita.
Mary-NOM John-to-GEN land-GEN giving-ACC did
'Mary gave a piece of land to John.'

Here, as in Grimshaw and Mester's analysis, we can take advantage of the fact that the external θ-role of a noun is suppressed, but in a more direct way. In fact, all we need to assume is that nouns need not discharge their external θ-roles. Given this uncontroversial assumption, there is no reason for *zyooto* 'giving' in (43) to incorporate, since it discharges all of its internal θ-roles within its own projection. Thus, given Last Resort, the incorporation cannot take place, and the subject NP *Mary-ga* fails to receive a θ-role. The only possible way for *Mary-ga* to receive a θ-role is from the verb *su*. Then, *su* cannot be a light verb, but must be a θ-role assigner exactly like the English main verb *do*, a correct result.

As we attributed the ungrammaticality of (43) (with the light verb interpretation) to the failure of *Mary-ga* to receive a θ-role, a question can be raised with respect to examples like (44), where no argument (overt NP or nonexpletive *pro*) appears in the clausal subject position.

(44) *[NP John-e-no toti-no zyooto]-o sita.
John-to-GEN land-GEN giving-ACC did
'(Someone) gave a piece of land to John.'

As there is no argument NP in the subject position, there should be no problem with θ-marking even if *zyooto* 'giving' does not raise to the position of *su*. However, the example will be ruled out in exactly the same way as the English (39b). Since by assumption there is no argument NP in [Spec, IP], this position must be occupied by an expletive *pro*. And this expletive remains at LF in violation of Full Interpretation, as no NP can replace it. In particular, Last Resort prevents the NP headed by *zyooto* from moving to [Spec, IP], since its Case is licensed by *su*.

The analysis outlined above for (43) accounts for all cases of Grimshaw and Mester's generalization that at least one internal argument of the θ-role-assigning noun must appear at the clausal level. If there is no internal

argument at the clausal level, Last Resort prevents the θ-role-assigning noun from incorporating into *su*, and hence, the subject NP fails to receive a θ-role. If the subject position is occupied by an expletive, which does not need a θ-role, then the expletive ends up violating Full Interpretation at LF, again because of Last Resort. Thus, this analysis, if correct, provides strong support for the general idea that movement applies only as a last resort.

We have shown in this section that the LF incorporation account enables us to improve on Grimshaw and Mester's analysis. This constitutes further evidence for the LF incorporation analysis and consequently for the minimalist hypothesis that the θ-Criterion applies only at LF. In a sense, the analysis proposed here provides a clearer case than Larson's (1988) analysis of the English dative/double object constructions, since it implies that θ-roles need not be discharged even at S-Structure, as long as they are assigned at LF.

In addition, our analysis provides support for the major part of Grimshaw and Mester's hypothesis regarding argument structure. Exactly as in their analysis, we assumed crucially that nouns need not assign their external θ-roles. More importantly, we relied on the specific version of the thematic hierarchy assumed by Grimshaw and Mester (e.g., agent > goal > theme). The latter assumption, interestingly, contradicts Larson's analysis, which implies the hierarchy agent > theme > goal. (See (22) above.) Thus, although our analysis directly supports Larson's general idea on the way in which θ-roles are discharged, it indirectly supports alternative analyses of the dative/double object constructions (e.g., those argued for in Pesetsky 1995, Kitagawa 1994, and Takano 1996).

Our account for generalization (33a) in terms of Last Resort implies that θ-roles constitute part of the "morphological properties" of a θ-role-assigning head. That is, in the terminology of Chomsky 1995, they are "formal features" on the θ-role-assigning heads. This is so because according to our analysis, θ-role-assigning nouns are allowed to move to discharge (or check) their θ-roles. Chomsky (1994, 1995) presents evidence that the failure of θ-role assignment results in a nonconvergent derivation, not just semantic deviance. Lasnik (1995) suggests the stronger hypothesis that θ-roles are formal features of the assigner. Bošković and Takahashi (1998) argue for a yet stronger conclusion that θ-roles are formal features on both the assigner and the assignee. (See also Bošković 1994.) Our analysis is consistent with these proposals and more specifically provides direct support for Lasnik's suggestion.[13]

8.4 Miyagawa's (1989) and Tsujimura's (1990a) Ergativity Constraint

In this section we discuss an important fact noted by Miyagawa (1989) and Tsujimura (1990a), namely, that the θ-role-assigning noun in the light verb construction cannot be ergative. Our purpose here is to show that the LF incorporation analysis suggests some promising directions toward explaining this mysterious fact.

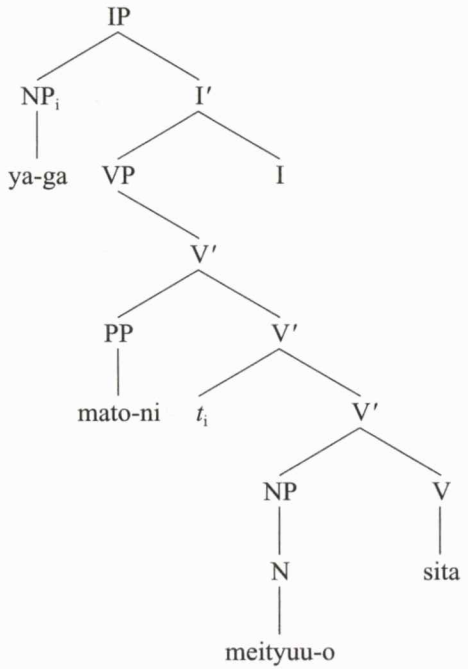
A relevant contrast is shown in (45).[14]

(45) a. ?*Ya-ga mato-ni [$_{NP}$ meityuu]-o sita.
arrow-NOM target-to strike-ACC did
'The arrow struck the target.'

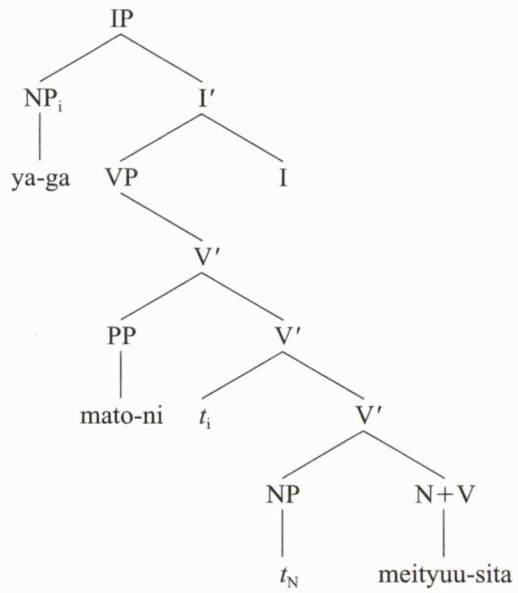
b. Ya-ga mato-ni [$_{V}$ meityuu-sita].
arrow-NOM target-to strike-did
'The arrow struck the target.'

(45a) illustrates Miyagawa's and Tsujimura's generalization: *meityuu* 'strike' is ergative and the example is degraded. (45b), on the other hand, shows that an ergative noun is allowed as long as it is combined with the light verb in overt syntax. If we assume, following Kageyama (1982), Terada (1990), Tsujimura (1990b), and others, that this case involves syntactic incorporation, the structures of (45a,b) at S-Structure (i.e., at the point of Spell-Out) can be represented as in (46a,b), respectively.

(46) a.



b.



Miyagawa (1989) and Tsujimura (1990a) argue that this contrast is expected given Burzio's (1986) Generalization, which is stated in (47).

(47) A verb assigns an external θ-role iff it can assign Case.

Assuming Grimshaw and Mester's (1988) analysis for (45a), Miyagawa and Tsujimura first point out that argument transfer creates the lexical entry in (48b) from those in (48a).[15]

(48) a. *meityuu* (∅ (goal (theme))), *su* ( ) ⟨ACC⟩ . . . input
b. *meityuu* ( ) + *su* (∅ (goal (theme))) ⟨ACC⟩ . . . (45a)

But (48b) is inconsistent with Burzio's Generalization since *su* is an accusative Case assigner and yet has no external θ-role. The N–V complex, *meityuu-su* 'strike', in (45b) does not have this problem: it assigns neither an accusative Case nor an external θ-role.

As far as we can see, this account for (45a) can be maintained with the LF incorporation analysis, provided that Burzio's Generalization holds at this level. Let us again consider the example in (40), repeated in (49).

(49) ??Mary-ga John-ni/-e toti-o [NP zyooto]-o sita.
Mary-NOM John-to/-to land-ACC giving-ACC did
'Mary gave a piece of land to John.'

This example indicates that after the LF incorporation of *zyooto* 'giving' to *su*, the N–V complex can still assign accusative Case to (or check the accusative Case of) the theme NP *toti* 'land'. That is, the Case feature of *su* is retained by the N–V complex. But the N–V complex formed in the LF representation of (45a) does not have an external θ-role, since *meityuu* 'strike' is an ergative noun. Hence, its properties are inconsistent with Burzio's Generalization.

On the basis of the contrast in (45), Miyagawa and Tsujimura argue convincingly for their conclusion that Japanese has ergative nouns. But the task of providing a precise account for examples like (45a) still remains. Those examples are particularly interesting because Chomsky's (1986b) explanation for the standard cases of Burzio's Generalization does not seem to cover them. The relevant part of the generalization is schematized in (50).

(50) *[$_{IP}$ NP [$_{VP}$ V NP]] (order irrelevant)
no θ-role Case

Chomsky (1986b) proposes to explain (50), to the extent that it is correct, by Last Resort. Since the object is in a Case position, this principle prevents it from moving to the subject position in overt syntax. (See (38b) above.) This implies that the subject position must be occupied by an expletive. But Last Resort prevents the movement of the object NP not only in overt syntax but also in LF. Hence, the expletive fails to be replaced and remains in LF in violation of Full Interpretation. (See (39b) above.)

This explanation for (50) does not seem to extend to examples like (45a). If nominative Case in Japanese must be licensed within the I projection at S-Structure (or by the point of Spell-Out), as argued by Saito (1982) and Takezawa (1987), and assumed here, then the NP *ya-ga* 'arrow-NOM' should be able to move from a VP-internal position to [Spec, IP] without violating Last Resort. The movement is illustrated in (46a). Here, there is no need for the accusative NP to move to [Spec, IP] either overtly or in LF. Hence, Chomsky's account for (50) in terms of Last Resort does not cover examples of this type.[16]

Thus, Miyagawa's and Tsujimura's generalization regarding the light verb construction still constitutes a problem to be explained. More importantly, if Chomsky's explanation for (50) is correct, (45a) should not be grouped together with the standard cases of Burzio's Generalization. We must therefore look for an independent way to explain cases like (45a).

Although we do not have a precise proposal to offer at this point, we would like to show in the remainder of this section that the LF incorporation analysis allows us to approach this problem from a new perspective.

One difference clearly stands out between (45a) and (45b). The NP *ya-ga* 'arrow-NOM' moves overtly to [Spec, IP] in both (45a,b), as shown in (46a,b). But this NP-movement differs in the two examples in one important respect. Since the θ-role-assigning noun adjoins to *su* overtly in (46b), *ya-ga* is already assigned a θ-role when it moves. On the other hand, in (46a) the θ-role-assigning noun incorporates only in LF. Thus, when *ya-ga* moves to [Spec, IP], it is not yet assigned a θ-role. The contrast between (45a) and (45b) is then captured if the following generalization holds:[17]

(51) An argument NP cannot move from a $\bar{\theta}$ (non-θ) position to a Case position.

If we attribute the ungrammaticality of (45a) to (51), we are led to a specific analysis for an external argument subject. Let us again consider example (42), repeated in (52).

(52) Mary-ga John-ni/-e [$_{NP}$ toti-no zyooto]-o sita.
Mary-NOM John-to/-to land-GEN giving-ACC did
'Mary gave a piece of land to John.'

According to the standard VP-internal subject hypothesis, the subject *Mary-ga* in (52) is generated in [Spec, VP] and is raised overtly to [Spec, IP]. But since the NP receives a θ-role only after the θ-role-assigning noun *zyooto* 'giving' raises to the position of *su* in LF, the movement of the nominative NP originates in a $\bar{\theta}$ position exactly as in the case of (45a). Thus, (51) entails that the subject in (52), as opposed to that in (45a), can be generated directly in [Spec, IP].

It seems that this analysis of (52) in fact should be allowed if our proposals on the light verb construction are correct. That is, even if *Mary-ga* in (52) is generated directly in [Spec, IP], it should be able to successfully receive its θ-role. The θ-role-assigning noun *zyooto* 'giving' can first raise to the position of *su* and discharge its goal θ-role to *John-ni/-e*, then raise to I and assign its agent θ-role to *Mary-ga*. Hence, nothing seems to prevent the direct insertion of the subject NP in [Spec, IP].[18]

What we must ensure is that the nominative NP in (46a) cannot be generated directly in [Spec, IP] and receive a θ-role in the same way. Otherwise, *ya-ga* 'arrow-NOM' in (46a) need not move from a $\bar{\theta}$ position to a Case position, and the generalization in (51) becomes irrelevant for this case also. Here, according to Miyagawa and Tsujimura, the crucial difference between (46a) and (52) is that in the former the θ-role-assigning noun is ergative. That means that only in (46a) is the nominative NP assigned an internal θ-role. Thus, the following reasonable assumption will have the desired effect:

(53) An internal θ-role is assigned within a projection of a lexical category.

This forces the nominative NP to originate internal to VP only when the θ-role-assigning noun is ergative.

The approach to Miyagawa's and Tsujimura's generalization outlined above is promising if (51) has a plausible interpretation in the overall syntactic theory. We would like to suggest two possibile interpretations of this generalization without commiting ourselves to either at this point.

First, it seems possible to group (51) with the general ban on improper movement from an $\bar{A}$ position to a Case position. There are examples that clearly show that movement of an adjunct to a Case position is prohibited. Thus, (54) contrasts sharply with (55).

(54) Yesterday$_i$ seemed [$_{IP}$ t_i to be the best day to hold the meeting].

(55) *Yesterday$_i$ seemed t_i [$_{CP}$ that Mary was the leading candidate].
(cf. It seemed yesterday that Mary was the leading candidate.)

(54) shows that *yesterday* can move to [Spec, IP] if it originates in an A position. (55), on the other hand, shows that it cannot move from an adjunct position to [Spec, IP].[19]

The standard cases of improper movement also fall under this generalization. Examples such as the following have been discussed by Takahashi (1992) and Sakai (1994), among others:

(56) *[$_{IP}$ John$_i$ seems [$_{CP}$ t_i' [$_{IP}$ it is likely [$_{IP}$ t_i to win the race]]]].

It is not clear what condition on representation this example violates, especially if the intermediate trace can delete in LF. (See also Fukui 1993 for relevant discussion.) What appears to be wrong in (56) is the second step of the movement: it takes place from an $\bar{A}$ position ([Spec, CP]) to a Case position (matrix [Spec, IP]). Thus, examples like (56) also suggest that movement from an $\bar{A}$ position to a Case position cannot take place.

Let us now return to the generalization in (51) and example (45a), which is repeated in (57) with a more precise structure.

(57) ?*[$_{IP}$ Ya-ga$_i$ [$_{VP}$ mato-ni t_i [$_{NP}$ meityuu]-o sita]].
arrow-NOM target-to strike-ACC did
'The arrow struck the target.'

Suppose, as seems reasonable, that a VP-internal position counts as an $\bar{A}$ position in the relevant sense, unless it is a θ position. Then, when *ya-ga* 'arrow-NOM' moves overtly from the VP-internal position to [Spec, IP], it originates in an $\bar{A}$ position. Hence, the movement takes place from an $\bar{A}$ position to a Case position, exactly as in (55) and (56). Viewed this way, (51) will be a subcase of a more general, well-established generalization.

The second, totally independent way to interpret (51) is in terms of θ-theory. Recall first that in (46b), the representation of the grammatical (45b), *ya-ga* 'arrow-NOM' moves to [Spec, IP] after it is assigned a θ-role. But in (46a), the structure of (45a), the same NP is not yet assigned a θ-role when it moves to [Spec, IP]. Suppose then that a θ-role can be assigned only to the head of a chain. In (46b) *ya-ga* heads its singleton chain when it receives a θ-role, and it carries this θ-role along to [Spec, IP]. On the other hand, in (46a), by the time the θ-role-assigning noun *meityuu* 'strike' incorporates into the light verb *su* in LF, *ya-ga* is already in [Spec, IP], heading a two-member chain. If only the head of a chain can receive a θ-role, *meityuu* is unable to assign a θ-role to *ya-ga*.

The success of this second approach, in turn, relies on whether there is a principled explanation for the condition that only the head of a chain can receive a θ-role. We believe that there is. Note first that it is possible to generalize this condition to (58).

(58) An operation on a chain must take place at its head position.

This would make sense if we adopt Chomsky's (1993) copy theory of movement in a specific way. Chomsky proposes that movement consists of copying and deletion. Thus, movement leaves a copy of the moved item behind. Let us assume that a chain consists literally of the head and its copies. It is then possible that an operation on the head also automatically affects the other members of the chain, which are by definition copies of the head. The chain remains uniform, consisting of the head and its copies. On the other hand, an operation on a copy is illegitimate, since it does not affect the "original." The head of the chain is not a copy of the element to which the operation applies. Hence, the operation has no effect on the head, and as a result, it creates a nonuniform chain where the copy is no longer identical to the head.

There is also another explanation for (58), which seems to us more plausible. That is, (58) follows if A-movement does not leave a trace (or a copy), and hence, there are no A-chains. Then, *ya-ga* 'arrow-NOM' in (46a) fails to receive a θ-role at LF through its trace simply because the trace does not exist. Although the elimination of A-traces and A-chains appears to be a radical move, Lasnik and Saito (1992), for example, come very close to proposing just that.

Lasnik and Saito first propose a revision of Chomsky's (1986b) Uniformity Condition as in (59).

(59) a. α assigns inherent Case to β only if α θ-marks β.
b. Suppose that β bears a θ-role assigned by α. Then, if γ is a barrier for α, γ dominates β.

(59a) is identical to the first part of Chomsky's condition. (59b), on the other hand, is a generalized version of the second part. Unlike Chomsky's original formulation, it extends to examples such as (60), attributed to Mark Baker, and (61).

(60) *John$_i$ seems [$_{CP}$ that [$_{IP}$ it is told t_i [$_{CP}$ that [$_{IP}$ Mary is intelligent]]]].

(61) *John$_i$ seems [$_{CP}$[$_{IP}$[$_{NP}$ the belief [$_{IP}$ t_i to be intelligent]] is crazy]].

(59b) amounts to saying that A-movement cannot take place across a barrier. Hence, it straightforwardly rules out (60) and (61), where *John* is moved across a CP/IP pair. For A-movement, it has the same empirical coverage as Chomsky's (1986a) proposal that all traces must be antecedent-governed. One thing that it is designed to explain is Aoun's (1982) generalization that "S′ (CP) breaks A-chains."

Having motivated (59b), Lasnik and Saito (1992) point out that there are considerable overlaps among the effects of (59b), Condition A of the binding theory, the Empty Category Principle (ECP) (in their formulation), and the Locality Condition on Chains. Then, they show that (59b) in fact suffices to rule out most, if not all, of the relevant ungrammatical examples. Let us consider (62)–(64) to illustrate this point.

(62) a. *John$_i$ seems [$_{CP}$[$_{IP}$ Mary visited t_i]].
b. *John$_i$ seems [$_{CP}$[$_{IP}$ t_i is intelligent]].

(63) *John$_i$ seems [$_{CP}$ that [$_{IP}$ it is believed [$_{IP}$ t_i to be intelligent]]].

(64) *John$_i$ seems [$_{CP}$[$_{IP}$[$_{NP}$ his$_i$ belief [$_{IP}$ t_i to be intelligent]] is crazy]].

(62a) and (62b) instantiate the Specified Subject Condition case and the Nominative Island Condition case of Condition A, respectively. (63) is an example of superraising, which Lasnik and Saito (1984) propose to rule out by the ECP. And Lasnik (1985) appeals to the Locality Condition on Chains to account for examples such as (64). Examples (62)–(64) are all excluded by (59b): in all cases the movement crosses a CP/IP pair. On the basis of examples like these, Lasnik and Saito (1992) suggest that A-traces are subject neither to Condition A nor to the ECP, and further that the Locality Condition on Chains can be dispensed with. If this is tenable, then A-traces and A-chains may in fact be redundant. Unlike Condition A and the ECP, (59) does not require the presence of A-traces. And unlike the Locality Condition on Chains, it does not refer to A-chains.[20]

The hypothesis that there are no A-traces goes well with our conception of θ-role assignment. If θ-roles are significant only in semantic interpretation and if thematic relations are simply read off the LF representations, A-traces and A-chains are clearly needed. However, as noted above, our analysis of the light verb construction implies that θ-roles are formal features of θ-role-assigning heads. Then, it is plausible that they can be assigned (or discharged) in the course of the derivation, and the configuration for θ-role assignment need not be preserved at LF. This in turn implies that A-traces are not necessary to represent thematic relations at this level.

We have shown so far that there are two plausible ways to approach Miyagawa's (1989) and Tsujimura's (1990a) ergativity constraint on the light verb construction. Both are based on the assumption that in the ungrammatical (46a) the nominative NP raises to [Spec, IP] before it is assigned a θ-role. This assumption does not hold under Grimshaw and Mester's (1988) argument transfer analysis. In this analysis argument transfer takes place at D-Structure; hence, the nominative NP in (46a) is assigned a θ-role before it moves. On the other hand, the assumption is an automatic consequence of the LF incorporation analysis. Thus, to the extent that they are tenable, the approaches to the ergativity constraint suggested in this section provide further support for the LF incorporation analysis.

8.5 Conclusion

In this chapter we argued for an LF incorporation analysis of the light verb construction in Japanese. In section 8.2 we motivated the analysis on the basis of the pattern shown by double-*o* examples. In section 8.3 we argued that the analysis enables us to capture Grimshaw and Mester's (1988) insights in a principled way. Finally, in section 8.4 we showed that it suggests promising approaches to Miyagawa's (1989) and Tsujimura's (1990a) ergativity constraint on the construction.

The LF incorporation analysis implies that θ-roles need not be assigned at D-Structure or S-Structure, but can be discharged at LF. Thus, it provides strong support for Chomsky's (1993) Minimalist Program, which proposes to eliminate D-Structure as a pure representation of GF-θ relations, together with the Projection Principle. We also argued that LF incorporation is subject to Chomsky's (1986b, 1993) Last Resort, which was initially motivated for movement of maximal projections. Our analysis thus broadens the empirical scope of this principle. The status of this principle has been debated extensively in the recent literature. Bošković (1997), for example, presents arguments for it, whereas Chomsky (1995) proposes to eliminate it, deriving its effects from the theory of formal features and the definition of the operation Attract. (See note 20 above.) Our analysis, as it stands, supports the former view, although it may be possible to reformulate it and make it consistent with Chomsky's (1995) proposals.

Our analysis implies also that θ-roles are part of the "morphological properties" of their assigners: it is crucial in our analysis that a θ-role-assigning noun can move to discharge its θ-roles without violating Last Resort. As noted above, this conclusion accords with Lasnik's (1995) suggestion that θ-roles are formal features of their assigners.

Our discussion of Miyagawa's and Tsujimura's generalization in section 8.4 was more speculative. We suggested two possibilities for explaining it. One was to reduce it to the general ban on improper movement from an $\bar{A}$ position to a Case position. The other was based on the elimination of A-traces and A-chains. Further research is needed before we can choose between these two possibilities.

Notes

This is a revised version of a paper originally written in 1994. A still earlier version, Hoshi and Saito 1993, was written as a chapter of the research report of the 1991–93 project on Japanese grammar at the University of Connecticut, submitted to BBN Systems and Technologies. We thank BBN for its financial support, and the other participants in the project, Jun Abe and Yoichi Miyamoto, for their suggestions and comments. We also benefited from discussions with many other people, including Željko Bošković, Howard Lasnik, Hideki Maki, Keiko

Murasugi, Myung-Kwan Park, and Daiko Takahashi. The early version was presented in the spring 1993 syntax seminar at the University of Connecticut, and in colloquia at Cornell University (1994) and Universität zu Köln (1995). This revised version, in its initial form, was given at the Special GLOW Meeting in Hyderabad (January 1998), and also in the spring 1998 syntax seminar at Nanzan University. We thank the audiences at these places for comments, and also Chris Collins, Joseph Emonds, Jay Jayaseelan, Roger Martin, and an anonymous reviewer for suggestions leading up to the final revision. The preparation of this revised version was supported in part by the Nanzan University Pache Research Grant (Saito) and by grants from the British Academy, the Japan Foundation Endowment Committee, and SOAS at the University of London (Hoshi).

We are delighted that this final version is included in a volume to honor Howard Lasnik, a great teacher and good friend to whom both of us owe so much.

1. See, for example, Grimshaw and Mester 1988, Sells 1988, Miyagawa 1989, Terada 1990, Tsujimura 1990a,b, Aoyagi 1991, Hasegawa 1991, Kajihara 1992, Matsumoto 1992, 1996, Kageyama 1993, Uchida and Nakayama 1993, Sato 1993, Nakajima 1993, and Dubinsky 1994.

2. As shown in (i), not only NPs but also PPs are followed by the genitive Case marker within Japanese NPs.

(i) a. [NP Mary-no John-to-no kekkon]
Mary-GEN John-with-GEN marriage
'Mary's marriage with John'
b. [NP Mary-no John-to-no kaiwa]
Mary-GEN John-with-GEN conversation
'Mary's conversation with John'

These examples are ungrammatical without the genitive markers.

3. See, for example, Kageyama 1982, 1993, Larson 1988, Terada 1990, Tsujimura 1990b, Koizumi 1995, and especially Hale and Keyser 1993 for relevant discussion on incorporation and θ-role assignment. An LF incorporation analysis, somewhat similar to ours, is proposed independently in Dubinsky 1994. Since Dubinsky's account for the relevant data differs from ours in many respects, he draws different theoretical conclusions. But he suggests, as we do, that the θ-role-assigning noun discharges its θ-roles after its incorporation at LF.

4. The light verb *su* does not have any θ-role of its own, but is a Case assigner: it assigns accusative Case to the NP headed by the θ-role-assigning noun.

5. See, for example, Shibatani 1973, Harada 1973, Kuroda 1978, and Poser 1981 for detailed discussion on this constraint. We will consider the exact nature of the marginality of the examples in (9) in section 8.2.

6. A clausal goal argument can be realized either with the postposition *ni* or with the postposition *e*. However, only the latter is available NP-internally, since *ni* is for some reason incompatible with the genitive Case marker, as shown in (i).

(i) a. [IP Mary-ga Nara-ni/Nara-e syuppatu-sita].
Mary-NOM Nara-to/Nara-to departed
'Mary departed for Nara.'

b. [NP Mary-no Nara-e-no /*Nara-ni-no syuppatu]
Mary-GEN Nara-to-GEN/*Nara-to-GEN departure
'Mary's departure for Nara'

This is why we use only *e* in (12a) and (12c): those examples with *ni* are ruled out for an independent reason.

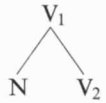
7. See Chomsky 1981 for detailed discussion of this assumption.

8. See Kuroda 1978, Hoji 1990, and Murasugi 1991 for detailed discussions on the cleft construction in Japanese. We follow the latter two works and assume that the examples in (29)–(30) involve movement of an empty operator to [Spec, CP].

9. It should be noted here that Sells (1988) suggests an answer quite different from ours. See Uchida and Nakayama 1993 and Dubinsky 1994 for discussion of Sells's analysis.

10. The exact mechanism of "Case licensing by incorporation" still needs to be worked out. The cases of noun incorporation discussed in Baker 1988 involve movement of the N head of an argument NP at S-Structure. Since our case has to do with incorporation of a θ-role-assigning noun in LF, it is not clear that Baker's mechanism can be applied directly.

One possibility is that in the configuration in (i) the lower segment V_2 checks the Case of the incorporated N and the two-segment category V_1–V_2 checks the objective Case of the theme NP.

(i)


This seems consistent with Chomsky's (1994) proposal that the lower segment and the two-segment category are independent terms in an adjunction structure. If this is the correct way to analyze "Case licensing by incorporation," then the two accusative NPs in (24a,b) are after all both licensed by abstract Case checking. It is just that incorporation creates a configuration in which a single verb can check two objective Cases.

11. Grimshaw and Mester (1988) note that the NP headed by the θ-role-assigning noun resists relativization and topicalization. As shown in (i), it cannot be passivized either. (See Sells 1988 for relevant discussion.)

(i) *Kekkon-ga Mary-ni yotte John-to sareta. (= *su* + *rare* (passive) + *ta*)
marriage-NOM Mary-by John-with done
'Mary married with John.'

As far as we can see, our account of (32) generalizes to all of these cases.

12. This implies that the Case licensing of *zyooto* 'giving' in (40) is "accidental." The noun incorporates into the light verb in LF only to discharge its θ-roles, but as a result of this incorporation, the accusative Case on the noun happens to be licensed.

13. As an anonymous reviewer points out, if θ-role assignment involves feature checking, interesting questions arise with respect to its locality. It is widely assumed

that θ-role assignment is possible in the head-complement configuration. On the other hand, the complement position is excluded from the checking domain of the head (e.g., in Chomsky 1993). (See also Chomsky 1995 for much relevant discussion.) We may take this as evidence that the definition of checking domain should be revised. Alternatively, it may be possible to exclude the head-complement structure from the configurations of θ-role assignment. Unfortunately, the examination of these possibilities is beyond the scope of this chapter.

14. Miyagawa and Tsujimura show that other ergative nouns, such as *zyoohatu* 'evaporation' and *tootyaku* 'arrival', exhibit the same pattern.

15. The absence of an external θ-role is indicated by ϕ.

16. Even if nominative is licensed VP-internally, as argued in Fukui 1986, the problem is not resolved. This hypothesis implies that the Extended Projection Principle (EPP) does not hold and there are no expletives in Japanese. This is so because if *ya-ga* 'arrow-NOM' in (45b) can have its Case licensed within VP and [Spec, IP] is occupied by an expletive *pro*, the example is incorrectly ruled out by Last Resort/Full Interpretation. In fact, given the VP-internal subject hypothesis, a simple sentence like (i) would lead to the same conclusion.

(i) John-ga hon-o yonda.
John-NOM book-ACC read
'John read a book.'

But if Japanese is not subject to the EPP and does not have an expletive, there is no expletive *pro* in the subject position of (45a). Consequently, Chomsky's Last Resort account for (50) does not extend to this example.

17. (51) also subsumes the nonpassivizability of the NP headed by the θ-role-assigning noun in the light verb construction. See note 11.

18. The specifics of the head movement in (52) depend on how V and I are merged in Japanese. If V raises to I covertly, as proposed in Park 1991 and Saito 1992, then the θ-role-assigning noun incorporates to V and the N–V complex raises to I in LF. On the other hand, if V-to-I raising is overt in Japanese, as argued by Tada (1990), Hoshi (1994), Koizumi (1995), and Takahashi (1996), among others, then the θ-role-assigning noun moves to the position of V and then incorporates into the V-I complex in LF.

Note that the account suggested here does not necessarily deny the VP-internal subject hypothesis for all cases. First, it seems needed for cases like (ia), where the main verb *read* does not raise to the position of I because of the presence of the auxiliary verb *has*.

(i) a. John has read the book.
b. John read the book.

If the main verb in a simple sentence like (ib) raises to I in LF, as argued by Chomsky (1991, 1993) and more recently by LaPorte-Grimes (1996), the subject in this sentence can be generated directly in [Spec, IP]. But even in this case it is possible that the subject can be generated in either [Spec, IP] or [Spec, VP], unless the latter possibility is excluded by an economy principle.

19. See Saito and Murasugi 1990 for facts similar to (55) in Japanese.

We use the terms *argument* and *A position* in a rather strict sense. Tada (1990), for example, discusses Japanese scrambling and concludes that the VP-adjoined position is an A position in a broader sense. Similarly, Murasugi (1991, 1992) argues on the basis of the distribution of *pro* in Japanese that locative and temporal phrases are arguments, again, in a broader sense. (See also Miyamoto 1994 for relevant discussion.)

20. Two remarks are in order here.

First, the conclusion reached here does not necessarily hinge on the validity of the condition in (59b). Note first that (62a,b) violate Last Resort, and (60), (62a), (63), and (64) are ruled out by Rizzi's (1990) Relativized Minimality. Chomsky (1995) proposes to derive the effects of these two principles by refining the theory of formal features and reinterpreting movement as "attraction." His Attract F is defined as in (i).

(i) K *attracts* F if F is the closest feature that can enter into a checking relation with a sublabel of K.

As far as we can tell, this can accommodate (61) as well.

If we accept this proposal, (59b) itself should be dispensed with in favor of (i). But our conclusion is unaffected since (i), like (59b), does not require A-traces or A-chains. We appeal to (59b), not (i), in the discussion in the text, since it is not clear to us at this point how the analysis proposed in section 8.3 in terms of Last Resort should be restated with (i).

Second, Lasnik and Saito (1992) do not go on to propose the elimination of A-traces because of examples like (i).

(i) *[How likely t_i to be taken of John]$_j$ is advantage$_i$ t_j?

Following a suggestion by Anthony Kroch (personal communication), they argue that examples of this kind are ruled out by the Proper Binding Condition as applied to A-traces. (See also Saito 1989.) If A-movement does not produce a trace, this case requires an independent explanation.

Another relevant case, which was brought to our attention by Chris Collins, is Huang's (1993) analysis of the contrast between (iia) and (iib).

(ii) a. [Which picture of himself$_{i/j}$]$_k$ does John$_i$ think Bill$_j$ likes t_k?
b. [How t_j proud of himself$_{*i/j}$]$_k$ does John$_i$ think Bill$_j$ will be t_k?

The reflexive in (iib) cannot take the matrix subject *John* as its antecedent. Huang proposes that the trace t_j of *Bill* in the AP-internal subject position blocks this binding relation as a "specified subject." This analysis is incompatible with the Proper Binding Condition analysis of (i) and hence cannot be taken as *additional* evidence for A-traces. Yet, if A-traces are dispensed with, an independent account is needed for this case also.

References

Aoun, Joseph. 1982. The formal nature of anaphoric relations. Doctoral dissertation, MIT, Cambridge, Mass.

Aoyagi, Hiroshi. 1991. Light verb constructions and restructuring at LF. MS., University of Southern California, Los Angeles, and Nanzan University.

Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.

Bošković, Željko. 1994. D-Structure, Theta-Criterion, and movement into theta-positions. *Linguistic Analysis* 24, 247–286.

Bošković, Željko. 1997. *The syntax of nonfinite complementation*. Cambridge, Mass.: MIT Press.

Bošković, Željko, and Daiko Takahashi. 1998. Scrambling and Last Resort. *Linguistic Inquiry* 29, 347–366.

Burzio, Luigi. 1986. *Italian syntax: A government-binding approach*. Dordrecht: Kluwer.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.

Chomsky, Noam. 1986a. *Barriers*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1986b. *Knowledge of language: Its nature, origin, and use*. New York: Praeger.

Chomsky, Noam. 1991. Some notes on economy of derivation and representation. In Robert Freidin, ed., *Principles and parameters in comparative grammar*. Cambridge, Mass.: MIT Press. [Also in Noam Chomsky, *The Minimalist Program*. Cambridge, Mass.: MIT Press (1995).]

Chomsky, Noam. 1993. A minimalist program for linguistic theory. In Kenneth Hale and Samuel Jay Keyser, eds., *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*. Cambridge, Mass.: MIT Press. [Also in Noam Chomsky, *The Minimalist Program*. Cambridge, Mass.: MIT Press (1995).]

Chomsky, Noam. 1994. Bare phrase structure. (MIT Occasional Papers in Linguistics 5.) MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass. [Also in Gert Webelhuth, ed., *Government and Binding Theory and the Minimalist Program*. Oxford: Blackwell (1995).]

Chomsky, Noam. 1995. Categories and transformations. In *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Dubinsky, Stanley. 1994. Syntactic underspecification: A minimalist approach to light verbs. In Hiroyuki Ura and Masatoshi Koizumi, eds., *Formal approaches to Japanese Linguistics 1*. (MIT Working Papers in Linguistics 24.) MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Fukui, Naoki. 1986. A theory of category projection and its applications. Doctoral dissertation, MIT, Cambridge, Mass.

Fukui, Naoki. 1993. A note on improper movement. *The Linguistic Review* 10, 111–126.

Grimshaw, Jane. 1990. *Argument structure*. Cambridge, Mass.: MIT Press.

Grimshaw, Jane, and Armin Mester. 1988. Light verbs and θ-marking. *Linguistic Inquiry* 19, 205–232.

Hale, Kenneth. 1983. Warlpiri and the grammar of nonconfigurational languages. *Natural Language & Linguistic Theory* 1, 5–47.

Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In Kenneth Hale and Samuel Jay Keyser, eds., *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*. Cambridge, Mass.: MIT Press.

Harada, Shin-Ichi. 1973. Counter equi NP deletion. *Annual Bulletin* 7, 113–147. The Research Institute of Logopedics and Phoniatrics, University of Tokyo.

Hasegawa, Nobuko. 1991. On head movement in Japanese: The case of verbal nouns. In Sadayoshi Ogawa and Masahiro Akiyama, eds., *Proceedings of the Sophia Linguistic Society 6*. Department of Linguistics, Sophia University.

Hoji, Hajime. 1990. Theories of anaphora and aspects of Japanese syntax. Ms., University of Southern California, Los Angeles.

Hoshi, Hiroto. 1994. Passive, causative, and light verbs: A study on theta role assignment. Doctoral dissertation, University of Connecticut, Storrs.

Hoshi, Hiroto, and Mamoru Saito. 1993. Japanese light verb construction: A case of LF θ-role assignment. In Mamoru Saito, ed., *A formal grammar of Japanese II*. Department of Linguistics, University of Connecticut, Storrs.

Huang, C.-T. James. 1993. Reconstruction and the structure of VP: Some theoretical consequences. *Linguistic Inquiry* 24, 103–138.

Kageyama, Taro. 1982. Word formation in Japanese. *Lingua* 57, 215–258.

Kageyama, Taro. 1993. *Bunpoo to gokeisei* (Grammar and word formation). Kasukabe, Japan: Hituzi Syobo.

Kajihara, Satomi. 1992. The syntactic nature of argument transfer with *suru*. Master's thesis, University of Washington, Seattle.

Kitagawa, Yoshihisa. 1994. Shells, yolks, and scrambled e.g.s. In Mercè Gonzalez, ed., *NELS 24*, vol. 1. GLSA, University of Massachusetts, Amherst.

Koizumi, Masatoshi. 1995. Phrase structure in minimalist syntax. Doctoral dissertation, MIT, Cambridge, Mass.

Kuroda, S.-Y. 1978. Case-marking, canonical sentence patterns, and counter equi in Japanese. In John Hinds and Irwin Howard, eds., *Problems in Japanese syntax and semantics*. Tokyo: Kaitakusha.

LaPorte-Grimes, Laurel. 1996. What "what about answers" say about verbal morphology. In Asako Uchibori and Kazuko Yatsushiro, eds., *Papers in honor of Mamoru Saito*. (University of Connecticut Working Papers in Linguistics 7.) Department of Linguistics, University of Connecticut, Storrs. [Distributed by MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.]

Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19, 335–391.

Lasnik, Howard. 1985. Illicit NP movement: Locality conditions on chains? *Linguistic Inquiry* 16, 481–490.

Lasnik, Howard. 1995. A note on pseudogapping. In Rob Pensalfini and Hiroyuki Ura, eds., *Papers in minimalist syntax*. (MIT Working Papers in Linguistics 27.) MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.

Lasnik, Howard, and Mamoru Saito. 1984. On the nature of proper government. *Linguistic Inquiry* 15, 235–289.

Lasnik, Howard, and Mamoru Saito. 1992. *Move α: Conditions on its application and output*. Cambridge, Mass.: MIT Press.

Matsumoto, Yo. 1992. On the wordhood of complex predicates in Japanese. Doctoral dissertation, Stanford University, Stanford, Calif.

Matsumoto, Yo. 1996. A syntactic account of light verb phenomena in Japanese. *Journal of East Asian Linguistics* 5, 107–149.

Miyagawa, Shigeru. 1989. Light verbs and the ergative hypothesis. *Linguistic Inquiry* 20, 659–668.

Miyamoto, Yoichi. 1994. Secondary predicates and tense. Doctoral dissertation, University of Connecticut, Storrs.

Murasugi, Keiko. 1991. Noun phrases in Japanese and English: A study in syntax, learnability and acquisition. Doctoral dissertation, University of Connecticut, Storrs.

Murasugi, Keiko. 1992. Locative/temporal vs. manner/reason phrases. *Kinjo Gakuin Daigaku Ronshu* 33, 153–170.

Nakajima, Takashi. 1993. Syntactic analysis of the light verb construction. In Edward J. Rubin and Michael Bernstein, eds., *Cornell working papers in linguistics 11*. Department of Linguistics, Cornell University, Ithaca, N.Y.

Park, Myung-Kwan. 1991. Experiencer movement and anaphor binding in causative psych-verb constructions in Korean. Ms., University of Connecticut, Storrs.

Pesetsky, David. 1995. *Zero syntax*. Cambridge, Mass.: MIT Press.

Poser, William. 1981. The "Double-*o* Constraint": Evidence for a direct object relation in Japanese. Ms., MIT, Cambridge, Mass.

Rizzi, Luigi. 1990. *Relativized Minimality*, Cambridge, Mass.: MIT Press.

Saito, Mamoru. 1982. Case marking in Japanese: A preliminary study. Ms., MIT, Cambridge, Mass.

Saito, Mamoru. 1989. Scrambling as semantically vacuous A′-movement. In Mark Baltin and Anthony Kroch, eds., *Alternative conceptions of phrase structure*. Chicago: University of Chicago Press.

Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics* 1, 69–118.

Saito, Mamoru, and Keiko Murasugi. 1990. N′-deletion in Japanese. *Japanese/Korean Linguistics* 1, 285–301.

Sakai, Hiromu. 1994. Uniformity in syntactic derivation. Ms., University of California, Irvine.

Sato, Yutaka. 1993. Argument transfer: All or nothing. *Gengo Kenkyuu* 103, 92–127.

Sells, Peter. 1988. More on light verbs and θ-marking. Ms., Standford University, Stanford, Calif.

Shibatani, Masayoshi. 1973. Semantics of Japanese causativization. *Foundations of Language* 9, 327–373.

Tada, Hiroaki. 1990. Scrambling(s). Ms., MIT, Cambridge, Mass.

Takahashi, Daiko. 1992. Improper movements and chain formation. Ms., University of Connecticut, Storrs.

Takahashi, Daiko. 1996. Antecedent-contained deletion in Japanese. In Asako Uchibori and Kazuko Yatsushiro, eds., *Papers in honor of Mamoru Saito*. (University of Connecticut Working Papers in Linguistics 7.) Department of Linguistics, University of Connecticut, Storrs. [Distributed by MITWPL, Department of Linguistics and Philosophy, MIT, Cambridge, Mass.]

Takano, Yuji. 1996. Movement and parametric variation in syntax. Doctoral dissertation, University of California, Irvine.

Takezawa, Koichi. 1987. A configurational approach to Case-marking in Japanese. Doctoral dissertation, University of Washington, Seattle.

Terada, Michiko. 1990. Incorporation and argument structure in Japanese. Doctoral dissertation, University of Massachusetts, Amherst.

Tsujimura, Natsuko. 1990a. Ergativity of nouns and Case assignment. *Linguistic Inquiry* 21, 277–287.

Tsujimura, Natsuko. 1990b. Unaccusative hypothesis and noun classification. *Linguistics* 28, 925–957.

Uchida, Yoshiko, and Mineharu Nakayama. 1993. Japanese verbal noun constructions. *Linguistics* 31, 623–666.

Williams, Edwin. 1981. Argument structure and morphology. *The Linguistic Review* 2, 84–114.

Zubizarreta, Maria Luisa. 1985. The relation between morphophonology and morphosyntax: The case of Romance causatives. *Linguistic Inquiry* 16, 247–289.