



University of
Massachusetts
Amherst

Movement into a *Theta*- Position: Evidence from the Middle

Item Type	Article
Authors	Kawasaki, Noriko
Download date	2026-06-15 02:37:33
Link to Item	https://hdl.handle.net/20.500.14394/50044

Movement into a *Theta*-Position: Evidence from the Middle*

Noriko Kawasaki

Tokyo Woman's Christian University

This paper examines empirical evidence for and conceptual bases of the θ -criterion proposed in Chomsky (1981). Although it was formalized as a condition on chains in the final chapter of Chomsky (1981),¹ the θ -criterion had a conceptual basis in the notion of D-

My special thanks are due to Jun Abe, Hiroshi Aoyagi, Lyn Frazier, Masatake Muraki, Roger Higgins, Yasuo Ishii, Kyle Johnson, Howard Lasnik, Toru Noguchi, Barbara Hall Partee, David Pesetsky, Paul Portner, Tom Roeper, Peggy Speas, Kunitoshi Takahashi, and Ryuichi Washio for valuable comments and discussion. Parts of this article were presented at the monthly meeting of Tokyo Area Circle of Linguistics (TACL) at Sophia University in July 1998 and at a Ling-Lunch meeting at the Department of Linguistics and Philosophy, MIT in September 1998, as well as at the 1998 UMass. Linguistics Anniversary Symposium at the University of Massachusetts at Amherst in September 1998. I would like to thank the participants, especially Yoshio Endo, Sabine Iatridou, Yoshihisa Kitagawa, Shigeru Miyagawa, and David Pesetsky for their comments and questions that helped me clarify my arguments. I am also indebted to David Pesetsky, Paul Portner, Dennis Schneider, and Martin Willis, who acted as informants. Parts of the article have also appeared in Kawasaki (1999). This research has been supported in part by Grant-in-Aid for Scientific Research (C) No. 10610477 to Noriko Kawasaki Ishii from the Ministry of Education, Science, Sports and Culture.

¹ In the final chapter of Chomsky (1981), the θ -criterion is formulated as follows:

- (i) *θ -criterion*: Given the structure S , there is a set K of chains, $K = \{C_i\}$, where $C_i = (\alpha'_1, \dots, \alpha'_{n_i})$, such that:
- If α is an argument of S , then there is a $C_i \in K$ such that $\alpha = \alpha'_j$ and a θ -role is assigned to C_i by exactly one position P .
- If P is a position of S marked with the θ -role R , then there is a $C_i \in K$ to which P assigns R , and exactly one α' in C_i is an argument.
- (Chomsky 1981:335)

structure characterized as a syntactic representation of thematic relations: All the positions in which a thematic role (θ -role) is licensed are occupied by an argument phrase at the D-structure level, and argument phrases always have their θ -roles licensed in their D-structure position. When they move, they can only move into a non- θ -position because all the θ -positions have already been occupied. With syntactic movement always moving categories upward, an argument phrase always has its θ -roles licensed in the lowest position it has occupied, that is, the tail of its chain. In the Minimalist Program, attempts have been made to minimize any apparatus in the language faculty except what is absolutely necessary at the interfaces with the articulatory-perceptual system and the conceptual-intentional system, and to explore the possibility that D-structure does not exist as a level of representation. The θ -criterion in this research program loses the conceptual basis it used to have in Chomsky (1981). Based on such considerations, some researchers such as Bošković (1994) and Hornstein (1997) have claimed that the θ -criterion is empirically incorrect, as well as conceptually undesirable, and that human language allows movement into a θ -position.

In this paper, I will first demonstrate that the subject of middle sentences in English is moved from a θ -position to another θ -position. I will then argue that nonetheless movement between two θ -positions is not always possible. This means that the θ -criterion as a descriptive generalization is partially correct and partially wrong. I will propose that the dividing line between the legitimate cases and illegitimate cases of movement into a θ -position lies in the difference in the type of semantic role that is licensed in the derived position. Movement into a θ -position is not allowed if the semantic role licensed in the derived position is a θ -role anchored to event interpretation. For example, a DP cannot move into a θ -position and have an agent role licensed in that position. On the other hand, movement into a θ -position is possible if the moved phrase enters into a predication relation in the derived position, and is assigned the semantic role of the bearer of the property described by the predicate. In this case, the semantic role licensed in the derived position is not anchored to event interpretation. I will propose that the licensing of event-anchored θ -roles involves checking of some formal features between the verb and its argument DPs. This will explain why movement into a θ -position is not possible if the moved phrase has an event-anchored θ -role licensed in the derived position. There are two possible ways to implement this proposal. These two alternatives and some of their consequences will be discussed in the final section.

1. English Middles

1.1. The Syntactic Status of the Subject

Let us first look at a piece of evidence showing that the subject of middle sentences is moved from the object position. Carrier and Randall (1992) point out that middles allow a resultative phrase predicated of the surface subject:

- (1) a. New seedlings water flat (easily).
 b. My socks won't scrub clean (easily).
 c. Permanent press napkins iron flat (easily).
 (Carrier and Randall 1992:191)
- (2) This table wipes clean easily.
 (Levin and Rappaport Hovav 1995:40)

In this sense, middle sentences pattern with passives and unaccusatives. Given the assumption that a resultative phrase may be predicated of a postverbal DP but not of a subject, as argued by Levin and Rappaport Hovav (1995), the examples above indicate that the subject of middle sentences is moved from the object position.

On the other hand, there is reason to believe that the subject of middle sentences is an external argument. Levin and Rappaport (1988) and Hovav Rappaport and Levin (1992) argue that nonevent *-er* nominals are limited to external arguments. For example, unaccusative verbs such as *disappear* and *collapse* do not allow nonevent *-er* nominals. They argue that *-er* nominals of certain cooking verbs such as *broiler*, *roaster*, and *steamer* are not counterexamples to this generalization if it is assumed that they are derived from middle predicates and that the subject of middle sentences is an external argument.

Another piece of evidence showing that the subject of middle sentences is a θ -position comes from the interpretation of quantificational phrases in the subject position:²

- (3) a. All of these books were finished easily.
 b. It was easy to finish all of these books.
 c. Each of these books was easy to finish (but it was not necessarily easy to finish all these books).
- (4) a. All of these books read easily.
 b. All of these books are easy to read.

The passive sentence in (3a) allows the two readings to be paraphrased in (3bc). The quantifier is included in the scope of *easily* in the former reading, and is outside the scope of the adverb in the latter reading. The middle sentence and the *tough*-sentence in (4) only allow the reading where the quantifier is outside the scope of *easily/easy*. (4ab) do not mean that it is easy to read all of these books.

This difference between passives on the one hand and middles and *tough*-sentences on the other is accounted for by the assumption that the scope of a quantifier phrase is sensitive to the highest position of its chain in which a semantic role is licensed. A quantificational phrase can be lowered to its original position only if a semantic role is not licensed in the derived position. The quantificational subject in passives can be lowered to

² I would like to thank David Pesetsky for pointing out this fact to me.

the object position because no semantic role is licensed in the subject position. The quantificational subject of *tough*-sentences cannot be lowered because it has not been moved from a position lower than the *tough*-predicate. The observation that the quantificational subject of middles cannot be lowered indicates that a semantic role is licensed in the subject position so that this position cannot be disregarded in the interpretation.

So far, I have argued that the subject of middle sentences is moved from the object position (and therefore has a semantic role licensed in the object position) and has another semantic role licensed in the subject position. In what follows, I will discuss what semantic roles are licensed in these positions and what licenses each role.

1.2. Zero-Form Affix Assigning the External Role

In this subsection, I will discuss the semantic role licensed in the subject position of middle sentences.

Condoravdi (1989) argues that the interpretation of middle sentences involves generic quantification over events. Sentence (5a), for example, is claimed to involve the logical form given in (5b).

- (5) a. This bread cuts smoothly.
 b. $G [e: \text{bread}(x), \text{cut}(e), \text{Patient}(e,x)] [\text{smooth}(e)]$
 (Condoravdi 1989:181)

G is the generic operator, and e is a variable for the event argument. It should be kept in mind that middle sentences themselves are not generic statements on events. To see this, consider the following situation and the sentences in (7) and (8).

- (6) There are a small number of high-ranking government officials who are offered bribes very frequently, and they take them all. There are also many poor and honest bureaucrats who are rarely offered bribes, and when they are, they turn them all down. 90% of the bribes are offered to the high-ranking officials and all are accepted. 10% of the bribes are offered to the other bureaucrats and they are all turned down.
- (7) Bureaucrats bribe easily.
 (8) a. One can bribe bureaucrats easily.
 b. It is easy to bribe bureaucrats.

(8ab) allow the reading to be judged true under the situation in (6) as well as the reading to be judged false under (6). However, (7) only allows the reading to be judged false under (6). This means that (7) is a generic statement on bureaucrats rather than a generic statement on events of bribing bureaucrats. This observation shows that while middle sentences entail a

generic quantification over events, they are not themselves statements on events. Rather, they are statements on the referent of the subject.³

The meaning of middle sentences, then, can be characterized as follows:

- (9) The referent of the subject x bears a property such that the generalization on events $Ge [C(e, x)] [\dots e \dots]$ holds of x .

Again G is the generic operator, and e is a variable for the event argument. As is usually the case with generic quantification, the nuclear scope contains a focused element in the sentence. $C(e, x)$ in the restrictor clause indicates that it contains e and x and is otherwise contextually determined. The meaning of example (5a) above, repeated here as (10a), can be characterized as (10b).

- (10) a. This bread cuts smoothly.
 b. This bread x bears a property such that the generalization on events $Ge [\text{cut}(e), \text{Patient}(x)] [\text{smooth}(e)]$ holds of x .

I will add another element to (9) in the following subsection.

If this is correct, the middle predicate takes an argument which is interpreted as the bearer of the property characterized in (9). This accounts for the observation that middle predicates behave as stative predicates and reject progressive forms and temporal adverbs for many speakers, though judgments vary to a considerable extent.

The middle predicate then consists of a transitive verb root plus an element that demotes the original external argument with the agent role, and adds a new external argument interpreted as the bearer of the property described by the predicate.⁴ Since middle predicates do not contain any overt marking, the element in question must be a zero-form affix.⁵ In addition to the demotion of the original external argument and the addition of a new external

³ Passive sentences behave in the same way as middle sentences with respect to the proportion problem. For example, (i) is judged to be false under the situation given above.

(i) Bureaucrats are bribed easily.

The system of semantic role licensing proposed in the present article allows the possibility that the derived subject in passives may or may not have a semantic role of property-bearer licensed in the subject position. It may be the case that this is preferred when passive sentences are understood to be generic.

⁴ The idea that middle predicates contain an invisible morpheme that demotes the external argument and absorbs accusative Case from the verb was first proposed by Keyser and Roeper (1984), and pursued in Keyser and Roeper (1992).

⁵ See Pesetsky (1995) for evidence based on nominalization for the existence of a zero-form affix in middle predicates.

argument, the accusative Case must be absorbed so that movement from the object position to the subject position is triggered. This may be done by the zero-form affix proposed here or by the other zero-form morpheme to be proposed in the following subsection.

1.3. Zero-form Preposition Heading an Adjunct

1.3.1. Responsibility

Van Oosten (1977, 1986), Fellbaum (1986), and Fagan (1992) argue that unlike the subject of a passive sentence, the subject of a middle sentence is understood to be responsible for the generalization on events entailed by the sentence. The following sentences illustrate the difference between the two constructions:

- (11) a. Stupidly, these shirts can't be washed in the machine.
 b. Stupidly, these shirts don't wash in the machine.
 (Fellbaum 1985:28)

The adverb *stupidly* in (11a) can be understood either as an evaluation of the property of the shirts (i.e., their property of not being machine-washable) or as an evaluation of the situation described by the sentence. The same adverb in (11b) can only be understood as an evaluation of the property of the shirts. The following examples illustrate the same point:

- (12) a. The clothes wash with no trouble because they're machine-washable.
 b. *The clothes wash with no trouble because I have lots of time.
 (13) a. It's no trouble to wash the clothes because they're machine-washable.
 b. It's no trouble to wash the clothes because I have lots of time.
 (Van Oosten 1977:460)

The difference between middles and passives indicates that the characteristic of middles observed here does not follow from the syntactic position of the subject.

It has been argued that middle formation is limited to predicates that take an affected or delimiting object. (See, for example, Roberts (1986), Hale and Keyser (1987), and Tenny (1992).) For instance, Tenny (1992) cites the following examples as cases that can be ruled out by either restriction:

- (14) a. *The traffic jam avoids easily.
 b. *Fleeing burglars pursue easily.
 (Tenny 1992:9)

It seems that the low acceptability of these examples can also be accounted for by the semantic characterization of middle sentences which has been discussed here. Very informally, middle sentences presuppose a situation that can be characterized as follows:

- (15) Given that the possible agents do whatever possible/reasonable to perform the action described by the predicate, whether the attempts succeed or not (in bringing about the situation described by the corresponding non-middle sentence) still depends on the nature of the referent of the subject of the middle sentence.

I will call this characteristic of middle sentences *the responsibility requirement* on the subject of middles. Given our knowledge of the world, (14a) does not satisfy this requirement. Whether or not one can avoid the traffic jam (easily) depends not on the nature of the traffic jam itself, but largely on other factors such as whether there are other routes one could take to get to one's destination. (14b) does not seem to satisfy the responsibility requirement either. *Pursue* means "follow with an intention to catch" and it does not mean "actually succeed in catching" or even "getting closer to." If one makes whatever possible/reasonable effort to pursue someone, then one has already succeeded in pursuing the person (whether or not the pursuit turns out to be successful in the sense that one actually catches the person). There seems to be no room where the person to be pursued provides the crucial factor for the pursuit to be realized. See Fagan (1992:78) for an account on these lines of why *discuss* and *invite* do not form good middles.

The responsibility requirement accounts for the fact that verbs with an affected object in general make good middles. This is because the actions they describe are most suitable for satisfying the requirement. Such verbs describe actions which bring about a change of state on the part of the logical object. It is quite conceivable that one might try to perform such an action but fail to bring about the intended change of state. Given the responsibility requirement, therefore, it is not clear whether an independent requirement based on affectedness or delimitedness is necessary.

The responsibility requirement is either absent or at least less obvious in *tough*-sentences. For example, (16) allows the reading that the traffic jam has a property of being difficult to avoid due to its surrounding circumstances.⁶ While the judgment seems to be rather difficult for (17), at least some speakers find it possible with a reading in which *stupidly* is an evaluation of the situation, as well as with a reading in which it is an evaluation of the shirts. Native speakers also find (18a) at least more acceptable than (18b).

- (16) The traffic jam is difficult to avoid.
 (17) Stupidly, these shirts are difficult to wash in the machine.
 (18) a. ?These clothes are difficult to wash for me because the laundry room is crowded.
 b. *These clothes do not wash easily because the laundry room is crowded.

This observation suggests that the responsibility requirement does not follow from the subject being the property-bearer. Middle sentences must contain an element to which this semantic

⁶ I would like to thank Roger Higgins for pointing out the contrast between the middle sentence in (14a) and the *tough*-sentence in (16).

characteristic can be attributed. Since middle sentences do not contain an overt element that could serve this function, the element must lack phonetic content. In the rest of the section, I will propose that middle sentences contain a zero-form preposition which heads an adjunct, and that it has a meaning that can be paraphrased as "due to." The responsibility requirement on the middles and the absence thereof in *tough*-sentences can thus be attributed to the presence and absence of this preposition. The meaning of middle sentences can now be characterized as follows:

- (19) The referent of the subject x bears a property such that the generalization on events $Ge [C(e, x)] [\dots e \dots]$ holds of x due to (some property of) x .

1.3.2. Internal Arguments

Middle sentences do not allow overt internal argument phrases to follow the predicate. Consider the following examples:⁷

⁷ These examples are significantly less acceptable than the examples with a resultative phrase discussed in 1.1. above. This observation indicates that resultative phrases have a status different from that of internal arguments.

Carrier and Randall (1992) lists (i) among examples with a resultative phrase.

- (i) Those cookies break into pieces (easily).

It may appear to be a counterexample to the generalization that middle predicates cannot be followed by their internal arguments. It is not, however, because *break* can be unaccusative.

Another set of apparent counterexamples is illustrated by (ii). Notice that what appears to be an internal argument follows the adverb:

- (ii) This clever rolling drawer stores and protects shoes in eight separate compartments—then stows neatly under a bed.
(Fagan 1992:80)

When the locative phrase precedes the adverb, the example is much less acceptable:

- (iii) ??This chest stows under a bed neatly.

The following example, in which *nicely under a bed* and *neatly in a closet* are conjoined with *or*, indicates that these expressions each can form a constituent:

- (iv) Nicely under a bed or neatly in a closet, this chest stows anywhere you like.

In fact, (iv) is better than the following example, in which the prepositional phrases are separated from the adverb:

- (v) ??Under a bed or in a closet, this chest stows neatly.

These observations suggest that the locative PP in (ii) is not an internal argument of the verb, but forms a

- (20) a. *Books send to libraries best in boxes. (Roberts 1986:221)
- b. *Money gives (to) victims of natural disasters easily. (Fagan 1992:79)
- c. *These kids give books easily. (Pesetsky 1995:263)
- d. *A cup of coffee offers (to) a guest easily. (Fagan 1992:79)
- (21) a. Small packages ship easily. (Fagan 1992:79)
- b. *Small packages ship most customers easily. (Fagan 1992:79)
- c. ??Small packages ship to most customers easily. (Fagan 1992:79)
- (22) a. John convinces easily.
- b. ??John convinces to leave easily.
- c. ??John convinces easily that his friends are loyal.
- d. ??John convinces easily of his friends fidelity.
(Hale and Keyser 1987:31-32)
- (23) a. John doesn't persuade easily.
- b. *Fred persuades to do crazy things the best. (Roberts 1986:223)
- c. *Executives don't persuade that they should resign easily.
- d. *Executives don't persuade into resignation easily.
- e. *John doesn't persuade into anything easily.
- (24) a. These witnesses bribe easily.
- b. ?These witnesses bribe into silence easily.
- c. *These witnesses bribe to say nothing easily.

As Hale and Keyser (1987:32) point out, the restriction is reminiscent of the Sole Complement Generalization on prenominal adjectival passives discussed by Levin and

constituent with the adverb.

A third kind of apparent counterexamples is found in cases where apparent middle predicates are lexicalized intransitive verbs. For instance, many speakers allow the following example:

- (vi) This book sells well to college students.

One of my informants who does not find middle sentences fully acceptable finds this example perfect. Furthermore, Fagan (1992) points out that sentences with *sell* allow eventive interpretation that is not possible with ordinary middles. For instance, while the interpretation of (vii) involves modality which makes it closer to (viii) than to (ix), (x) allows the reading given in (xi).

- (vii) Stows on floor or shelf. (an advertisement of a shoe chest) (Fagan 1992:54)
- (viii) One can stow the shoe chest on the floor or shelf.
- (ix) The shoe chest is stowed on the floor or shelf.
- (x) Harlequin Romances, worldwide, sell six copies a second. (Fagan 1992:55)
- (xi) Harlequin Romances, worldwide, are sold six copies a second.

Thus, it seems that at least some speakers allow *sell* as an intransitive verb. Since it is lexicalized as such, it is free from the above generalization. Such idiosyncratic cases do not raise a problem for the present discussion as long as the general tendency holds. Also, it is not surprising if we find dialectal or idiolectal variations on particular predicates.

Rappaport (1986): An argument of a verb can be the subject of a middle sentence only if it may stand as sole NP complement to the verb.⁸ The following contrast between *deprive* and *rob* illustrates the point. *Deprive* takes two complements obligatorily, and does not allow middle sentences with either argument. *Rob* obligatorily takes a complement with the source role and optionally takes a complement with the theme role. It allows the middle only with the source argument as the subject:

- (25) a. The new government deprived the people of political rights.
 b. *The new government deprived the people.
 c. *The new government deprived (of) political rights.
- (26) a. *Political rights deprive (of) easily.
 b. *Immigrants deprive (of political rights) easily.
- (27) a. They robbed the bank of their money.
 b. They robbed the bank.
 c. *They robbed (of) the jewels.
- (28) a. These banks rob easily.
 b. *Jewels rob (of) easily.

It is well-known that middle sentences behave differently from passive sentences in that they do not allow a *by*-phrase.^{9, 10} (See, for example, Keyser and Roeper (1984), Fellbaum (1986), Fagan (1992), Stroike (1992), and Zribi-Hertz (1993).)

- (29) a. *This book reads easily by most readers. (Fagan 1992:52)
 b. *Bureaucrats bribe easily by foreign companies.

⁸ Endo (1986) points out the same observation for the middle.

⁹ The prohibition against overt *by*-phrases in the middle is stricter than what is observed with *-able* adjectives in examples as in (i).

(i) ?The comet was observable by John.

While *-able* sentences allow *by*-phrases of a generic type as in (ii), middle sentences resist *by*-phrases regardless of their content.

(ii) The comet was observable by anyone owning a powerful telescope.
 (Quirk et al. 1985)

¹⁰ Native speakers find middle sentences with a *by*-phrase somewhat more acceptable if the *by*-phrase is marked with *even* and separated from the predicate by an intonation break:

(i) a. ??Bureaucrats bribe easily even by foreign companies.
 b. ?That horrible kind of bureaucrat bribes easily, even by FOREIGN companies.

This observation suggests that *by*-phrases are conceptually compatible with middle sentences, but that syntax does not allow them to be packed together with middle predicates.

In passive sentences, the external argument of the verb is suppressed and optionally realized as a *by*-phrase. The *by*-phrase has the same status as the theme argument of *rob* for example in that it is present in the argument structure or at least compatible with the lexical conceptual structure, but need not be projected in the syntactic structure.¹¹ If it is assumed that the same is true in middle sentences, the ungrammaticality of a *by*-phrase in middle sentences will simply be a subcase of the generalization that middle predicates cannot be followed by an internal argument. *By*-phrases are excluded from middles not because they are related to the suppressed role but because they serve as an internal argument. The descriptive generalization then is that middle predicates cannot be followed by their internal arguments including *by*-phrases.

A similar restriction on internal arguments is observed with English verbs which take an experiencer argument in the object position. In the next subsection, I will review Pesetsky's (1995) account of this restriction, which I will extend to the middle construction in the subsequent subsections.

1.3.3 Object-Experiencer Predicates

Pesetsky (1995) points out that object-experiencer predicates do not allow internal argument PP's. This is illustrated by the following examples.¹²

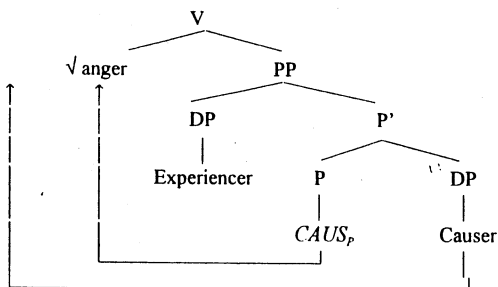
- (30) a. The article in the *Times* angered/enraged Bill. (Pesetsky 1995:18)
 b. *The article in the *Times* angered Bill at the government.
 (Pesetsky 1995:60)
 c. Bill is angry at the government.

Pesetsky (1995) proposes that sentences with an object-experiencer predicate such as *anger* contain a zero-form preposition which heads an adjunct phrase and assigns the causer role to its internal argument. Since this preposition, which he calls *CAUS_p*, does not have ability to check Case, its internal argument must move to the subject position to have its Case checked. The zero-form preposition *CAUS_p* is affixal in that it must undergo head movement and adjoin to the verb. This is illustrated in the following structure:

¹¹ See Hale and Keyser (1987, 1988) for the view that the agent of a middle sentence is implied by the lexical conceptual structure of the predicate without there being an agent θ -role.

¹² Pesetsky (1995:300f, note 57) points out that the *at*-phrase becomes more acceptable if it is given as an afterthought. This is reminiscent of the observation that a *by*-phrase becomes more acceptable in the middle if it is separated from the predicate by an intonation break.

(31)



Pesetsky (1995) proposes that sentences have two types of syntactic structures: *cascade structures* and *layered structures*. In cascade structures, all branching nodes are binary and adjuncts are c-commanded by complements. In these respects, cascade structures have configurations much like V-shell structures proposed in Larson (1988). In layered structures, ternary branching is possible and the head and its complements form a constituent excluding the adjuncts. The above structure shows the configuration in Cascade Syntax. Since $CAUS_p$ heads an adjunct phrase, it is c-commanded by the verb and its complements in Cascade Syntax.

Pesetsky (1995) notes that object-experiencer predicates do not allow nominalization. The nominalized forms can only be used with the experiencer in the subject position as the examples in (32) indicate.

- (32) a. *the news's continual surprise of Sue (Pesetsky 1995:74)
 cf. The news surprised Sue.
 b. our continual surprise at the news (Pesetsky 1995:72)
 c. *the goings-on's frequent amusement of Sue (Pesetsky 1995:74)
 cf. The goings-on amused Sue.
 d. Sue's frequent amusement at the goings-on (Pesetsky 1995:72)

Pesetsky (1995) argues that this is due to what he calls Myers's Generalization:

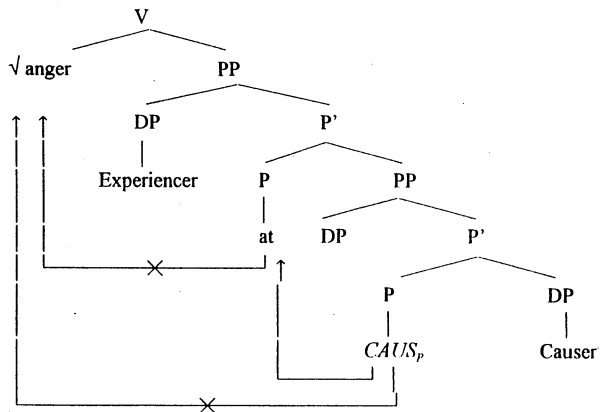
- (33) Myers's Generalization
 Zero-derived words do not permit the affixation of further derivational morphemes.
 (Pesetsky 1995:75)

The generalization itself is supported by the observation that where there is a phonological string that is assigned to two syntactic categories, only one of the categorizations can take a derivational affix. For example, while the verb *support* allows the adjectivizing affix *-ive* to form *supportive*, the noun *support*, which is derived from the verb by zero-derivation, does

not allow an adjectivizing affix to form **supportial/*supportious*. If one assumes that object experiencer predicates require a zero-form preposition $CAUS_p$, which also serves as an affix, as Pesetsky (1995) argues, the observation in (32) falls under (33). In (32ac), the affixation of the nominalizing suffixes (-Ø and -ment) is blocked by the previous affixation of $CAUS_p$. In the well-formed cases in (32bd), the nominalizing suffixes are attached directly to the intransitive verb roots without $CAUS_p$. Thus, Pesetsky (1995) argues that the ungrammaticality of nominalization provides evidence for the existence of a zero-form preposition.

Pesetsky (1995) assumes that overt prepositions are not affixal, in that they cannot adjoin to a verb. If an overt preposition intervenes between the verb and the zero-form preposition as in the following structure, it blocks the head movement of the zero-form preposition:

(34)



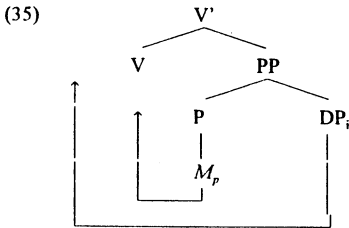
Since $CAUS_p$ cannot reach the verb, its lexical property that it must be adjoined to a verb is not satisfied. $CAUS_p$ cannot adjoin directly to the verb either, for the head movement of the zero-form preposition is subject to the Head Movement Constraint (Travis (1984), Baker (1988)), and therefore cannot skip the intervening head. Thus, (30b) above is ruled out for syntactic rather than semantic reasons.

In 1.3.5., I will argue that this analysis can be extended to middle sentences to account for the observations mentioned in 1.3.1. and 1.3.2. Before presenting the analysis, I will review Pesetsky's (1995) analysis of middle sentences. While Pesetsky (1995) argues for a zero-form preposition in English middles, he appears to assume that the zero-form preposition in the middle has a status different from that in sentences with an object-experiencer predicate. I will argue in 1.3.5. that it heads an adjunct in the same way as the zero-form preposition in

sentences with an object-experiencer predicate. Pesetsky's (1995) account of the ill-formedness of (30b) will thus be extended to the ill-formedness of middles with an overt internal argument PP or with a *by*-phrase.

1.3.4. Back to the Middle: Pesetsky's (1995) Analysis of Middle Sentences

Pesetsky (1995) proposes that a zero-form preposition is also involved in middle sentences, as shown in the following structure:



M_p in (35) stands for the zero-form preposition for middle sentences.¹³ M_p does not have the ability to check Case and it absorbs Case from the verb. The DP, which is θ -selected by both V and M_p , moves to the subject position to have its Case checked.

In the above structure, the object DP is not a sister to the verb. This is allowed in the system Pesetsky (1995) proposes, in which an argument category (DP or CP) can be θ -selected by a predicate if they meet the following conditions:¹⁴

¹³ Pesetsky (1995:261) uses G to represent this zero-form morpheme. I use M_p to avoid confusion with the zero-form preposition he proposes for another construction.

¹⁴ The following are Pesetsky's (1995) original formulations of these conditions.

- (i) If π θ -selects α as an internal argument, α is *semantically related* to π .
- (ii) In Cascade Syntax, a θ -role R internally θ -selected by the head π must satisfy either of the following conditions.
 - a. an argument bearing R occupies a position *internally selected* by π , or
 - b. a θ -selector of R heads a position *internally selected* by π .

Semantic relatedness and *internal selection* are defined as follows.

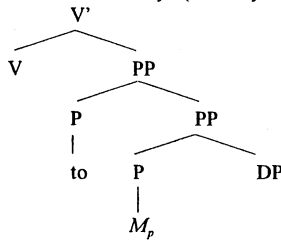
- (iii) An argument category α is *internally semantically related* to a predicate π iff
 - a. α is c-commanded by π , and
 - b. there is no argument category Ω such that π c-commands Ω and Ω dominates α .
- (iv) π *internally selects* α iff π c-commands α , and there is no argument category σ such that π c-commands σ and σ c-commands α .

- (36) The argument category α is θ -selected by a predicate π if
- α is c-commanded by π ,
 - there is no argument category σ which is c-commanded by π and which c-commands α , and
 - there is no argument category Ω which is c-commanded by π and which dominates α .
- (DP and CP count as argument categories.)

DP_i and V in (35) satisfy these conditions because DP_i is c-commanded by the verb, there is no DP or CP that is c-commanded by the verb and c-commands DP_i, and there is no DP or CP that is c-commanded by the verb and dominates DP_i.

Pesetsky (1995) points out that postulating a zero-form affixal preposition in the middle has two desirable consequences. First, the analysis correctly predicts that middles do not allow preposition stranding. (See Keyser and Roeper (1984) and Fagan (1988) for related discussion.) To see this, consider the following structure:

- (37) a. *Sue talks to easily. (Pesetsky 1995:263)
 b.



The movement of M_p to V is blocked by the intervening P. The possibility that M_p is generated between the verb and the preposition is ruled out by the standard assumption that movement is a last resort and movement into an A-position is always Case-driven. If M_p shows up between V and P, it does not absorb Case from P, so that the object of P has its Case checked by P and therefore cannot move.

Second, middle predicates cannot be nominalized, as illustrated in (38). Pesetsky (1995) points out that this observation follows from the existence of the zero-form morpheme M_p attached to the predicate:

- (38) a. *the bureaucrats easy bribery
 b. *the book's easy translation
 (Pesetsky 1995:261)

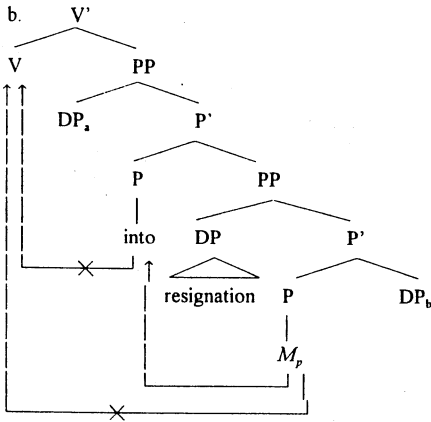
As in the case with $CAUS_p$, the affixation of M_p blocks the further affixation of the nominalizing suffix.

1.3.5. M_p Heads an Adjunct

In 1.3.1. above, I argued that middle sentences must contain an element which does not have phonetic content, and which serves as the source of the responsibility requirement. Suppose now that the zero-form preposition M_p discussed above is this element, and that it has a meaning which can be roughly characterized as "due to (some property of)." This is the type of meaning that is most likely to be assigned to an adjunct. I will now explore this possibility, and demonstrate that it can account for the ill-formedness of middle sentences with an overt internal argument PP or with an overt *by*-phrase.

If M_p heads an adjunct, the PP headed by M_p must be lower than all the internal arguments in Cascade Syntax. The predicate of (39a) then should have the structure in (39b).

- (39) a. *Executives don't persuade into resignation easily.

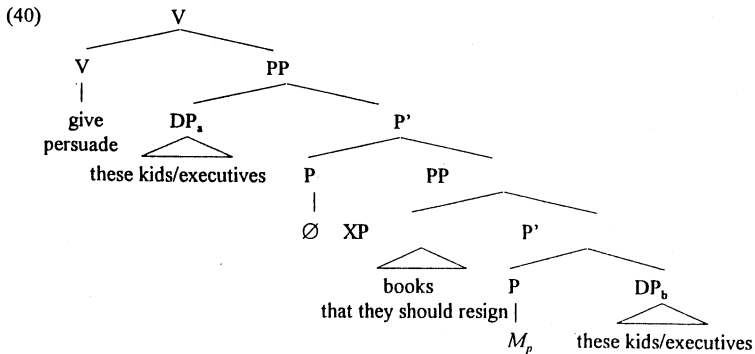


I will come back to the status of DP_a and DP_b . For the moment, it is enough to assume that DP_a can be θ -selected by the verb, and that DP_b can be θ -selected by M_p . Let us now consider M_p . Like $CAUS_p$ discussed in 1.3.3. above, M_p is affixal and must adjoin to the verb, but this movement is blocked by the overt P *into*, which itself is not affixal. Therefore, M_p should be incompatible with internal arguments headed by an overt P. This is exactly what has been observed in (20)-(28).

Middle sentences with an overt agent phrase should have the same configuration as (39b), and thus be ruled out for the same reason: The head movement of M_p is blocked by the intervening *by*. If M_p adjoins to *by* and stops there, the lexical property of M_p that it must be attached to a verb will not be satisfied. If it skips *by* and adjoins directly to the verb, the Head Movement Constraint will be violated. In either case, the derivation is ruled out for a syntactic reason rather than for a semantic reason. The analysis requires no stipulation for the agent in the middle sentences. The incompatibility of a *by*-phrase follows from the assumption that middle sentences involve suppression of the original external argument as in passive sentences and the proposed hypothesis that they contain a zero-form preposition which heads an adjunct.

Before I conclude this subsection, let us consider the status of DP_a and DP_b in the above ill-formed derivation. DP_a serves as an internal argument of V, and DP_b serves as an internal argument of M_p . Both DP positions are necessary to satisfy the θ -selection by the V and M_p . DP_a may not serve as an internal argument of M_p because it is not c-commanded by the zero-form preposition. DP_b , on the other hand, may not serve as an internal argument of V because it does not satisfy the condition in (36b) above: The DP *resignation* is an argument category, is c-commanded by V, and c-commands DP_b .¹⁵ If movement from a θ -position into another θ -position is allowed freely, the DP *executives* should be allowed to move from the position of DP_b to the position of DP_a , and then to the subject position. I assume such movement is not possible for the following two reasons.

First, suppose that DP can move from the position of DP_a to the position of DP_b . Then, in cases where the intervening P is also affixal, the middle construction is expected to be possible. This possibility arises for sentences with double objects as in (20c) and sentences with a CP complement as in (23c), if such sentences have the structure shown in (40).



¹⁵ The condition (iib) in note 14 cannot be used to sanction DP_b as an internal argument of V, since M_p does not θ -select the role θ -selected by the verb.

The observation that (20c) and (23c) are ungrammatical provides a reason to suspect that movement from the position of DP_i to the position of DP_s is not possible.

The second reason to believe that such movement is not possible comes from the discussion to be presented in the following sections. I will argue that movement into a θ -position is not possible if the semantic role licensed in the derived position is a θ -role anchored to event interpretation. Since the case discussed here falls into this category, movement should not be possible if the proposal is on the right track.

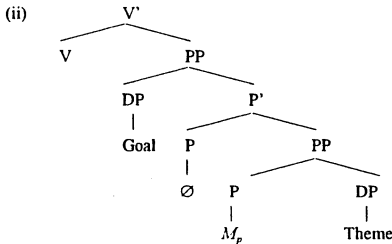
Thus, middle sentences with an internal argument phrase headed by an overt P are ruled out for two reasons. One is that the movement of M_p is blocked by the overt P, and the other is that the movement of DP from the position of the complement to M_p to the position of the complement to the verb is not allowed.¹⁶ Nonetheless, in well-formed middle sentences without an overt internal argument, DP moves from the position within VP, where it has θ -roles licensed by V and M_p , to the subject position, where it has another semantic role licensed by the predicate.

1.3.6. Summary

¹⁶ Consider the following example:

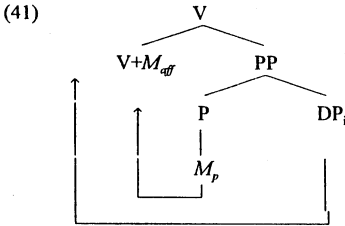
- (i) *Money gives victims of natural disasters easily. (Fagan 1992:79)

According to the proposed analysis, such sentences should be allowed, if they have the following configuration in Cascade syntax:



M_p adjoins to P_∞ , which then adjoins to V. The theme DP should then be allowed to move to the subject position. To exclude this possibility, I assume that M_p absorbs Case from the verb rather than from P_∞ , so that neither the goal DP nor the theme DP will have their Case checked in these positions.

In this section, I have argued that the subject of middle sentences in English moves from one θ -position into another θ -position. It moves from the position of DP in the configuration given in (41), where it serves both as complement to the verb and as complement to the zero-form preposition M_p . It thus has one semantic role licensed by the verb and another licensed by M_p . Since M_p absorbs Case from the verb, the DP moves to [Spec, IP] to have its Case checked. On its way, it enters [Spec, VP], where it has still another semantic role licensed by the middle predicate. The third role is that of the external argument of the middle predicate added by the zero-form affix M_{off} .



2. Unergative Verbs with Reflexive Meaning

I have argued that the subject of English middles moves from a θ -position to another θ -position. In this section, I argue that movement into a θ -position should not be allowed freely.

If UG allows movement into a θ -position freely, the following examples should appear to children to be good candidates for cases with such movement. They would analyze *wash/shave/dress* as always requiring two θ -positions and optionally having accusative Case:

- (42) a. John washed.
 b. John shaved.
 c. John dressed.

The interpretation that the missing object is coreferential with the subject would follow from the movement analysis because the object position and the subject position would necessarily be occupied by the same argument. This possibility is suggested in Lasnik (1995), although nothing he proposes in that article depends on it.

If the above cases involve movement from the object position into the subject position, they should exhibit diagnostics of movement. For example, sentences with these apparently intransitive forms should allow a resultative phrase just as passives, unaccusatives, and middles do. However, the following examples show that they do not:

- | | | | |
|------|----|----------------------------------|--------------------------------|
| (43) | a. | *John washed clean. | cf. John washed himself clean. |
| | b. | *John shaved clean. | cf. John shaved himself clean. |
| (44) | a. | The table has been wiped clean. | (passive) |
| | b. | The bottle broke open. | (unaccusative) |
| | c. | This table wipes clean (easily). | (middle) |

The sentences in (42), therefore, should not be analyzed as involving movement between two θ -positions. Their reflexive interpretation must be lexically specified, rather than being accounted for on the basis of syntactic movement. This is not the simplest analysis one can imagine under the assumption that movement into a θ -position is freely allowed by UG, but it is descriptively more adequate. The simplest analysis is the movement analysis, which is descriptively inadequate. To let children choose the more descriptively adequate lexical analysis over the simpler but descriptively inadequate movement analysis without having access to negative evidence, UG must somehow restrict movement into a θ -position so that the movement into a θ -position will not be allowed in (42).

To summarize the discussion so far, UG must allow movement into a θ -position for the subject of middle sentences but not for the subject of unergative sentences with reflexive interpretation. The θ -criterion as a descriptive generalization then is correct for unergative sentences with reflexive interpretation, but incorrect for middle sentences. In the next section, I will discuss what difference there is between the cases where the θ -criterion holds and cases where it does not, and what guarantees its effects where it holds.

3. Predication Roles and Event-Anchored θ -Roles

3.1. Proposal

The view presented here draws on the distinction between the thematic roles that are anchored to event interpretation and the semantic roles licensed solely by predication.¹⁷ The former, which I call *event-anchored θ -roles*, include thematic roles such as agent, theme, goal, and so on. The latter, which I call *predication roles*, are the roles borne by the external argument of individual-level predicates, typically the role of the bearer of the property described by the predicate.¹⁸ The subject of the unergative *wash* and *shave* in eventive sentences as in (45) bears an event-anchored θ -role of the agent. The subject of middle

¹⁷ An alternative view is found in Baker (1989), in which he suggests the possibility that an argument may not receive more than one θ -role from any given θ -role assigner. I will not discuss this possibility here.

¹⁸ The notion of *predication role* pursued here is slightly different from the role licensed to external arguments in Williams (1980), where some event-anchored roles such as the agent role are assigned through predication.

sentences as in (46), if the above analysis is correct, bears a predication role licensed in the subject position, and bears an event-anchored θ -role of theme licensed in the object position.¹⁹

- (45) John washed, shaved, and put on clean clothes.
 (46) The mayor bribes easily.

Movement into a θ -position is allowed in (46), in which the moved DP enters into a predication relation in the derived position and has a predication role licensed in this position. Movement into a θ -position is *not* allowed in (45), where the moved DP would have the event-anchored θ -role of agent licensed in the derived position. The contrast suggests the following generalization:

- (47) Movement from one θ -position into another θ -position is not possible if an event-anchored θ -role is licensed in both positions.
 Movement from one θ -position into another θ -position is allowed if only a predication role is licensed in the latter position.

In the following subsections, I will present two possible ways this generalization is derived. Both are based on the idea that licensing of event-anchored θ -roles involves checking of some formal features between the argument DP and the verb. (See Lasnik (1998b) and Bošković and Takahashi (1998).) In the following discussion, I will call these features θ -features. I will assume that a single DP may bear two or more event-anchored θ -roles, and that when they do, they bear a θ -feature for each θ -role. DPs thus bear the same number of θ -features as the event-anchored θ -roles they bear.

3.2. Alternative 1: θ -Features as Strong Features

Suppose now that the θ -features on DPs are strong features (at least in English), and must be eliminated (almost) immediately upon its introduction into the phrase marker in order not to lead to cancellation of the derivation. (See Chomsky (1995, Chapter 4) and Lasnik (1998a).) The θ -feature on a DP can be eliminated when it has been checked off against the corresponding feature of the verb. I will call the latter θ -feature of the head without going into its exact nature. An event-anchored θ -role is licensed for a DP when the θ -feature it has for the θ -role is checked off against the θ -feature of the head.²⁰

¹⁹ I am assuming that this DP also bears an event-anchored θ -role licensed by the zero-form preposition discussed above. As I mentioned above, this licensing is done in the following configuration, in which the DP serves both as complement to the verb and as complement to the preposition:

(i) ... [V [P DP]]

²⁰ I assume that DPs enter into derivation along with their Case features, which are then checked against the Case feature of an appropriate head category. That is, Case is not assigned to DPs by a Case-assigner. Therefore, even if Case is a visibility condition of θ -role licensing, Case-checking is not required

As a result, it follows that argument DPs must have their event-anchored θ -role(s) licensed in the first possible position for θ -checking, or the derivation will be canceled. Movement into a θ -position with an event-anchored θ -role is, therefore, ruled out. This successfully excludes the incorrect movement analysis of unergatives with reflexive interpretation discussed above. According to the movement analysis, DP enters into derivation with a θ -feature for the theme role and a θ -feature for the agent role. The θ -feature for the theme role can be checked off in the object position, and the theme role is licensed. The θ -feature for the agent role, however, must also be checked off in this position. If it is not, the derivation will be canceled. If it is, the DP can move into the subject position, the position where the agent role should be licensed. The agent role, however, cannot be licensed in this position because the DP does not bear a θ -feature that can be checked off against the θ -feature of the head.

Predication, by assumption, does not involve the checking of such features. DPs that enter into a predication relation do not need a θ -feature. Therefore, a DP that has had its θ -feature(s) checked off in its original position may move into another position to enter into the predication relation with a predicate.

The notion of strong features has been proposed in previous literature to account for cases where overt movement takes place. When viewed as an element that derivation cannot tolerate, a strong feature on the head (e.g., the EPP-feature) triggers overt movement into its Spec. (See Chomsky (1995).) On the same conception, a strong θ -feature on an argument DP ensures that the DP has its event-anchored θ -role(s) licensed in the first possible position. The hypothesis that θ -features are strong derives part of the effects that were attributed to the θ -criterion in Chomsky (1981), namely that an argument DP may have its θ -role(s) licensed in only one position, in fact, in the position of the tail of its chain. The θ -criterion does not need to be stipulated in the system of grammar without D-structure. In addition, it follows that the requirement is now limited to event-anchored θ -roles, the semantic roles licensed by predication being exempt from it.

3.3. Alternative 2: θ -Features as Relational Properties

The second possibility presented here does not rely on the notion of feature strength proposed in Chomsky (1995). It pursues the view that θ -features are features that need to be interpreted, rather than to be eliminated.

Event-anchored θ -roles are relational notions. For example, there is no agent or theme in isolation. An agent is the agent of an action. A theme is the theme of a change of state/location. The notions of event-anchored θ -roles make sense only if the argument is related to the head denoting 'the event. This consideration suggests that the θ -feature that an

to take place prior to the checking of θ -features.

argument phrase bears for an event-anchored θ -role becomes [+Interpretable] only if the DP has entered into a checking relation with the head.

Suppose now that the outputs of syntactic operations are sent to the LF-component cyclically, as argued, for example, by Higginbotham (1995). When an argument DP is merged with a verb, the result is sent to the LF-component before it is merged with another element (or at least before the DP has a chance to move into another position). It then follows that the θ -feature of a DP must be checked as soon as the DP is introduced in the derivation.

For example, consider the movement analysis of the unergatives with reflexive interpretation again. The DP enters the derivation with [theme] and [agent], and merges with the verb. The θ -feature of [theme] is immediately related to the event argument of the verb, but the configuration is not appropriate for checking the θ -feature of [agent] against the verb.²¹ Therefore, the θ -feature of [agent] remains [-Interpretable] when the DP together with the verb is sent to the LF-component. The derivation is ruled out before the DP has a chance to move into the subject position to have the agent feature related to the verb.

The θ -criterion, in this case, follows from the conception of event-anchored θ -roles and cyclic interpretation. The predication role is again exempt because the argument DP does not bear a θ -feature that needs to be related to an event-bearing head.

3.4. Consequences

Finally, let us consider some of the consequences that the two alternatives have. First, from the basic idea outlined in 3.1 that licensing of predication roles does not involve checking of θ -features, it follows that a predication role may or may not be an extra; an argument DP may bear a predication role in addition to its event-anchored θ -role(s) or it may bear a predication role without bearing an event-anchored θ -role. In the former case the DP bears a θ -feature for each event-anchored θ -role it bears. In the latter case, the DP bears no θ -feature. I have argued that the subject of middle sentences bears both a predication role and event-anchored θ -roles. Other candidates for cases with a DP bearing both a predication role and an event-anchored θ -role include the subject of sentences with deontic modals (Bošković (1994)) and the subject of some passive sentences in Japanese and *get*-passives in English (Lasnik and Fiengo (1974), Kuroda (1979), Hoshi (1991, 1994)). Some possible cases where an argument DP bears a predication role without any event-anchored θ -role(s) include the subject of *tough*-sentences in English (Partee (1971), Chomsky (1981:309)), the so-called major subjects (the subjects preceding another subject in a single clause) in Japanese (Kuno

²¹ One can assume, for example, that checking of the agent feature requires the existence of a higher v, as proposed by Hale and Keyser (1993).

(1973), Saito (1982)), and the subject of indirect passives in Japanese (Kuroda (1965, 1979), Washio (1989-90, 1995)).²²

The two alternatives have different consequences as well. While the first alternative does not allow any event-anchored θ -role to be licensed in a derived position, the second alternative allows one case in which a DP moves into a θ -position where an event-anchored θ -role is licensed. Namely, movement into a θ -position should be possible if the event-anchored θ -role licensed in the derived position is the same role that is licensed in the base position. Such a possibility has been proposed by Pesetsky (1995) for object-experiencer predicates. His analysis, therefore, is compatible with the second alternative but not with the first alternative.

On the other hand, the first alternative allows the possibility that θ -features are weak in some other languages. Such a possibility has already been explored by Bošković and Takahashi (1998) for analyzing scrambling in Japanese. If θ -features are weak in a language, it is expected to allow resultatives with unergative verbs with reflexive interpretation. That is, examples like *John washed/shaved clean* are expected to be grammatical in such a language.

²² Another possible consequence of the idea proposed here is that external arguments may have their semantic role licensed in different positions depending on the type of the role involved. For an argument DP to bear an event-anchored θ -role, it must occupy a position within a VP (or an eventive AP) because it must have its θ -feature checked against the θ -feature of the head. For an argument DP to bear a predication role, on the other hand, it only needs to be in a configuration where a predication relation can be established. Williams (1980) argues that predication is possible between an argument NP (= DP in this article) and its sister constituent. On the assumption that all branching nodes are binary, his condition taken literally restricts predication to the following configuration:

- (i) $[_\alpha \text{ DP VP/AP}]$

α in this configuration will necessarily be a projection of DP or VP/AP. Therefore, if Williams's condition is literally carried over to the system where all branching nodes are binary, predication roles, as well as event-anchored θ -roles, will be licensed within the predicate phrase. On the other hand, suppose that predication is possible in the following configuration where F is some functional category (e.g., INFL):

- (ii) $[_{FP} \text{ DP [F VP/AP]}]$

Then, an argument DP need not be within VP/AP in order to have its predication role licensed. This potential difference between event-anchored θ -roles and predication roles may lead to a motivation for the hypothesis, advocated by Diesing (1988) and Kratzer (1989), that the subject of a stage-level predicate originates in VP/AP, while the subject of an individual-level predicate is base-generated in [Spec, IP]. The subject of a stage-level predicate must occupy [Spec, VP/A] to have its event-anchored θ -role licensed via checking of its θ -feature against the θ -feature of the head V/A. The subject of an individual-level predicate does not have a θ -feature, and therefore does not need to enter into a checking relation with the head V/A.

The validity of these consequences remains to be examined. The choice between the two alternatives, as is clear from the above discussion, requires careful examination of various constructions across languages.

References

- Baker, Mark C. 1988. *Incorporation*. Chicago, Ill.: University of Chicago Press.
- Baker, Mark C. 1989. Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20:513-553.
- Bošković, Željko. 1994. D-structure, *theta*-criterion, and movement into *theta*-positions. *Linguistic Analysis* 24:247-286.
- Bošković, Željko and Daiko Takahashi. 1998. Scrambling and last resort. *Linguistic Inquiry* 29:347-366.
- Carrier, Jill and Janet H. Randall. 1992. The argument structure and syntactic structure of resultatives. *Linguistic Inquiry* 23:173-234.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Condoravdi, Cleo. 1989. The middle: Where semantics and morphology meet. *MITWPL* 11, 16-30.
- Diesing, Molly. 1988. Bare plural subjects and the stage/individual contrast. In *Genericity in natural language: Proceedings of 1988 Tübingen Conference*, ed. Manfred Krifka, 107-154. Seminar für Natürlich-sprachliche Systeme der Universität Tübingen.
- Endo, Yoshio. 1986. A constraint on English activo-passives. *Tsukuba English Studies* 5:107-121, University of Tsukuba.
- Fagan, Sarah M. B. 1988. The English middle. *Linguistic Inquiry* 19:181-203.
- Fagan, Sarah M. B. 1992. *The Syntax and semantics of middle constructions*. Cambridge: Cambridge University Press.
- Fellbaum, Christiane. 1986. On the middle construction in English. Indiana University Linguistics Club, Bloomington, Ind.
- Hale, Ken and Jay Keyser. 1987. A view from the middle." *Lexicon project working papers* 10. Center for Cognitive Science, MIT, Cambridge, Mass.
- Hale, Ken and Samuel Jay Keyser. 1988. Explaining and constraining the English middle. In *Studies in Generative approaches to aspect: Lexicon Project working papers* 24, 41-57. Center for Cognitive Science, MIT, Cambridge, Mass.
- Hale, Kenneth and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The View from Building 20*, ed. Kenneth Hale and Samuel Jay Keyser, 53-109. Cambridge, Mass.: MIT Press.
- Higginbotham, James. 1995. Semantic computation. Ms., Somerville College, Oxford.
- Hornstein, Norbert. 1997. Movement and control. To appear in *Linguistic Inquiry*.
- Hoshi, Hiroto. 1991. The generalized projection principle and its implications for passive constructions. *Journal of Japanese Linguistics* 13:53-89.
- Hoshi, Hiroto. 1994. *Theta*-role assignment, passivization, and excorporation. *Journal of East Asian Linguistics* 3:147-178.

- Kawasaki, Noriko. 1999. Two types of semantic roles and movement into a *theta*-position. *Essays and Studies* 49:2. Tokyo Woman's Christian University.
- Keyser, Samuel Jay and Thomas Roeper. 1984. On the middle and ergative constructions in English. *Linguistic Inquiry* 15:381-416.
- Keyser, Samuel Jay and Thomas Roeper. 1992. Re: The abstract clitic hypothesis. *Linguistic Inquiry* 23:89-125.
- Kratzer, Angelika. 1989. Stage-level individual-level predicates. In *Papers on quantification*. NSF Grant Report BNS 8719999, Department of Linguistics, University of Massachusetts, Amherst. [Reprinted in *The Generic Book*, ed. Gregory N. Carlson & Francis Jeffrey Pelletier, 125-275. Chicago, Ill.: University of Chicago Press, 1995.]
- Kuno, Susumu. 1973. *The structure of the Japanese language*. Cambridge, Mass.: MIT Press.
- Kuroda, S.-Y. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, MIT, Cambridge, Mass.
- Kuroda, Shige-Yuki. 1979. On Japanese Passives. In *Explorations in linguistics: Papers in honor of Kazuko Inoue*, ed. George Bedell, Eichi Kobayashi, and Masatake Muraki, 305-347. Tokyo: Kenkyusha.
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:33-91.
- Lasnik, Howard. 1995. Last resort. In *Minimalism and linguistic theory*, ed. Shosuke Haraguchi and Michio Funaki, 1-32. Tokyo: Hituzu Syobo.
- Lasnik, Howard. 1998a. On feature strength: Three Minimalist approaches to overt movement. To appear in *Linguistic Inquiry*.
- Lasnik, Howard. 1998b. Pseudogapping puzzles. To appear in *Fragments: Studies in ellipsis and gapping*, ed. Shalom Lappin and Elabbas Benmamoun. New York: Oxford University Press.
- Lasnik, Howard and Robert Fiengo. 1974. Complement object deletion. *Linguistic Inquiry* 5:535-571.
- Levin, Beth and Malka Rappaport. 1986. The formation of adjectival passives. *Linguistic Inquiry* 17:623-661.
- Levin, Beth and Malka Rappaport. 1988. Nonevent *-er* nominals: A probe into argument structure. *Linguistics* 26:1067-83.
- Levin B. and M. Rappaport Hovav. 1995. *Unaccusativity: At the syntax lexical semantics interface*. Cambridge, Mass.: MIT Press.
- Partee, Barbara Hall. 1971. On the requirement that transformations preserve meaning. In *Studies in Linguistic Semantics*, ed. Charles J. Fillmore and Terence Langendoen, 1-21. New York: Holt, Rinehart and Winston.
- Pesetsky, David. 1995. *Zero syntax: Experiencers and cascades*. Cambridge, Mass.: MIT Press.
- Rappaport Hovav, Malka and Beth Levin. 1992. *-er* nominals: Implications for the theory of argument structure. In *Syntax and semantics 26: Syntax and the lexicon*, ed. Tim Stowell and Eric Wehrli, 127-53. San Diego, Calif.: Academic Press.
- Roberts, Ian. 1986. *The representation of implicit and dethematized subjects*. Dordrecht: Foris.

- Saito, Mamoru. 1982. Case marking in Japanese: A preliminary study. Ms., MIT, Cambridge, Mass.
- Stroik, Thomas. 1992. Middles and movement. *Linguistic Inquiry* 23:127-137.
- Tenny, Carol. 1992. The aspectual interface hypothesis. In *Lexical Matters*, ed. Ivan A. Sag and Anna Szabolcsi, 1-27. Stanford, Calif.: CSLI.
- Travis, Lisa. 1984. Parameters and effects of word order variation. Doctoral dissertation, MIT, Cambridge, Mass.
- Van Oosten, Jeanne. 1977. Subjects and agenthood in English. In *Papers from the Thirteenth Regional Meeting*, 459-471. Chicago Linguistic Society, University of Chicago, Chicago, Ill.
- Van Oosten, Jeanne. 1986. The nature of subjects, topics and agents: A cognitive explanation. Indiana University Linguistics Club, Bloomington, Ind.
- Washio, Ryuichi. 1989-90. The Japanese passive. *The Linguistic Review* 6:227-268.
- Washio, Ryuichi. 1995. *Interpreting voice: A case study in lexical semantics*. Tokyo: Kaitakusha.
- Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11:203-238.
- Zribi-Hertz, Anne. 1993. On Stroik's analysis of English middle constructions. *Linguistic Inquiry* 24:583-589.

Department of Languages
Tokyo Woman's Christian University
2-6-1 Zempukujji, Suginami-ku
Tokyo 167-8585
Japan

nkawasak@twcu.ac.jp