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Semantic Relations between Transitive/Intransitive Pairs in Japanese

Toru Matsuzaki

1. Introduction

The objective of the present paper is to propose that the semantics of transitive/intransitive pairs in general deserve more careful examination and, in so doing, less emphasis be placed on the role of derivational morphology, which has been intensely discussed in relation to the Japanese transitive/intransitive pairs. The transitive/intransitive verb pair is represented either by a single verb which is alternately used transitively and intransitively (e.g., English break) or by a pair of morphologically related verbs (e.g., Japanese war-/ware- ‘break, break’) which describe a transitive and intransitive situation, respectively. It has been noted that the English transitive/intransitive alternation is essentially a process of preserving the meaning of the verb stem between the transitive/intransitive pair (Hapselfmath 1993:90). The only semantic change involved in the process is the addition of the semantic primitive CAUSE to the intransitive in the case of causativization (Guerssel et al. 1985:54–55) or the deletion of CAUSE from the transitive in the case of anticausativization (Zubizarreta 1987:87–88). In Lexical Conceptual Structure, the transitive/intransitive alternation of break will be illustrated as follows (cf. Guerssel et al. 1985:54–55):

(1) Intransitive break: y BECOME BROKEN

Transitive break: x CAUSE [y BECOME BROKEN]
Crucially, it is assumed that no semantic change occurs to the constant BROKEN per se whether in the transitive or in the intransitive.

Similarly, the transitive/intransitive pairs in Japanese represent a meaning-preserving process. The pair war-/ware- as in Taroo ga mado o wat−ta (< war−+ta) ‘Taro broke the window’ and Mado ga ware ta ‘The window broke,’ for instance, preserve the fundamental meaning of the verb stem war− (i.e., ‘the fracturing of a fragile object’). Like the English break, the only noticeable difference between the pair is whether or not the semantic feature CAUSE is involved. It is interesting to notice, therefore, that a number of transitive/intransitive pairs in Japanese lack such a fundamental semantic link as observed in war−/ware−. For instance, the alternation between kome− ‘fill (as in ‘fill a gun with bullets’)’ and kom− ‘become crowded’ apparently involves further semantic changes aside from the addition or deletion of CAUSE (henceforth I call semantically inconsistent pairs like kome−/kom− ‘opaque’ as opposed to semantically close-related ones like war−/ware− ‘transparent’).

The subsequent discussion consists of two parts. The first part investigates semantic relations between Japanese transitive/intransitive pairs. Given a substantial number of opaque transitive/intransitive pairs in Japanese, I propose that Jacobsen’s list of transitive/intransitive pairs be divided into two groups: the first group includes pairs whose semantic relationships are transparent and the second group includes pairs whose semantic relationships are opaque. In support of my proposal, I rely in part on the dichotomy of the Dynamic Lexicon and Static Lexicon proposed by Fagan (1988). In the second part, I argue that transparent transitive/intransitive pairs are derived at the level of morphology, which is positioned hierarchically after syntax following the framework of Distributed Morphology by Halle and Marantz (1993). This post-lexical view of transpar-
ent transitive/intransitive pairs is reflected in my other claim that opaque transitive/intransitive pairs are listed in the permanent lexicon.

2. Semantic Relations between Japanese Transitive/intransitive pairs

One main goal of previous work on Japanese transitive/intransitive pairs has been to classify the pairs based on their suffixal patterns. Most recently, Jacobsen (1992) conducts an extensive analysis of them, classifying 341 transitivity transitive/intransitive pairs into sixteen classes according to suffixal forms.

(2)  

I  -e/-φ-  warE/-war- “break\textsubscript{in}/break\textsubscript{tr}”
II -φ/-e-  ak/-ake- “open\textsubscript{in}/open\textsubscript{tr}”
III -ar/-e-  agar/-age- “rise/raise”
IV -ar/-φ-  hasamar/-hasam- “become caught between/put between”
V  -r/-s-  amar/-amas- “remain/let remain”
VI -re/-s-  araware/-arawas- “appear/show”
VII -ri/-s-  kariri/-kas- “borrow/lend”
VIII -φ/-as-  kawak/-kawkas- “dry\textsubscript{in}/dry\textsubscript{tr}”
IX -e/-as-  toke/-tokas- “melt\textsubscript{in}/melt\textsubscript{tr}”
X  -i/-as-  nobi/-nobas- “become extended/extend”
XI -i/-os-  otiri/-otos- “fall/drop”
XII -φ/-se-  abi/-abise- “pour (over oneself)/pour (over someone else)”
XIII -e/-akas- obi/-obiykas- “become frightened at/frighten”
XIV -or/-e-  nukumor/-nukume- “become warm/warm\textsubscript{tr} up”
XV -are/-e-  wakare/-wake- “become divided/divide”
Others mazir-/mazer- “become mixed/mix with”

It is worth noting that while paying extra attention to the derivational patterns of the transitive/intransitive pairs, Jacobsen seems less concerned with semantic relationships between the pairs. In fact, Jacobsen’s list contains a number of pairs whose semantic links seem more or less obscure. Compare the transitive/intransitive pairs war-/ware- ‘break\(_{vi}\)/break\(_{vi}\)’ and sute-/sutar- ‘throw out/fall into disuse.’ As mentioned above, the semantic relationship between war- and ware- is fairly straightforward, no semantic change being observed in the verb stem war-. By contrast, any native speaker would hardly agree that such semantic coherence exists between the pair sute-/sutar-.

(3) a. Taroo ga gomi o sute ta.
   Taro NOM garbage ACC throw away PAST †
   ‘Taro threw out the garbage.’

b. Sono boosi wa tokku ni sutare te iru.
   the hat TOP long ago go out of fashion ASP
   ‘The hat went out of fashion long ago.’

Other examples that reflect such semantic opaqueness between transitive/intransitive pairs follow.

(4) INTRANSITIVE TRANSITIVE
    tar- ‘suffice’
    hate- ‘come to an end’
    kom- ‘become crowded’
    tas- ‘add, supplement’
    hatas- ‘carry out’
    kome- ‘fill with’

† The following abbreviations are used in the present study: ACC= accusative particle, ASP= te-iru aspect marker, NOM= nominative particle, PAST= past tense marker, TOP= topic particle.
tazusawar− ‘participate in’  tazusae− ‘carry on one’s body’  
hagem− ‘be diligent in’  hagemas− ‘encourage’

From the glosses attached to the pairs, it is likely that Jacobsen himself might have recognized the semantic disparity. Nevertheless, no mention of such disparity is made in Jacobsen’s 1992 work.

Interestingly enough, semantically tenuous pairs tend to lack a transitive-object and intransitive-subject correlation which is typical of the transitive/intransitive alternation. For instance, hatas− would not alternate with its intransitive counterpart hate− if the object of the transitive were to correspond to the subject of the intransitive.

(5)  a. Taroo wa sono yakusoku o hatasi ta.
    Taro TOP the promise ACC fulfill PAST
    ‘Taro fulfilled his promise.’

   b. *Sono yakusoku ga hate ta.
     the promise NOM come to an end PAST
     ‘The promise came to an end.’

In light of the semantic discrepancies between Japanese transitive/intransitive pairs as described above, I reanalyzed Jacobsen’s list of 341 morphological pairs. As a consequence, I found that sixty-eight pairs show certain degree of semantic divergence between the verb stems, resulting in semantic opaqueness between the pairs.

Given such semantically opaque pairs, the question that remains to be addressed is how we should characterize those pairs in terms of level of derivation, particularly in contrast to semantically transparent pairs. To approach this issue, I propose to adopt Fagan’s (1988) idea of dichotomous levels (i.e., Dynamic versus Static) of the lexicon to Japanese transitive/intransitive pairs. In her work on English middle constructions, Fagan
(1988) briefly mentions diachronic transitive/intransitive pairs such as fall/fell and lie/lay, suggesting that such pairs be considered to constitute what she calls the Static Lexicon. This is in contrast to the Dynamic Lexicon, which consists of a majority of transitive/intransitive pairs like break or centralize. The distinction between the Static Lexicon and the Dynamic Lexicon, according to Fagan, lies in productivity. Specifically, break or centralize are considered productive in that they undergo the productive Transitive/Intransitive Formation, which is characterized by the presence of the feature [+causative] in the transitive sense (cf. Keyser and Roepner 1984). For instance the Transitive/Intransitive Formation of centralize is represented as follows:

(6)  a. We centralized the department.
     [+causative]
     b. The department centralized.

While I basically agree with Fagan regarding the idea of recognizing dual levels of the lexicon for transitive/intransitive pairs, I propose that the standard for distinguishing the two different lexicons has more to do with semantic relations between the pairs. Notice that the examples of diachronic transitive/intransitive pairs given by Fagan (fell/fall, lay/lie, raise/rose) are observed in many cases to be remotely related in terms of meaning. This is illustrated by the fact that the pairs are often used in different contexts.

(7)  a. Tom raised the children.
     b. The children rose.

Note that the transitive raise and its intransitive counterpart rise are used in different contexts: raise in (7a) refers to Tom’s act of nurturing the
children, while *rise* in (7b) means the children’s act of standing up. The same is true of the other static pairs *lay*/*lie* and *fell*/*fall*.

Following Fagan, I propose that semantically remote pairs in Japanese be categorized in the Static Lexicon. Furthermore, I argue that the pairs classified in the Static Lexicon are no longer considered transitive/intransitive pairs. Rather, while they might follow derivation patterns characteristic of transitive/intransitive pairs in general, each member of the pairs is a genuinely separate lexical item.

**3. Lexicalist View of Japanese Transitive/Intransitive Pairs**

One conclusion that Jacobson draws from his analysis is that the derivational oppositions between transitive/intransitive pairs in Japanese are

“not productive—one cannot, given an intransitive form, simply create its transitive counterpart, or vice versa, through a set rule of suffixation.” (Jacobsen 1992:56)

Lack of productivity, in other words, implies that native speakers are unable to systematically turn intransitives into transitives or vice versa when needs arise. For instance, if native speakers were given a hypothetical transitive verb *hamak-* , they would never reach an agreement as to whether *hamak-e* (Class I) or *hamak-ar* (Class IV) should be the appropriate intransitive form in accordance with the aforementioned classes in (2).

Furthermore, Jacobsen points out that the shape of a verb constituting an transitive/intransitive pair does not tell us whether the verb is transitive or intransitive. To illustrate this point, Jacobsen discusses a hypothetical transitive/intransitive pair *harik-*/*harike-. Given that *-e* can be either an intransitivizing (Class I) or a transitivizing (Class II) suffix, there is simply
no telling which form of the pair is transitive or intransitive (Jacobsen 1992: 57). In the same vein, the transitivity of my hypothetical form hamak-, when paired with hamak-e, would simply become unpredictable if no information about the transitivity status of hamak- were provided. Thus, given the productivity and predictability just described, Jacobsen concludes that ‘(E)ach member of a transitive/intransitive pair needs to be memorized as a separate lexical item’ (1992:56).

I argue that Jacobsen’s lexicalist approach to Japanese transitive/intransitive pairs is somewhat an overgeneralization for reasons that follow. Firstly, the lack of productivity does not necessarily characterize the entire Japanese transitive/intransitive pairs. Nishio (1954) points out that the intransitivizing suffix -ar in Jacobsen’s Class III pattern -ar/-e has been comparatively productive throughout the history of Japanese, including modern Japanese. According to Nishio, for example, the first use of the transitive uke- ‘take (an exam)’ dates back to the eighth century, whereas the intransitive counterpart ukar- ‘pass (an exam)’ was not listed in a dictionary until the middle of the twentieth century. Nishio adds similar pairs of verbs in which the intransitives are those of much newer coinage (1954:43).

(8) TRANSITIVE INTERACTIVE
    tutome- ‘play the role of’ tutomar- ‘be fit for the role of’
    make- ‘give a discount’ makar- ‘get a discount’
    iituke- ‘tell (someone) to do’ iitukar- ‘be told to do’
Furthermore, Nishio claims that nonce transitive/intransitive pairs like
sirabe-/sirabar- ‘consult (a dictionary)/get consulted’ and iker-/ikar- ‘arrange (flowers)/get arranged’ seem acceptable to native speakers due to the productivity of -ar. These examples apparently serve as evidence that

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-e, has been productive in modern Japanese.

Secondly, as Jacobsen himself admits, the unpredictability of transitivity associated with transitive/intransitive pairs does not apply to all cases; on the contrary, the transitivity of the transitive/intransitive pair is predictable in many cases from its suffixal forms. This view would be supported by the fact that the suffixes -se, -os, and -as invariably represent transitive members of transitive/intransitive pairs (cf. Jacobsen 1992:57).

(9)  a. -se:
    abi-se- “pour (over someone else)” (cf. abi- “pour (over oneself”) 
    ki-se- “put on (someone else’s) body” (cf. ki- “put on (one’s own) body”) 
    neka-se- “put to bed” (cf. ne- “go to bed”) 

b. -os:
    ok-os- ‘wake up’ (cf. ok-i- “get up_in”) 
    mod-os- “return_in” (cf. mod-or- “return_in”) 
    yog-os- “soil” (cf. yogo-re- “become dirty”) 

c. -as:
    hit-as- “soak_tr in” (cf. hit-ar- “soak_in in”) 
    maw-as- “turn_tr” (cf. maw-ar- “turn_in”) 
    kow-as- “break_tr” (cf. kow-are- “break_in”) 

In fact, the consonant -s- does appear to represent the transitive status of the verb. Nine out of Jacobsen’s sixteen classes consist of transitive members which contain s as a component of the suffix. By the same token, the consonant -r- is more likely to be associated with the intransitive status of the verb. Again, the intransitive members of seven classes contain -r- as a component of the suffix (Jacobsen 1992:59; cf. Nishiyama 1998, 2000). The evidence of
partial productivity and predictability just described suggests the possibility of a non-lexicalist view of transitive/intransitive pairs in Japanese. In the next section, I review lexicalist and non-lexicalist views of English transitive/intransitive pairs, seeking to find out whether they might help us determine the derivational characteristic of Japanese transitive/intransitive pairs.

4. Lexical versus Non-Lexical Derivations

Keyser and Roper (1984) address the question of whether the transitive/intransitive pairs are derived in the lexicon or in the syntax. Under the theory of generative grammar, Keyser and Roper propose that intransitives are derived from their transitive counterparts in the lexicon by virtue of the so-called Ergative Rule (1984:402). The tenet of their Ergative Rule is that Move $\alpha$, which is normally applied to passives and middles at the syntactic level, is considered to be valid at the lexical level as well in ergative formation. Keyser and Roeper maintain that the lexical nature of intransitives can be corroborated by the fact that they are eligible for the lexical rule of Compound Formation. This contrasts with the fact that the same compound formation is not applicable to syntactically-derived middles (1984:391-2).

(40)

a. The boat sinks fast $\rightarrow$ the fast-sinking boat

b. Bureaucrats bribe easily $\rightarrow$ *easily-bribing bureaucrats

The view of lexical Move $\alpha$ does not necessarily receive unanimous support. Some simply view the transitive/intransitive alternation as a result of syntactic projection of a lexical item. On this view, no movement of arguments occurs at either lexical or syntactic level; instead, it is how each argument is linked to surface grammatical positions that determines the transitivity of a verb. For instance, Manzini (1992) posits that transitive/
intransitive pairs are provided with two thematic-roles in the lexical representation: one is of an obligatory internal–thematic role and the other is of an optional external thematic–role. According to Manzini, the verb *sink*, for instance, is schematized as follows:

(11) *sink*: (ext. θ); int. θ  (Manzini 1992:287)

Crucially, the distinction between the obligatory internal argument and the optional external argument is registered ‘uniquely at the lexicon’ (Manzini 1992:287). It is simply the optional representation of the external thematic–role in the syntax, Manzini maintains, that results in the transitive/intransitive alternation of *sink*.

Schlesinger (1995), on the other hand, recognizes two distinct lexical subentries for the transitive/intransitive pair, listing each member in the lexicon along with its co–occurring arguments such as Agent and Theme. Under the assumption of multiple lexical subentries, it is postulated that verbs participating in the transitive/intransitive alternation are provided with two separate lexical subentries, one for a transitive alternant and the other for an intransitive alternant. For instance, the lexical entry for *open* is assumed to consist of two subentries, as illustrated below:

(12) *open*₂: one core argument with role of “thing that opens”;
    features: CONTROL
    one core argument with role of “thing that is opened”;
    feature CHANGE.

*open*₁: a single core argument with role of “opener”;
    features: CAUSE and CONTROL

(Schlesinger 1995:49)

Despite the differing views of how the transitive/intransitive pair is generat-
ed and represented, the analyses portrayed above are identical in essence: the distinction between transitive and intransitive is uniquely registered in the lexicon.

Hale and Keyser (1993) discuss the level of derivation involved in the transitive/intransitive alternation in a different light. One of their constant theses is that argument structure, which they refer to as lexical argument structure, is syntactic (1993:55). Building on this principle, Hale and Keyser utilize conventional syntactic tree diagrams, portraying the derivations of various types of verbs such as location verbs and transitive/intransitive verbs. For instance, the fundamental representation of the de-adjectival verb thin as in The gravy thins is diagrammed in a complex VP structure consisting of an inner VP and an outer vP, as illustrated below (adapted from Hale and Keyser 1993:79):

\[
\begin{array}{c}
(13) \\
\text{DP} \\
\text{vP} \\
\text{v} \\
\text{v'} \\
\text{VP} \\
\text{DP} \\
\text{(the gravy)} \\
\text{V} \\
\text{v'} \\
\text{AP} \\
\text{thin}
\end{array}
\]

On Hale and Keyser’ terms, the verbal use of thin is first derived from its original adjective use by way of the process of conflation in accordance with head movement (1993:80). Following conflation, it is the behavior of the DP gravy within l-syntax that determines the transitivity of the de-adjectival verb thin. Accordingly, the intransitive use of thin, which requires no external argument in [vP, DP], involves movement of gravy to that position, while the derived verb thin remains in situ, as diagrammed below.

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(adapted from Hale and Keyser 1993:79):

(14) 

\[
\begin{array}{c}
\text{DP} \\
\text{DP} \\
\text{(the gravy)} \\
\end{array} \quad \begin{array}{c}
v \\
v' \quad \text{vP} \\
\text{DP} \quad \text{VP} \\
\text{t}_j \quad V \quad \text{AP} \\
\text{(thin)} \quad t_i \\
\end{array}
\]

With the processes of conflation and movement, intransitive constructions (e.g. *The gravy is thinning nicely*) and middles (e.g. *The gravy thins easily*) obtain.

On the other hand, the transitive use of *thin* as in *the cook thinned the gravy* involves no movement of the DP *gravy*. This is because the specifier of vP is occupied with the external agent *cook*. Consequently, only the derived verb *thin* undergoes movement; specifically, to acquire a causative meaning, it moves to the outer vP, which is a null causative light verb identical in meaning to the causative verb *make*.

(15) 

\[
\begin{array}{c}
\text{DP} \\
\text{DP} \\
\text{(the cook)} \\
\end{array} \quad \begin{array}{c}
v \\
v' \quad \text{vP} \\
\text{DP} \quad \text{VP} \\
\text{(thin)} \quad V \quad \text{AP} \\
\text{t}_j \quad t_i \\
\end{array} \\
\text{(the gravy)} \\
\]

(adapted from Hale and Keyser 1993: 72)

In the next section, I approach the Japanese transitive/intransitive pairs
from the same lexical vs. non-lexical angle. I propose that the two levels of derivation (i.e. lexical vs. non-lexical) described above be recognized for Japanese transitive/intransitive pairs, and that it is semantic correlation rather than morphological correspondence that determines the derivational nature of each transitive/intransitive pair in Japanese.

5. Dichotomous View of Japanese Transitive/Intransitive Pairs

It is a well-known fact that Japanese has a highly productive causativizing suffix -(s)ase, which can attach to any type of verb to create a causative meaning equivalent to the English ‘cause someone/something to do (something)’ construction. It has been noticed in the literature that there are numerous cases where -(s)ase causative predicates have non-literal or idiomatic meanings which have little or no association with those of the underived bases (Miyagawa 1989, 1998). In order to depict the process of idiomatization associated with -(s)ase causative forms, Miyagawa (1989) adopts a lexical entry called Paradigmatic Structure (PDS). In Miyagawa’s terms, PDS is the mental device that ‘organize [s] verbs in the lexicon according to their meaning and the number of arguments that they take’ (1989:117). PDS consists of three slots, that is: intransitive(=INTR), transitive(=TR), and ditransitive(=DITR), as shown below (Miyagawa 1980: 109):

\[
\begin{array}{|c|c|c|}
\hline
\text{INTR} & \text{TR} & \text{DITR} \\
\hline
\end{array}
\]

Miyagawa (1980, 1989) proposes to utilize PDS to account for the emergence of idiomatic meaning associated with -(s)ase derivatives. Based on the notion ‘blocking’ (Aronoff 1976), Miyagawa posits two possible PDSs
for -(s)ase causative predicates, one for the blocked -(s)ase and the other
for the unblocked -(s)ase, as illustrated in (17) and (18) respectively.

\[
\begin{array}{ccc}
\text{INTR} & \text{TR} & \text{DITR} \\
\text{Vi-stem} & \text{Vt-stem} & \text{Vi-stem} + (s)ase \\
\end{array}
\]

(17)

The first PDS illustrates that the derived -(s)ase predicate, being blocked
by a pre-existing transitive stem, cannot enter into the permanent lexicon.
For instance, the causative form agar-ase ‘cause to rise’ derived from the
intransitive stem agar- ‘rise’ cannot enter into the permanent lexicon of the
PDS since the transitive stem age- ‘raise’ already occupies the transitive
slot, as illustrated below (Miyagawa 1989:121).

\[
\begin{array}{ccc}
\text{INTR} & \text{TR} & \text{DITR} \\
\text{Vi-stem} & \text{Vi-stem} + (s)ase \\
\end{array}
\]

(18)

By contrast, the second PDS indicates that the -(s)ase derivative enters
into the permanent lexicon since it is not blocked by a transitive stem. It is
the unblocked -(s)ase derivative, in Miyagawa’s view, that takes on an
idiomatic meaning. Thus, the PDS of niow- ‘smell,’ which lacks a transitive
stem, incorporates the causative derivative niow-ase into the permanent
lexicon, allowing it to have the idiomatic meaning ‘hint’ (Miyagawa 1989:
124).

\[
\begin{array}{ccc}
\text{INTR} & \text{TR} & \text{DITR} \\
\text{agar- ‘rise’} & \text{ager- ‘raise’} & \\
\end{array}
\]

(19)

agare-ase (blocked)
Returning to the issue of semantic relations between transitive/intransitive pairs, I propose to follow the fundamental view of PDS that verb stems are registered in the permanent lexicon. I do not assume, however, that morphological derivatives, as well as verb stems, of the transitive/intransitive pair are registered in the permanent lexicon. Rather, I assume that the PDS of the transitive/intransitive pair has a major lexical entry in which no transitivity is implicated for a verb stem. Alternatively, I assume that the PDS has subentries in which transitivity is specified by morphological forms. The whole PDS is illustrated as follows (since our focus is on transitive/intransitive pairs, I omit the ditransitive slot):

\[
\begin{array}{|c|c|c|}
\hline
\text{Lexical Entry} & \text{V-stem} \\
\hline
\text{Lexical Subentries} & \text{INTR} & \text{TR} \\
& (V_i\text{-derivative}) & (V_t\text{-derivative}) \\
\hline
\end{array}
\]

In essence, I assume that all verb stems of Japanese transitive/intransitive verbs in Lexical Entry are provided with an entry in the permanent lexicon. Lexical Entry is almost equal to the ‘slot’ in Miyagawa’s original PDS since both are concerned with operations in the lexicon. It is the level of lexical subentries, however, that is uncertain as to whether it is inside or outside the permanent lexicon. Following a proposition by Miyagawa (1998), I assume that while the PDS is fundamentally a level of representation that filters verbs in terms of whether or not they belong to the permanent lexicon, there is the possibility that it may deal with a certain post-lexical operation as well. Based on this view, I propose that the lexical subentries described in (21) above are a level of operation that could be
either lexical or post-lexical.

The question that needs to be raised is: what distinguishes lexically derived pairs from those which are derived post-lexically? For Miyagawa, it was the concept of blocking that distinguishes lexical causatives from analytical causatives with respect to idiomatization of -(s)ase. My answer to this question is semantic transparency. More specifically, for pairs which hold a semantically opaque relation, we assume that the main lexical entry consists of two subentries in which morphologically full-fledged forms are registered. Crucially, the lexical subentries of such semantically opaque pairs are registered in the permanent lexicon.

By contrast, I do not assume that semantically transparent pairs, which I consider to be genuine transitive/intransitive pairs in Japanese, make a morphological distinction in the lexicon. Rather, I propose that transitive and intransitive suffixes are inserted post-lexically, as diagrammed below:

Accordingly, we assume that the semantically opaque pair sute- / sutar- and the semantically transparent pair war- / ware- are represented as follows,
respectively:

\[
\begin{array}{|c|c|}
\hline
\text{Lexical Entry} & \text{sut−} \\
\hline
\text{Lexical Subentries} & \text{INTR (sut\text{-}e−)} \quad \text{opaque} \\
\hline
\text{lexicon} & \text{TR (sut\text{-}ar−)} \\
\hline
\end{array}
\]

The question that remains to be addressed regarding the post-lexical insertion of the derivational suffixes in (25) is how derivational unpredictability, as discernible between \textit{war−/ware−} and \textit{ake−/ak−}, can be understood to take place outside the realm of the lexicon. More specifically, given Miyagawa’s statement (1998:84–87) that the morphological oppositional patterns of transitive/intransitive pairs in Japanese must be learned, it is necessary to provide evidence which favors my argument that they attach to verb stems post-lexically. In the next section, I discuss the framework of Distributed Morphology, in which phonological realizations of inflectional derivations are assumed to take place post-syntactically or post-lexically.

6. Distributed Morphology

Distributed Morphology (henceforth DM) was advanced as a counter−
proposal to the Lexicalist Hypothesis. In the Lexicalist Hypothesis, a large number of morphosyntactic operations are assumed to occur in the lexicon. DM, on the other hand, posits that there is no lexicon and that all word-formation conventionally assumed to take place in morphology occurs either in syntax or after syntax. In this respect, DM is a “syntactic approach to morphology” (Oltra-Massuet 1999:281). The key idea behind DM is that morphology is an individual level which ‘moderates between the syntactic and phonological modules of the grammar’ (Legate 1999:220). More specifically, DM is concerned with providing morphosyntactic features such as tense and agreement with phonological features (Halle and Marantz 1993:112; Nishiyama 1999:193).

One concept of DM that seems to be relevant to the transitive/intransitive alternation is that of underspecification. In particular, as pointed out by Halle and Marantz, underspecification of morphosyntactic features seems to be suitable for describing a language like English, which is characterized in general as less specified with respect to morphosyntactic features such as tense and agreement. In this respect, the transitive/intransitive alternation in English, such as sink, is a typical case of underspecification in that the distinction in transitivity is not specified (Halle and Marantz 1993:122). If one hypothesizes that underspecification is a characteristic of the lexicon in the non–DM sense, then one might assume that the distinction in transitivity between the transitive/intransitive pair should be represented post-lexically.

Assuming that underspecification is a key concept in explaining the distinction in transitivity for transitive/intransitive pairs, the question that arises is how DM deals with languages like Japanese, which specify the difference in transitivity overtly. That is, are the derivational distinctions registered in the lexicon or are these phonological features still assigned in
or after syntax? I suggest that late insertion and readjustment rules, which are other key concepts in DM, provide a solution for this issue. As Halle and Marantz (1994) maintain, syntactic operations are assumed to lack phonological features in DM. Such division between syntax and phonology is made possible by late insertion, which states that phonological features are inserted into the terminal nodes after the syntax (Halle and Marantz 1994:275). Readjustment rules, on the other hand, handle certain phonological variations which are considered to occur after late insertion. For instance, the past tense of *do* would take the form of *do-ed* after late insertion. The actual phonological realization, however, is *did*. In DM terms, this is simply because readjustment rules applies to *do-ed*, changing the underlying form to the surface form *did*.

Miyagawa (1998) applies the framework of DM to transitive/intransitive pairs in Japanese. Abandoning his earlier lexicalist position and relying on the concept of late insertion from DM, Miyagawa argues that all morphological processes, which are assumed to provide phonological features for terminal nodes, takes place in syntax. On Miyagawa’s terms, the causative verb *iya-gar-ase* has the following lexical representation (1998: 82):

(26)

```
       V
      /  \
   VP   V
  /   /
AP V  CAUSE
  |  /
  |BOTHER BECOME
```

The morphological process based on the principle of late insertion, then, inserts the following phonological features (1998:83).
(27) iya <--> BOTHER
    gar <--> BECOME in the environment Adj ___
    (s)ase <--> CAUSE

Crucially, Miyagawa considers the phonological representations *ar* and *as* to be components of transparent morphological structure, suggesting a productive character of the Japanese transitive/intransitive pair.

Similarly, Nishiyama (1998, 2000) maintains that the Japanese transitive/intransitive alternation takes place at the level of syntax under the theory of DM. First, following the concept of the VP shell, Nishiyama posits that in Japanese the inner light verb node *v*, which is governed by the outer *vP*, is occupied either by the [+ trans] suffix -*s* or the [− trans] suffix -*r*, as illustrated below (Nishiyama 2000:147).

![Diagram](image)

What is striking about Nishiyama’s analysis is that the inner light verb phonemes */s/* and */r/* representing the transitivity features [+transitive] and [− transitive], respectively, are incorporated into the syntactic structure. Recall that this is based on the same idea of Hale and Keyser (1993), as discussed in section 4 above. In Nishiyama’s view, it is readjustment rules, which occurs post-syntactically, that accounts for various phonetic realizations of */r/* and */s/* as in *−se* and *−as* (Nishiyama 2000:150–151).

If late insertion and readjustment rules are valid for Japanese transitive/intransitive pairs, then one might argue that the same rules will apply
to the opposing derivational patterns discerned between \textit{yak-}/\textit{yake-} and \textit{ake-}/\textit{ak-}. Building on this idea, I propose that the derivational unpredictability observed between Jacobsen’s Class I (\textit{war-}/\textit{ware}) and Class II (\textit{ake-}/\textit{ak-}) be explained by readjustment, as shown below.

$$\begin{align*}
(29) \quad \text{Class I: } & s \rightarrow \phi \text{ (transitive)} \quad \text{Class II: } s \rightarrow e \text{ (transitive)} \\
& r \rightarrow e \text{ (intransitive)} \quad r \rightarrow \phi \text{ (intransitive)}
\end{align*}$$

In DM terms, \(s \rightarrow \phi\) (transitive) and \(r \rightarrow \phi\) (intransitive) are examples of zero realizations of morphemes. The main idea behind readjustment rules in (29) is that \(/s/\) and \(/r/\) are the underlying transitivity markers across the Japanese transitive/intransitive pairs. The identification of the transitivity markers, along with the assumption that \(/s/\) and \(/r/\) are key components of the syntactic structures in (29), suggests that learners of Japanese may benefit by relying on each marker to distinguish the transitivity of one member of an transitive/intransitive pair from the other.

7. Conclusion

This study presented a semantic analysis of the transitive/intransitive alternation in Japanese. First, I demonstrated that a number of transitive/intransitive pairs, while their valency shift patterns like that of the English transitive/intransitive alternation, show a varying degree of semantic gaps between the transitive and intransitive alternants. Given such semantic gaps, I proposed that the transitive/intransitive pairs whose semantic relationships are opaque be listed as separate lexical items in the modern Japanese lexicon. This view is based on the idea that it is next to impossible to predict the meaning of one member of a morphological pair from the other member when the pair holds a weak semantic relationship. For
transitive/intransitive pairs which show configurational and semantic coherence I proposed to view them as sharing a verbal root of an identical meaning in the lexicon. On this view, the distinction between transitive and intransitive is a corollary of morphological derivation and valency shift, both of which I consider to be part of a non-lexical process. Consequently, the lexicalist view held by Jacobsen that all transitive/intransitive pairs are learned as separate lexical items is reduced to the extent that only semantically tenuous pairs are listed separately in the lexicon.

REFERENCES


Keyser, Jay and Thomas Roeper (1984). On the middle and ergative construc-