On the causative construction*

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1 Affixal causatives and architectures

Japanese was the first language with morphological affixation of causative morphemes to receive serious attention from generative grammarians (perhaps because it is the first language of several important early generative theoreticians, e.g. Saito, Kuroda, and Kuno). The typological differences between Japanese and English represented the first exploration of the Universal Grammar hypothesis, which predicted the existence of important similarities in the grammatical structure of languages from unrelated language families. Consequently, its impact on generative linguistic theories in general and on Principles-and-Parameters approaches specifically has been very significant.

The Japanese causative represents in a very pure form the problem of the morphology/syntax interface. Consequently, the causative construction is one of the most theoretically significant aspects of Japanese grammar, its three subtypes having attracted more attention and inspired more theoretical proposals than almost any other construction. Analyses of the causative have had a major influence on many foundational aspects of syntactic theory, including control, case marking, clause structure, theta-theory and argument structure, and the morphology-syntax interface.

All of these issues have received extensive treatment in the literature, and this chapter will touch on many of them. We will, however, focus on the importance for linguistic theory of a single problem posed by the construction: In what component of the grammar are the various causatives constructed? What are the available morphological possibilities a theory can explore in accounting for the three types of causative? It turns

out that the answers to many of the other syntactic questions posed by causatives depend on the theoretical choices made in answering this one. In fact, it is not unreasonable to say that the entire architecture of a given linguistic theory can be deduced from the answer given to this one question. The best analysis, we presume, will provide a theoretically satisfying, cross-linguistically consistent, and most importantly *unified* treatment of the causative morpheme *-(s)ase*. I'll endeavor to show that such an analysis exists, and that it demands a certain type of theoretical framework; indeed, such a unified analysis could not exist in a framework configured differently in any significant way.

1.1 The Empirical Base

To create a causative expression in Japanese, the bisyllabic morpheme *-(s)ase* is attached to what would be the embedded verb in an equivalent English causative construction, as illustrated in the example in (1):

(1) Taroo-ga Hanako-o ik-ase-ta
Taro-N Hanako-A go-*ase*-PST
"Taro made Hanako go."

The Causer (here, *Taroo*) is the nominative-marked subject of the whole sentence. The logical subject of the root verb, referred to below as the Causee, is marked with accusative or dative case (here, *Hanako,* using the accusative variant).

All V+*sase* combinations exhibit similar morphophonological properties, indicating the indivisible nature of the single phonological word constructed by *-sase* affixation. These are listed in (2) below:

(2) Properties of all *-sase-* causatives (many from Manning, Sag & Iida 1999)

a. V+*sase* is a single phonological word for stress, other word-size processes (Kitagawa 1986, 1994)

b. *-sase* subject to phonological allomorphy depending last segment of V
(if it's a vowel, then *-sase-*, if it's a consonant, then *-ase* (Kuroda 1965a))
c. V+*sase* may feed (productive) nominalization with *-kata,* 'way of'
d. *-sase-* is a bound morpheme; by itself it may not behave as a lexical verb (stem):[1]
i. it may not reduplicated by itself to express repetition
ii. it may not bear focus intonation by itself
iii. it may not be inflected for subject honorification by itself.
v. it may not stand alone as an answer to a yes-no question

Despite their morphophonological similarity, however, certain subtypes of V+*sase* combinations may be distinguished. The literature has, over time, identified two main classes of V-*(s)ase* sequences in Japanese, the 'lexical' (unproductive) causative (3) and the 'syntactic' (productive) causative (4). These two V+*(s)ase* combinations have been shown to have distinct syntactic and semantic properites, although they are morphophonologically very similar. Within the class of syntactic causatives, two further subtypes have been identified, the 'make', *-o-*causative((4)a), and the 'let', *-ni-*causative ((4)b).

(3) *(A subset of) Lexical causatives* Miyagawa 1980, 1984
Taroo-ga zisyoku-o niow-ase-ta Jacobsen 1981, 1992
Taro-N resignation-A smell-*ase*-PST Matsumoto 2000
"Taro hinted at resigation." (Lit: 'Taro made resignation smell.')

(4) *Productive causatives*
a. *Make-causatives* Kuroda 1965a, b; Kuno 1973
Hanako-wa Yoshi-o ik-ase-ta
Hanako-T Yoshi-A go-*ase*-past
"Hanako made Yoshi go."

b. *Let-causatives*
Hanako-wa Yoshi-ni ik-ase-ta
Hanako-T Yoshi-D go-*ase*-past
"Hanako allowed Yoshi to go/Hanako had Yoshi go."

The key problem of the causative construction has to do with a conflict between its morphophonological status and its semantic status, which leads to significant problems in its syntactic analysis. As noted above, the V+*sase* combination, together with any other

verbal suffixes that are attached to it, constitute a single phonological word. On the assumption that phonological words are (syntactically simplex) terminal nodes—the 'leaves' of syntactic trees—the derived V+*sase* verb should head a single syntactic verb phrase, and clauses containing such a verb phrase should behave in all respects like a monoclausal construction.

For the lexical causatives, this does not lead to any serious difficulties. Lexical causatives are monoclausal with respect to all relevant syntactic tests (see discussion below). Further, they can undergo semantic drift, acquiring idiomatic readings in combination with particular argument NPs (as illustrated by the examples in (3) above, and discussed by Miyagawa 1980, 1984 and Zenno, 1985). Speakers have a sense that these V+*sase* combinations are 'listed' and non-productive. They feed non-productive nominalization processes which can then independently undergo semantic drift (Volpe 2005). The arguments of a lexical causative are case-marked like the arguments of a single clause—only a single nominative case is possible, assigned to the Causer subject. Finally, many lexical causative verbs (in fact, most such verbs) are formed with some lexical causative morpheme other than *-sase*; choice of the causative allomorph is a listed, arbitrary property for a given lexical causative verb root (Jacobsen 1981). In short, lexical causatives behave syntactically, semantically, and morphophonologically like single 'words': single verbs which head a single verb phrase.

Productive causatives, on the other hand, exhibit a number of biclausal properties, most obviously, semantically: A productive V+*sase* combination refers to an event in which an external Causer, X, acts to induce someone else, a Causee, to bring another event or situation about, as described by the V°. The best translation equivalent of a

Japanese productive causative in English involves embedding a clause headed by a bare infinitive verb under a causative matrix verb (usually *make* but sometimes *let* or *have*). Besides that intuitive biclausality, however, productive causatives like those in (4) exhibit several other bicausal properties, listed in (5-8) below.

(5) Scopally, VP-modifying adverbials can be interpreted as modifying the caused event or the causing event. Similarly, quantifiers on the object of the root verb can take scope over just the caused event, or both the causing and caused event (see Shibatani 1990:314).
(6) Subject-control *-te* adjuncts can be controlled either by the Causer subject or by the Causee — that is, by the subject of the embedded verb (see, among others Terada 1991, Dubinsky 1994).
(7) The subject-oriented anaphor *zibun* can be anteceded either by the Causee or the Causee, again, suggesting that the subject of the embedded verb is a true subject (see Oshima 1979:433).
(8) Two separate events can be conjoined using the disjunct *-ka*, 'or', underneath a single causative morpheme (see Kuroda 2003:455).

All of these properties — together with full productivity and compositionality — suggest a syntactic combination of the V and the *sase* morpheme, and biclausality.

Productive causatives do exhibit several features that are typical of single clauses, however. Besides being a single morphophonological word, a productive causative clause is clearly a single case-marking domain, licensing only a single nominative argument. Further, they obey the 'Double-*o* constraint' (Harada 1973): causatives of intransitive Vs may show accusative case on the Causee argument, as illustrated in (1) above, but causatives of transitive Vs, requiring an accusative case for the object of the V, force the Causee to receive the dative *-ni* marker, since within a single clause only a single accusative argument is possible.[2,3] Similarly, a productive causative is only a single tense domain. No independent tense marking is possible to distinguish the time of the caused event from the time of the causing: the single tense morpheme on the end of the complex

verb must cover both. Finally, productive causative clauses behave as a single domain for clause-mate negative polarity item licensing.

The main distinguishing properties of these two types of causatives are summarized below:

(9) a. Lexical causative:
monoclausal by all tests (see below)
can have idiomatic interpretations
exhibit allomorphy with other lexical causative affixes
strong speaker sense of 'listedness', non-productivity
may feed (non-productive) nominalization

b. Productive causative:
Biclausal by tests involving scope, adverbial control, binding, disjunction
Monoclausal by tests involving negative polarity, tense
(Make-causative) monoclausal by tests involving case.
Causee must be animate/Agentive
Productive

There is also an interesting acquisition difference between lexical *-sase* and syntactic *-sase-* (Murasugi *et al*. 2004): lexical *-sase-* appears first in the speech of children, before productive *–sase* (but not as early as zero-derived lexical causative *uses* of verbs show up).

Within the set of causatives classified as 'productive', two subtypes have been identified (Kuroda 1965a,b, Kuno 1973), where a difference in reading affects the case-marking possibilities on the Causee of an intransitive verb. When the causative has a 'make' reading—forcible or direct causation—the case-marker on the Causee of an intransitive verb is accusative, as noted above ((4)a). When it has a reading more similar to 'let' — permission, or indirect causation—the Causee receives dative *-ni*, even if the verb is intransitive and the double-*o* constraint is not in effect ((4)b). Although this distinction has received considerable attention in the literature, I will not discuss it here.

For extensive discussion of the 'make/let' distinction, see Dubinsky 1994 and Miyagawa 1999 and citations therein.

Examples illustrating each individual property described above are not provided here for space reasons, and because similar summaries have been provided in multiple other publications elsewhere. For useful summaries exemplifying most of these properties, see Kitagawa 1986, 1994 and Manning, Sag and Iida 1999. For surveys of many previous analyses, see Cipollone 2001 and Kuroda 2003.

1.2 Theoretical approaches

This constellation of properties really force one to face one's theoretical priorities. The productive V+-*sase* forms pose serious architectural issues, even without considering the lexical causatives. How should a theoretical framework be configured to allow it to accommodate a construction which appears to be headed by a single morphological verb and is monoclausal with respect to case, tense, and NPI licensing, but appears to be biclausal with respect to binding, scope, control and disjunction? Resolving these issues usually involves radical replumbing of grammatical architectures. Consequently, the influence of Japanese causatives on linguistic theory couldn't be bigger.[4]

1.2.1 Lexicalist treatments of V+sase: HPSG

Lexicalist frameworks take it as axiomatic that single morphophonological words correspond to terminal nodes in the syntax. It follows that productive causatives must be treated as syntactically monoclausal: only one morphophonological verb, therefore only one clause.

Consequently, the apparent multiclausal properties of causative constructions *must* arise from the (productive) operation affixing the causative morpheme in the lexicon, producing a complex syntactic and semantic word. That is, it then follows that binding relations, adverbial scope, quantifier scope, and adverbial control are phenomena that depend on lexical operations, not syntactic structure—these phenomena are not properly 'syntactic' phenomena at all. This position is thoroughly presented in the proposal of Manning, Sag and Iida 1999, treating causatives within the Head-driven Phrase Structure Grammar framework. There, the key replumbing of the architecture is the inclusion of adjunction and quantifier scope as lexical operations. Syntactic constituency is no longer at issue in treating these phenomena in HPSG.

The most serious challenge to this approach to causatives, within the terms of HPSG, comes from the availability of disjunction of two VPs under a single causative morpheme, as discussed by Kuroda 2003:455.[5] Kuroda's examples showing disjunction of VPs under *-sase* are given in (10) below.

(10) a. Hanako-ga [[Masao-ni uti-o soozisuru]-ka [heya-dai-o haraw]]-aseru koto ni sita
Hanako-N [[Masao-D house-A clean]-OR [room-rent-A pay]]-*sase* that D do
'Hanako decided to make Masao clean the house or pay room rent'.
Reading: *sase* scopes over OR; Masao has a choice.

b. Hanako-ga [[Masao-ni uti-o soozis-aseru]-ka [heya-dai-o haraw-aseru]] koto ni sita
H.-N M.-D house-A clean-*sase*-OR room-rent-A pay-*sase* that D do
"Hanako decided to make Masao clean the house or she decided to make him pay room rent"
Reading: OR scopes over *sase*; Masao won't have a choice.

The availability of disjunction of the verb phrase without the *-sase* affix is a significant challenge to the lexicalist treatment of *-sase*, since in the phrase-structure grammars employed for the syntactic component by these framewoks, disjunction is treated syntactically, not lexically.[6] Treating the adjunction of adverbs as lexical, as well, raises

issues concerning how to capture syntactic adjunct/argument asymmetries within HPSG, as discussed by Cipollone 2001; if both argument structure-altering operations and adjunction operations are lexically implemented, it is not clear how their different behaviors with respect to extraction etc. may be captured.

1.2.2 Principles and Parameters: Logical Form from Syntax

In Principles and Parameters-type approaches, on the other hand, a different set of priorities are in force. The ultimate syntactic representation of a clause is taken to be (isomorphic to) its Logical Form. Semantic properties such as scope assignment of quantifiers must therefore be syntactically represented. Further, the notion of 'subject' is famously a configurational one in P&P; consequently the assignment of antecedents for subject-oriented reflexives or of controller for adjoined *-te* phrases must be (at least partially) syntactically determined. The consequence of these assumptions, then, is that the causative morpheme and the verb to which it is affixed must each head a separate syntactic projection, creating different constituents which can independently be used to construct scopal or subject properties. In order to account for the ways in which causatives have syntactically monoclausal properties, then, P&P frameworks propose that the embedded clausal structure is deficient in some way—not a full CP or TP clause, but some reduced yet argumentally complete clause is embedded by the causative morpheme. The absent intermediate projections account for the monoclausal behavior in the relevant domains.

The inescapable conclusion given this set of priorities is that morphological and phonological words are not in a one-to-one relationship with syntactic terminal nodes. The biggest problems to be faced by the P&P approach, then, are the following: Where

are words made, before or after syntax, or both? What is the constituent structure of the embedded phrase?

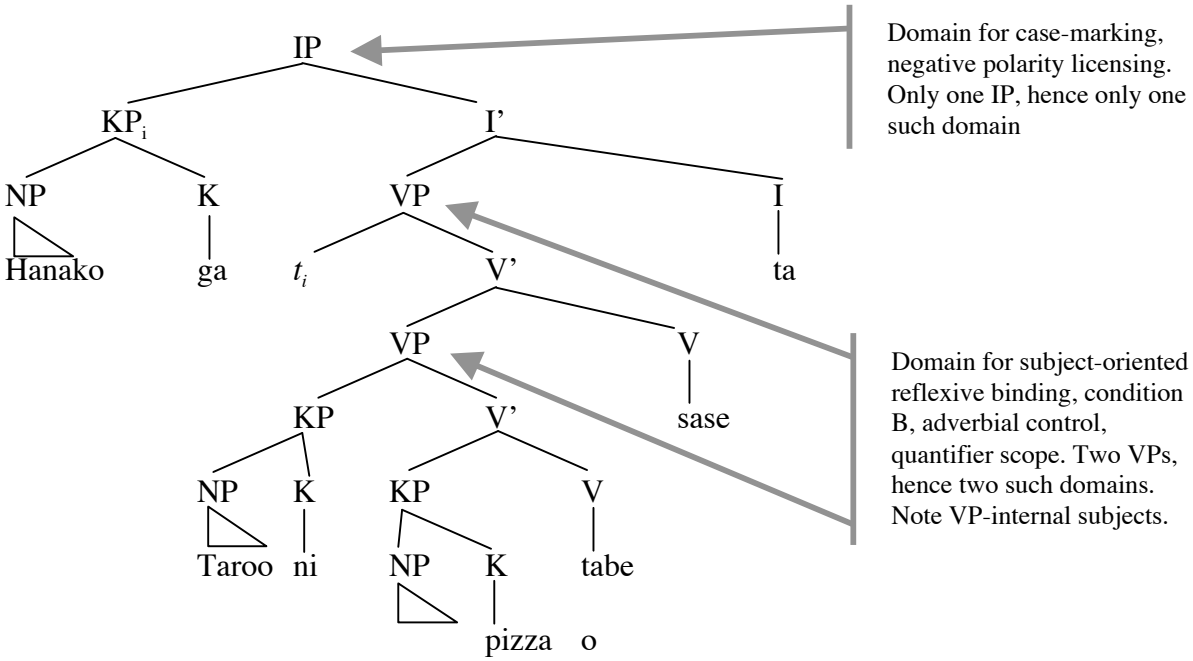
There have been many proposals in the literature within these broad lines. They are outlined below in roughly chronological order, followed by their key analytical property and the locus of word-formation in the model:

(11) a. Predicate Raising (e.g. Kuno 1973): Biclausal D-structure collapses to monoclausal S-structure; Syntax feeds word-formation.
b. Parallel monoclausal and biclausal trees. Word-formation feeds syntax (e.g. Miyagawa 1984).
c. LF-excorporation and projection. Word-formation feeds syntax, which then deconstructs complex words to project (covert) biclausal structure (Kitagawa 1986, 1994) (This proposal could be understood as a variant of Chomsky's 1993 lexicalist checking-theory.)
d. Incorporation (Baker 1988). Syntax manipulates morphemes, feeds word-formation.

Baker's Incorporation account became the most familiar P&P analysis, and still represents the core idea behind most current approaches in the literature. It itself was an updated version of Kuno's Predicate Raising approach; the updating involved understanding how the 'collapse' of the biclausal structure is only apparent: the V which heads the lower VP simply head-moves to adjoin to the *-sase* morpheme, which is a V in its own right, projecting the matrix VP. On this approach, the input to the syntax is not morphophonological words, but rather individual morphemes. Productive morphology is affixed to its host by syntactic operations such as head-movement. Because head-movement leaves a trace, there is no 'collapse' of the lower clause when this happens; rather, the entire structure remains present and interpreted at LF—it is merely unpronounced. An illustration of this account is provided below in (12).

(12) Derivation of *Hanako-ga Taroo-ni pizza-o tabe-sase-ta* in a Baker-style Incorporation accont: [7]

Input to the syntax: {Hanako$_N$, Taroo$_N$, pizza$_N$, -ga$_K$, -ni$_K$, -o$_K$, tabe$_V$, -sase$_V$, -ta$_I$}



Several ingredients are needed to make an Incorporation account of productive causatives work, each of which has major theoretical consequences for the rest of the framework.

Since it is ungrammatical to attach a separate tense or complementizer morpheme to the verb stem before affixing *-sase*, the proposal is that the constituent embedded under *-sase* is VP, rather than IP (TP) or CP. This accounts for the absence of separate tense domains for the two clauses. The theory can then explain the availability of NPIs in the embedded VP by assuming that the clause-mate condition on Japanese NPI licensing is sensitive to the TP domain, not the VP domain: because there is only one TP in a productive causative, NPIs in the embedded VP will meet the clausemate requirement.

The VP-internal subject hypothesis is then also necessary, so that the embedded subject argument can be introduced in the lower VP, allowing for the presence of the Causee in the structure without an embedded TP.

It must also be the case that clausal conditions on case assignment like the Double-o Constraint are sensitive to the TP domain, rather than VP. To capture this, a theory of abstract Case checking is needed in which clausal Case domains are bounded by a TP projection—a 'Dependent Case' case theory, of the Marantz 1991 type; see, e.g. Miyagawa 1999). Such an account predicts that the transitivity of the embedded VP can affect the case assigned in the whole clause.

Similarly, it is necessary to have in place a theory of scope that allows quantifiers to scope at the VP level as well as the CP level, in order to account for lower-clause quantifier scope.

Finally, and most importantly, the approach entails a partial rejection of the Lexicalist Hypothesis: the account only works if the syntax manipulates bound morphemes, as well as free ones.[8] In other words, productive inflectional and derivational affixes must be considered to be input to the syntax. Rather than being presyntactically attached to their host stems in the lexicon, such affixes are attached to their hosts either in or following the syntactic component.

What of the lexical causatives? Recall that they are irregular, stem-specific, semantically idiosyncratic, and non-productive. Nonproductive affixes are *not* input to the syntax in this approach; they come pre-attached to their stems in a presyntactic morphological component (the locus of irregularity). This explains a) their nonproductivity, since syntax is understood as the domain of productivity, and b) the

monoclausal behavior of lexical causatives; one V in the numeration, one VP in the derivation.

The end result is a type of hybrid account, where productive causatives are combined with their verbs in the syntax, but lexical causatives are treated in a separate, pre-syntactic part of the grammar.[9] The remainder of this paper will be taken up with laying out what's wrong with this picture, and what the implications for linguistic theory are.

2 Lexical causatives

Like many languages, Japanese is rich in semantically related inchoative/causative pairs of verbs, with overt causativizing (and/or inchoativizing) morphology attached to a common root. These pairs have been extensively documented by Jacobsen 1992; the first two examples of each class of pairs he identifies are given in the table in (13). (None of these pairs involve *-sase*).

(13)

Class/#[10]	√	Intr	Tr	Rough √ gloss
I: e/Ø	*hag*	*hag-e-ru*	*hag-ø-u*	'peel off'
30 pairs	*hirak*	*hirak-e-ru*	*hirak-ø-u*	'open'[11]
II: Ø/e	*ak*	*ak-ø-u*	*ak-e-ru*	'open'
44 pairs	*hikkom*	*hikkom-ø-u*	*hikkom-e-ru*	'draw back'
III: **ar/e**	*ag*	*ag-ar-u*	*ag-e-ru*	'rise'
71 pairs	*aratam*	*aratam-ar-u*	*aratam-e-ru*	'improve'
IV: ar/Ø	*hasam*	*hasam-ar-u*	*hasam-u*	'catch between'
8 pairs	*husag*	*husag-ar-u*	*husag-u*	'obstruct (clog, jam?)'
V: r/s	*ama*	*ama-r-u*	*ama-s-u*	'remain'
27 pairs	*hita*	*hita-r-u*	*hita-s-u*	'soak'
VI: re/s	*arawa*	*arawa-re-ru*	*arawa-s-u*	'show (up)'
18 pairs	*hana*	*hana-re-ru*	*hana-s-u*	'separate from'
VII: ri/s	*ka*	*ka-ri-ru*	*ka-s-u*	'borrow/(lend)'
2 pairs	*ta*	*ta-ri-ru*	*ta-s-u*	'suffice/(supplement)'

VIII: ø/as	*hekom*	*hekom-ø-u*	*hekom-as-u*	‘dent’
38 pairs	*her*	*her-ø-u*	*her-as-u*	‘decrease’
IX: e/as	*bak*	*bak-e-ru*	*bak-as-u*	‘turn into/bewitch’
45 pairs	*bar*	*bar-e-ru*	*bar-as-u*	‘come/bring to light’
X: i/as	*ak*	*ak-i-ru*	*ak-as-u*	‘tire’
8 pairs	*dek*	*dek-i-ru*	*dek-as-u*	‘come/bring into existence’
XI: i/os	*horob*	*horob-i-ru*	*horob-os-u*	‘(fall to) ruin’
6 pairs	*ok*	*ok-i-ru*	*ok-os-u*	‘get up’
XII: Ø/se	*abi*	*abi-ru*	*abi-se-ru*	‘pour over (self/other)’
6 pairs	*ki*	*ki-ru*	*kise-ru*	‘put on (self/other)’
XIII: e/akas	*obi*	*obi-e-ru*	*obi-(y)akas-u*	‘take fright/frighten’
4 pairs	*hagur*	*hagur-e-ru*	*hagur-akas-u*	‘stray/evade’
XIV: or/e	*kom*	*kom-or-u*	*kom-e-ru*	‘be fully present/fill’
2 pairs	*nukum*	*nukum-or-u*	*nukum-e-ru*	‘warm’
XV: are/e	*sut*	*sut-are-ru*	*sut-e-ru*	‘fall into disuse/discard’
3 pairs	*wak*	*wak-are-ru*	*wak-e-ru*	‘divide’
XVI: Misc	*nigiwa*	*nigiwa-ø-u*	*nigiwa-s-u*	‘(make) prosper’
25 pairs	*nob*	*nob-i-ru*	*nob-e-ru*	‘extend’

*2.1 Syntactic and semantic properties of non-*sase *lexical causatives*

The causative member of these pairs has one more argument than its intransitive counterpart, and bears a roughly causative reading with respect to it (sometimes one or the other member of the pair having undergone some semantic drift), but shows no obvious symptoms of a multiclausal syntactic structure. For example, compare the available controllers for a *-te-* phrase in a syntactic vs. a lexical causative:

(14) Basic intransitive verb and its syntactic causative:

a. Hanako-wa arui-te it-ta
Hanako-Top walk-*te* go-PST
“Hanako, walking, went.”

b. Taroo-wa arui-te Hanako-o ik-ase-ta
Taroo-Top walk-*te* Hanako-A walk-*sase*-PST
Readings: "Taro made Hanako go, walking"
“Taro, walking, made Hanako go”

In the syntactic causative in (14)b, the phrase *arui-te*, 'walking', can be controlled either by *Hanako*, the Causee subject of the embedded verb (who is the controller in the noncausative sentence in (14)a), or by *Taroo*, the Causer subject of the causative *-sase*. An identical pair of sentences is given for a lexical causative formed with the suffix *-as-* in (15) below.

(15) Inchoative intransitive and its lexical causative:

a. Hanako-wa nure-te hi-e-ta
Hanako-T wet-*te* cool-*inch*-PST
"Hanako ('s body), getting wet, cooled.

b. Taroo-wa nure-te Hanako-o hi-(y)as-ita
Taro-T wet-*te* Hanako-A cool-*caus*-PST
Reading: "Taroo, getting wet, cooled Hanako."
Impossible: "Taroo cooled Hanako, (Hanako) getting wet."

Even though the notion of someone becoming cool by getting wet is semantically sensible (as shown by the inchoative (15)a), the only available controller of the -te phrase *nure-te,* 'getting wet', in (15)b, is the Causer, *Taroo*, rather than the Causee who is becoming cool, *Hanako*. Lexical causatives, like underived transitive verbs, are monoclausal with respect to this and all the other tests for biclausality listed above.

As shown by Miyagawa (1980, 1984, 1989, 1994, 1998) and Zenno (1985), lexical causatives share another property with underived transitive verbs: they may appear as part of an idiom. Sometimes their inchoative counterpart also participates (i.e. the idiom alternates), as in (17), sometimes not, as in (16). (The examples below are from Miyagawa 1989:126-127; they are given as V+object only, not in sentential uses.)

(16) Lexical causatives in idioms by themselves:

a. kama-o kake- (intr. *kak-ar* does not participate in this idiom)
sickle-A splash on
'trick into confessing'

b. zibara-o kir- (intr. *kire* not in this idiom)
my.stomach-A cut
'pay out of one's own pocket'

c. tenoura-o kaes- (intr. *kaer* not in this idiom)
palm-A return
'change one's attitude suddenly'

(17) Lexical causatives in alternating idioms:

a. te-ga kuwawar- te-o kuwae-
hand-N join hand-A add
'be altered' 'alter'

b. hone-ga ore- hone-o or-
bone-N $break_{intr}$ bone-A $break_{tr}$
'require hard work' 'exert oneself'

c. mune-ga itam- mune-o itame-
heart-N ache heart-A hurt
'be worried' 'worry (oneself)'

Another test, developed by Oerhle and Nishio (1981), showed that lexical causatives can participate in 'adversity' readings, like simple transitive verbs and unlike productive causatives (example in (18) taken from Miyagawa 1989:130).

(18) a. Simple transitive with 'adversity' reading:
Taroo-ga ie-o yai-ta.
Taro-N house-A burn-PST
'Taro burned his house.'
'Taro's house burned, and he was adversely affected (he didn't cause it.)'

b. Lexical causative with adversity reading:
Boku-wa kodomo-o gake kara ot-os-ita
I-T child-A cliff from drop-*caus*-PST
"I dropped the child from the cliff."
"The child dropped from the cliff, and I was adversely affected."

2.2 V+sase: The same properties as lexical causatives? or not?

The examples above applied these tests to unambiguously lexical causatives, formed with causative affixes other than *-sase*. As noted in the first section, Miyagawa argues that some V+*sase* combinations behave like the other lexical causatives above.[12]

They participate in idioms, sometimes with ((19)c-d) and sometimes without ((19)a-b) their intransitive counterpart:

(19) Lexical V+sase causatives in idioms:

a. tikara-o aw-ase-
power together-*sase*-
'pull together'

b. mimi-o sum-ase-
ear-A clear-*sase*
'listen carefully'

c. hana-ga saku- hana-o sak-ase-
flower-N bloom flower-A bloom-*sase*
'be done heatedly' 'engage in heatedly'

d. hara-ga her- hara-o her-ase-
stomach-N lessen stomach-A lessen-*sase*
'get hungry' 'fast/wait for a meal'

Some such V+*sase* forms also allow adversity causative interpretations:

(20) V+*sase* forms in adversity causatives (examples from Miyagawa 1989:129).[13]

a. Taroo-ga yasai-o kusar-ase-ta
Taroo-N vegetable-A rot-*sase*-PST
"Taroo spoiled the vegetables."
"The vegetables rotted, and Taro was adversely affected."

b. Taroo-ga kaisya-o toosans-ase-ta
Taro-N company-A bankrupt-*sase*-PST
"Taro bankrupted the company."
"The company went bankrupt, and Taro was adversely affected."

But most V+*sase* combinations do not exhibit these properties—most V+*sase* combinations are productive, not lexical. For instance, there is no adversity causative interpretation available for the V+sase forms below (Miyagawa 1989:130):[14]

(21) a. Boku-wa kodomo-o gake kara oti-sase-ta
I-T child-A cliff from drop-*sase*-PST
'I caused the child to drop from the cliff.'
Impossible: "The child dropped from the cliff, and I was adversely affected."

b. Kotosi-wa dekinai gakusei-o hue-sase-ta
This.year-T poor students-o increase-*sase*-PST
"This year, we caused (the number of) poor students to increase."
Impossible: "This year, the number of poor students increased, and we were adversely affected."

c. Taroo-wa niku-o koge-sase-ta
Taro-T meat-A scorch-*sase*-PST
"Taro caused the meat to scorch" Pylkkanen 2002
Impossible: "The meat scorched, and Taro was adversely affected."

Similarly, given an intransitive verb that participates in an idiom, like the examples in (19)c-d above, a V+*sase* combination formed on the intransitive is not guaranteed to also participate in the idiom (Miyagawa 1989:126):

(22) a. kiai-ga hair- *kiai-o hair-ase-
spirit-N enter spirit-A enter-*sase*
'be full of spirit' *'inspire/put spirit into'

b. hakusya-ga kakar- *hakusya-o kakar-ase-
spur-N splash.on spur-A splash.on.*sase*
'spur on$_{intr}$' 'spur on$_{tr}$'

These verbs have lexical causative forms with non—*sase* causative affixes, *ir-e-ru* and *kak-e-ru* (they are members of Jacobsen's class III alternators). The difference between the verbs in (22), which do not allow an idiomatic interpretation with *-sase*, and the verbs in (19), which do allow such an interpretation, is that the verbs in (19) have no other lexical causative form. This is Miyagawa's central observation—the only verbs which show lexical causative behavior with *-sase* are the verbs which have no other idiosyncratic lexical causative suffix of their own. In other words, lexical behavior of *-sase* is only possible in cases where it is not blocked by a more specific causative suffx.

2.3 The blocking effect

The hybrid P&P account outlined in section 1.2.2 above simply divided V+*sase* combinations into productive, regular, compositional forms (created in the syntax), and nonproductive, noncompositional forms (listed in the lexicon). This captures the distinctions between the two types of forms enumerated above, but it does not predict that there should be any systematic relationship within the lexicon between lexical V+*sase* and the other lexical causative forms, nor that there should be any systematic relationship between lexical V+*sase* and syntactic V+*sase*. If there is any such systematic relationship, then the hybrid account is seriously flawed.

In fact, such a systematic relationship does exist. As noted above, Miyagawa (1980 et seq) and Zenno (1985) show that there is a simple way to predict when a V+*sase* combination can behave like other lexical causatives and when it may only behave as an productive causative, with no noncompositional interpretation and no adversity causative: *Only intransitive roots with no other transitive form can behave lexically with -sase*.

That is, lexical interpretations of *-sase* are possible only if the root to which it is attached does not have a transitive form derived in another way.

2.4 Miyagawa's 1984 treatment: Paradigmmatic Structure

The sensitivity of lexical V+*sase* to the (non)availability of another derived form with the same meaning is a classic example of morphological *blocking*, seen in both derivational and inflectional morphology cross-linguistically. A simple case is the English past tense. Some verbs do not have a past tense formed with *-ed*: **runned, *writed, *feeled, *hitted*. The reason is that they have an independently formed, irregular past tense, which blocks the regular form: *ran, wrote, felt, hit*.[15]

The same phenomenon is argued to occur in derivational morphology. Many English adjectives have a negative form in *un-*, but some do not: **unpossible, *unconsiderate, *uncoherent*. These are blocked by the irregular negative forms, *impossible, inconsiderate, incoherent*.

The grammatical mechanism that is responsible for blocking effects, in many theories of morphology (for instance, Paradigm-Function Morphology, as recently discussed in, e.g., Stump 2001), is the *n*-dimensional grammatical space of a paradigm. For English verbs, for example, blocking is captured in the following way. Every verbal word-form is understood to be attached to a paradigm space, defined by the inflectional features of English verbs: past & present participle, 1, 2, 3, sg, pl. Some verbs come with their paradigm space partially filled in, 'lexically' as it were— for instance, in the past tense space for *write*, the form *wrote* is already entered—but empty slots, such as for the progressive participle, are filled in by a default affix for that slot: *write+ing*.[16]

(23) Paradigm in the lexicon for *write*

V: WRITE	*write*
infinitive	
present ppl	
past ppl	*written*

Before lexical items are sent off to the syntax, empty paradigm spaces are filled in by default morphology (bolded in the tables below).

(24) Paradigm in the lexicon for *write*

V: WRITE	*write*
infinitive	***write***
present ppl	***writing***
past ppl	*written*

To apply such an analysis to derivational morphology, one has to allow derivational features to define a paradigm space, such as [±negative] for the

impossible/*unpossible pairs, or [±nominal] for their nominalizations. Words with special negative or nominal forms will have already filled in their relevant paradigm slots, blocking the productive insertion of the default form *un-* in the negative slot, or the default form *-ness* in the nominalization slot, illustrated in (25):

(25)

A: POSSIBLE	*possible*
negative	*impossible*
nominal	*possibility*

A: LIKELY	*likely*
negative	***unlikely***
nominal	*likelihood*

A: HAPPY	*happy*
negative	***unhappy***
nominal	***happiness***

Miyagawa (1980, 1984, 1989) treated the blocking effect in Japanese causatives with such a derivational paradigmatic structure, defined by a feature [±transitive]; without it, the blocking effect couldn't be captured. In terms of its position and function in the model, Miyagawa's level of Paradigmatic Structure is the same level of structure that paradigm-function morphologists work with, although Miyagawa used it independently of that framework.

He proposed a paradigm space defined by intransitive, transitive, and ditransitive features. For many verb stems, an irregular form already occupied the 'transitive' or 'ditransitive' slot in the paradigm. Only if an irregular form did not occupy that slot could a default *-sase* form be constructed fill up the gap.

(26)

V: AG	*agar* 'rise'
Intr	*agar-*
Tr	*age-*
Ditr	

(27)

V: AG	*sak-* 'bloom'
Intr	*sak-*
Tr	***sak-ase***
Ditr	

To account for the systematicity of the lexical *V-sase* forms, then, Miyagawa proposed to adopt an extra layer of lexical structure. However, his theory went beyond the lexical causatives, including the syntactic causatives as well.

Miyagawa argued that it cannot be a coincidence that these default V-*sase* combinations are morphophonologically indistinguishable from productive causatives. That is, according to their morphophonological properties, a lexical causative formed with -sase is exactly the same as a productive causative formed with *-sase*. He reasoned that syntactic causatives are spelled out as *-sase* because *-sase* is just the elsewhere, default form for a causative meaning: the lexical causative suffix *-sase* and the productive causative suffix *-sase* are the same suffix. If lexical causatives had nothing to do with syntactic causatives, there would be no reason for the same morpheme to be involved in both.

Consequently, Miyagawa 1984 concluded that syntactic causatives had to be created in the lexicon, in the paradigmatic structure, as well. However, all the questions discussed above then arose for his analysis, concerning how to capture the biclausal properties of the productive causatives within a lexicalist approach, leading to his proposal that causatives are associated with parallel monoclausal and biclausal structures. The theory became ever more complex.

2.5 Theoretical options

We now are in a position to summarize the state of affairs systematically. V+*sase* combinations can be lexical or productive. If productive, they behave biclausally with respect to binding, control, scope and idiom interpretation. If lexical, they behave monoclausally. The lexical V+*sase* combination is in complementary distribution with the other lexical causative morphemes discussed by Jacobsen, such as V+*e*, V+*s*, V+*os*, etc, with *-sase* acting as the default suffix for lexical causative formation when no other form exists. The default lexical *-sase* is morphophonologically identical to the productive *-sase*.

Three possible courses of analysis seem open at this point:

A: Treat the lexical and syntactic causatives completely separately. On this approach, the V+*sase* lexical causatives would be relegated to the lexicon with the rest of the lexical causatives. The morphological identity between the default lexical causative morpheme and the syntactic causative morpheme would be irrelevant. That is: Jacobsen just missed class XVI: Ø/*-sase*.

B: Unify the lexical and syntactic causatives by treating them both in the lexicon. On this approach, something other than 'in the lexicon' has to distinguish the syntactic and lexical causatives.

C: Unify the lexical and syntactic causatives by treating them both in the syntax. On this approach, a theory of post-syntactic morphology would be needed. Again something other than 'in the syntax' has to distinguish the two types.

Enter Distributed Morphology, Hale and Keyser's v°, and Minimalism.

3 Late Insertion, the Elsewhere condition, vPs and phases[17]

In this section, we will see how independently motivated theoretical proposals in distinct domains of research can naturally provide a unified account of lexical and

syntactic Japanese causatives. First the distinct proposals are introduced and explained, and then we will see how they fit together.

3.1 Distributed Morphology, Late Insertion and the Elsewhere Principle

In Baker's Incorporation account and later work inspired by it, the syntax manipulates and combines the lexical entry of complete morphemes, fully specified for phonological, morphological, syntactic and semantic properties. In this section, we will see how adopting a Late Insertion approach, according to which phonological information is only inserted to realize syntactic terminal nodes later in the derivation, allows the capture of paradigmatic blocking effects without the use of paradigms.

In Distributed Morphology (Halle and Marantz 1993 *et seq.*), the syntax manipulates and combines abstract feature bundles, selected by the grammar of the individual language learner from an inventory provided by UG on the basis of positive evidence. These feature bundles are the input to, and terminal nodes of, a syntactic derivation.

After the syntax has completed its derivation, (via the Agree, Merge, and Copy, operations, as per Minimalist theory) and Spell-Out is reached, the syntactic structure, with (possibly slightly changed) feature bundles in its terminal nodes, are sent off to PF/LF for interpretation.

An early step on the PF-side is Lexical Insertion, at which the abstract bundles are given phonological 'clothing' prepatory to pronunciation. Vocabulary Items (VIs)—phonological strings identified as expressing certain features—compete to realize the terminal nodes that the syntactic derivation has made available. At each terminal node, there may be many VIs whose feature specification is compatible with the feature content

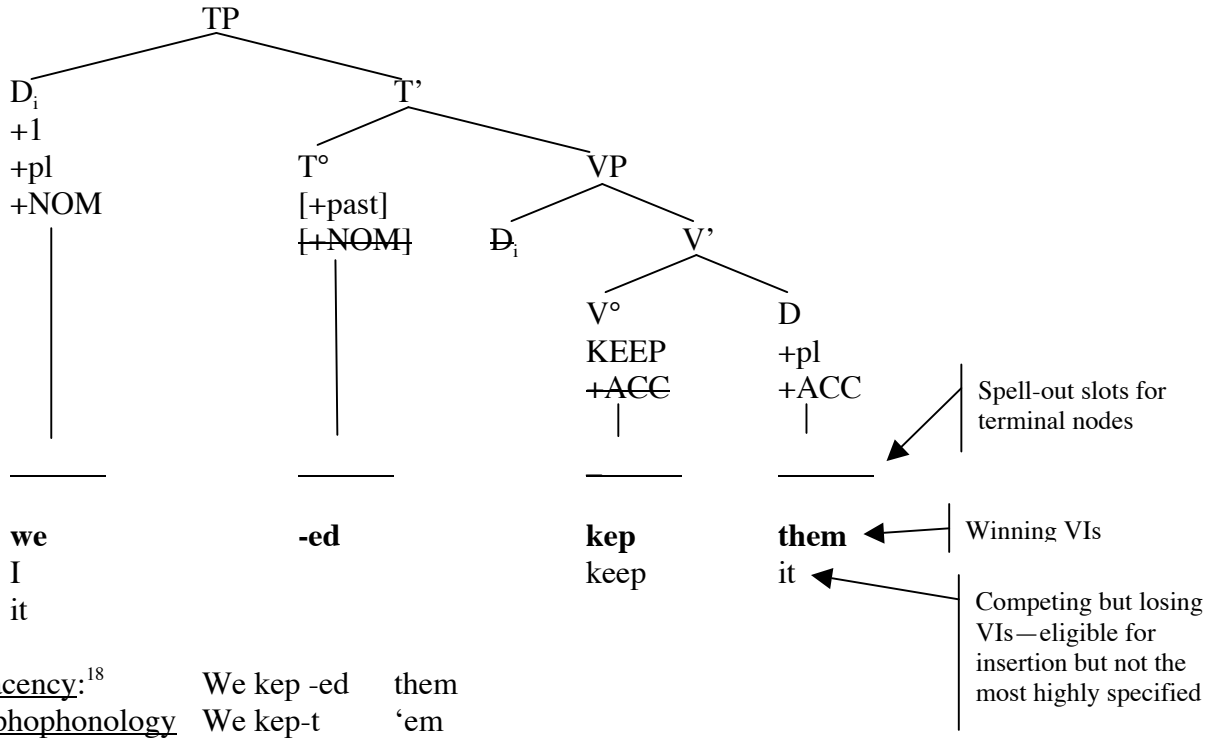
of the terminal node. The VI with the most compatible features (but no incompatible ones) realizes that node — it wins the competition and blocks the other compatible VIs from occupying the node. When no other VI is available, the default VI is inserted—the 'elsewhere' VI. A system that chooses a morpheme based on feature specification this way is said to obey the 'Elsewhere Principle'.

Here is a (syntactically very simplified) example derivation. Imagine an initial Numeration consisting of feature bundles such as those listed in (28):

(28) { [$_{D}$+1,+pl, +NOM], [$_{T}$+past, +NOM], [$_{D}$+pl, +ACC], [$_{V}$KEEP, +ACC] }

The syntax merges and moves these feature bundles to create a syntactic tree, in which all the necessary feature-checking has been accomplished. After the syntax is done with it, the (simplified) tree in (29) is handed off to Spell-Out. The Vocabulary Items *I, we, it, kep-, keep, -ed,* and *them* are all compatible with the available positions, but only the most highly specified VI at each slot succeeds in actually realizing the terminal node. The competition is illustrated at the bottom of the tree.

(29)



+ Adjacency:[18] We kep -ed them
+ morphophonology We kep-t 'em

The theoretical attraction of such an approach is that it allows a natural account of mirror principle effects, provides a straightforward relationship between syntax and morphology, and most importantly calls for only a single generative engine — it requires no generative mechanisms in the lexicon. That is, there is no need for a separate level of paradigmatic structure to generate inflected and/or derived word forms, or to capture the blocking effect. The blocking effect is captured by the Elsewhere principle — the process of competition of compatible VIs. The default, 'elsewhere' VI will only win the competition if no more specific VI is compatible with that slot.

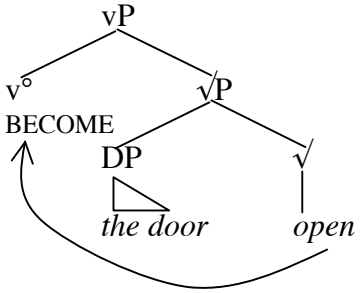
3.2 (Modified) Hale and Keyser (1993, 2002)-type vPs for causative/inchoative alternations

In the Distributed Morphology conception of blocking, the VIs in a given competition must be competing to realize a slot which corresponds to a terminal node in a

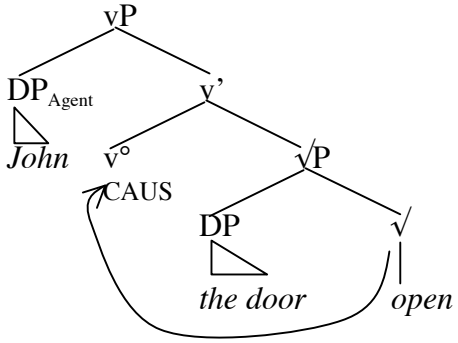
syntactic tree. With respect to the lexical causative/inchoative pairs, which behave syntactically like monomorphemic simplex verbs, there had been no previous suggestion in the literature that their syntactic representation should be any more complex than simply V°. However, given DM assumptions, if the causative morphemes in lexical causatives are competing with each other, there must be a syntactic terminal node within the root+suffix complex for the suffix alone—that is, the syntactic representation of the lexical causative verb must involve one verbal projection for the root, and a separate projection for the suffix.

Hale and Keyser (1993, 2002) independently proposed that all transitive verbs—even morphologically simplex ones—are made up of two separate heads: The main V° introduces the internal arguments of the verb and projects to VP, and the external argument is introduced in the specifier of a v°, which takes the VP as its complement. In a slight revision to their account, Harley 1995 and Marantz 1997 proposed that a v° was also present in inchoative constructions, but that it was a distinct v° which selected no external argument.[19] The lower root √ will head-move to attach to its c-commanding v° head, creating a syntactically complex head-adjunction structure with two terminal nodes. The two resulting structures for inchoative (unaccusative intransitive) verbs and causative, agentive, transitive verbs are given in (30) below.

(30) a. Unaccusative verbs



b. Causative verbs.



The relevance to the problem of where in the syntax to locate the inchoative/causative suffixal morphology of Japanese, documented so extensively by Jacobsen, is clear. That morphology is a realization of the two types of v° head illustrated above.

3.3 Late insertion and lexical causatives

The treatment of the blocking phenomenon in lexical causatives suggested by this set of assumptions should now be clear. In a derivation which will contain a 'lexical' causative,[20] all the various causative morphemes compete to realize the v_{CAUS} head in the syntactic tree.[21] Depending on the class membership of the causative root, one particular causative morpheme will win—the one specified for co-occurrence with roots of that particular class. If no class is specified for a given root—the 'elsewhere' case—then the default *-sase* morpheme will step in to fill the gap. The list of morphemes competing to realize v_{CAUS} is given in (31); for completeness the list of morphemes competing in the inchoative case to realize v_{BECOME} is given in (32).

(31) Morphemes competing to realize v_{CAUS} in Japanese

-Ø-	↔	CAUS	/ [$\sqrt{}_{\mathbf{I+IV}}$ ___$_v$]	(38 Jacobsen roots on the list for -Ø-)
-e-	↔	CAUS	/ [$\sqrt{}_{\mathbf{II+III+XIV+XV}}$ ___$_v$]	(120 roots on list)
-s-	↔	CAUS	/ [$\sqrt{}_{\mathbf{V+VI+VII}}$ ___$_v$]	(47 roots on list)
-as-	↔	CAUS	/ [$\sqrt{}_{\mathbf{VII+IX+X}}$ ___$_v$]	(91 roots on list)
-os-	↔	CAUS	/ [$\sqrt{}_{\mathbf{XI}}$ ___$_v$]	(6 roots on list)
-se-	↔	CAUS	/ [$\sqrt{}_{\mathbf{XII}}$ ___$_v$]	(6 roots on list)
-akas-	↔	CAUS	/ [$\sqrt{}_{\mathbf{XIII}}$ ___$_v$]	(4 roots on list)
-sase-	↔	CAUS	/ Elsewhere	(no roots on list) **Blocking effect!**

(32) Morphemes competing to realize v_{BECOME} in Japanese:

-e-	↔	BECOME	/ [$\sqrt{}_{\mathbf{I+IX+XII}}$ ___$_v$]	(79 Jacobsen roots on the list)
-ar-	↔	BECOME	/ [$\sqrt{}_{\mathbf{III+IV}}$ ___$_v$]	(79 roots on list)
-r-	↔	BECOME	/ [$\sqrt{}_{\mathbf{V}}$ ___$_v$]	(27 roots on list)
-re-	↔	BECOME	/ [$\sqrt{}_{\mathbf{VI}}$ ___$_v$]	(18 roots on list)
-ri-	↔	BECOME	/ [$\sqrt{}_{\mathbf{VII}}$ ___$_v$]	(2 roots on list)
-i-	↔	BECOME	/ [$\sqrt{}_{\mathbf{X+XI}}$ ___$_v$]	(14 roots on list)

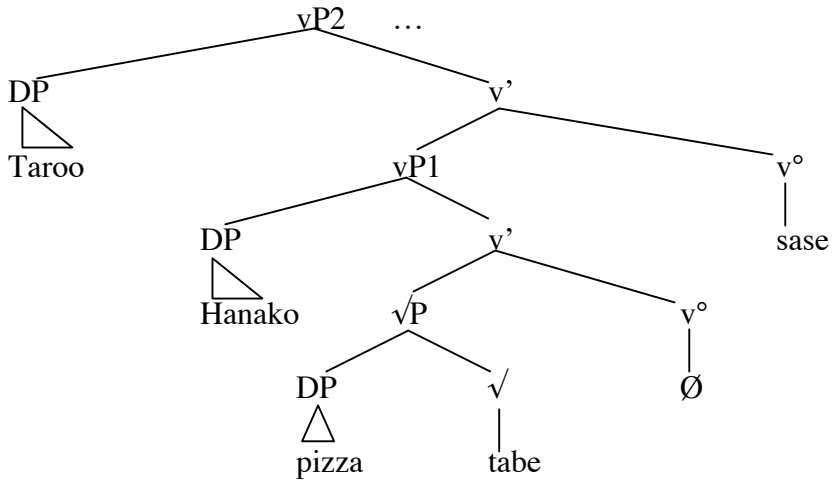
-or- ↔ BECOME / [$\sqrt{}_{\mathbf{XIV}}$ ___$_v$] (2 roots on list)
-are- ↔ BECOME / [$\sqrt{}_{\mathbf{XV}}$ ___$_v$] (3 roots on list) (Elsewhere? See n. 22)
-Ø- ↔ BECOME / [$\sqrt{}_{\mathbf{II+VII+XII}}$ _____$_v$] (88 roots on list) (Elsewhere?)

So it is possible to treat the lexical causative as subject to syntactic decomposition and thus capture the blocking effect. How does this help with the productive causative? And how are the other distinctions between the two causatives to be captured, in this all-syntax approach?

3.4 Implications for syntactic causatives

If *-sase-* is simply an Elsewhere form of the Agent-introducing v_{CAUS}, and if all syntactic causatives are realized with *-sase-*, then syntactic causatives are also a realization of the Agent-introducing v_{CAUS}. The syntactic version of this v_{CAUS}, however, does not take a √P headed by a verb root as its complement, but rather an argument-structurally complete complement—in fact, its complement is another vP, with its own independent agent argument. This is illustrated for a productive causative of the simple transitive verb *tabe-*, 'eat' in (33). Like all agentive transitive verbs in Hale and Keyser's approach, *tabe-* is itself a realization of a root plus an external-argument introducing v° head. In the case of *tabe-*, we assume that the v° which introduces its external argument is realized by a null morpheme. (In a syntactic causative of a lexically causative verb, that lower v° slot would be filled by whatever causative morpheme was appropriate to the lexical causative root, of course, as in, e.g. *kow-as-ase*, [[break-CAUS]$_{vP1}$-CAUS]$_{vP2}$, 'cause (someone) to break (something)'.)[22]

(33)



(Taroo-ga Hanako-ni pizza-o tabe-sase-ta)
Taro-N Hanako-D pizza-A eat-caus-past
“Taro made Hanako eat pizza.”

In a syntactic causative, the matrix CAUS v° will not meet the structural description for any special root-conditioned allomorphs of CAUS. The matrix CAUS will be insulated from the root by one layer of bracketing—it is separated from the root by the embedded v°.[23] Consequently, in productive causatives, the prediction is always that the default realization of the v_{CAUS} morpheme will win the competition—productive causatives will always be spelled out by the VI *-sase-*.

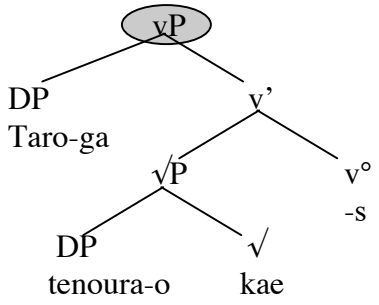
(34) (matrix v° after head-to-head movement): [[$\sqrt{}_{TABE}$ _____$_v$] _____$_v$]

We are now in a position to propose clear definitional criteria that will distinguish lexical and productive V+*sase* combinations in this framework:

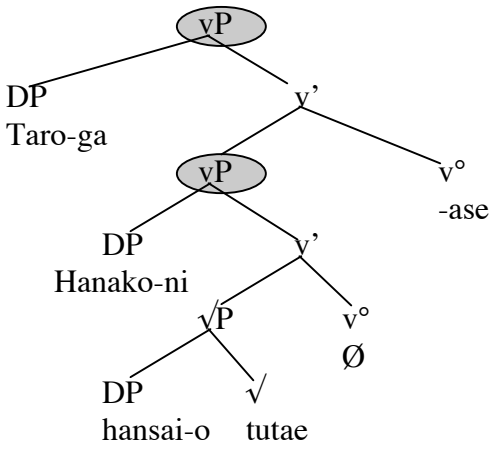
(35) a. ‘lexical’ causative: a CAUS v° that is immediately adjacent to a root.
b. ‘productive’ causative: a CAUS v° that is not adjacent to a root (i.e. one which embeds a vP).

Compare the lexical and syntactic causative structures in (36) below:

(36) a.



b.



a. Taro-ga tenoura-o kae-s…
Taro-N palm-A return-CAUS
"Taro changed his attitude suddenly"
(=(16)c above)

b. Taroo-wa Hanako-ni hanasi-o tutae-sase-ta
Taro-T Hanako-D story-A convey-CAUS-PST
"Taro made Hanako convey a story"

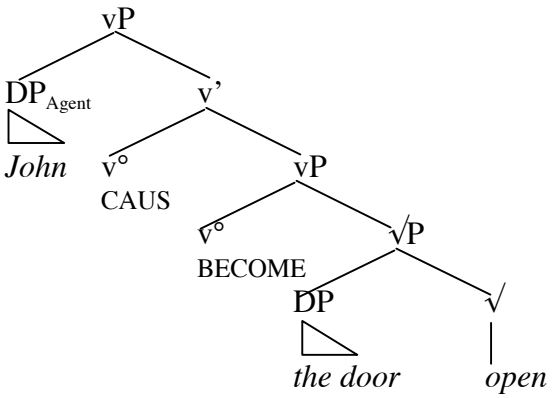
To distinguish between the syntactic properties of lexical and productive causatives, then, it suffices to identify vP as the locus of the relevant syntactic properties that suggest a biclausal approach. It has long been assumed that vP is a locus for successive-cyclic A-bar movement, and hence a possible target constituent for quantifier scope. Since vP introduces the external argument, it is natural to associate subject-oriented binding preferences with vP, as well as subject control into adverbials, perhaps supplemented with a c-command restriction. And finally, since vP is the modern equivalent of the former simplex VP projection, it is natural to think of VP adverbials having two loci for scope in productive causatives but only one in lexical causatives. In short, by ascribing these properties to a particular functional projection, we are able to appeal to the same type of explanation for their absence in the lexical causative as we appealed to to explain the single-clause effects on case-assignment and NPI licensing in the productive causative. The culprit is the absence of two instances of the relevant syntactic projection in each case — TP in the case of case-assignment and NPI licensing in productive

causatives, vP in case of subject control, adverbial modification, quantification and binding in lexical causatives.[24]

3.5 Why not a v_{BECOME} layer in lexical causatives?

Miyagawa 1994, 1998, proposes that there is also an inchoative v° embedded under the causative v° of a lexical causative, adopting a structure like that given in (37) below:

(37) (Miyagawa 1994, 1998)



In order to capture the fact that inchoative morphology disappears in the lexical causative member of the causative/inchoative pair for the vast majority of cases, Miyagawa proposes that the lexical causative morphemes realize a complex segment, the v_{CAUS}+v_{BECOME} heads together. In order to accomplish this, the v_{CAUS} and v_{BECOME} morphemes must fuse into a single terminal node prior to insertion. In one case he discusses, the lexical causative meaning 'bother', *iya-gar-sase*, it appears as if inchoative morphology— *-gar-* —is indeed embedded under the lexical causative morpheme *-sase*; Miyagawa assumes that fusion must then have failed in this one case, justifying the approach.

On the present approach, where the lexical causative v° and the inchoative v° are interchangeable, rather than simultaneously present, we would have to assume that *-gar* is not the spellout of the inchoative v° head, but some other morpheme. This is necessary

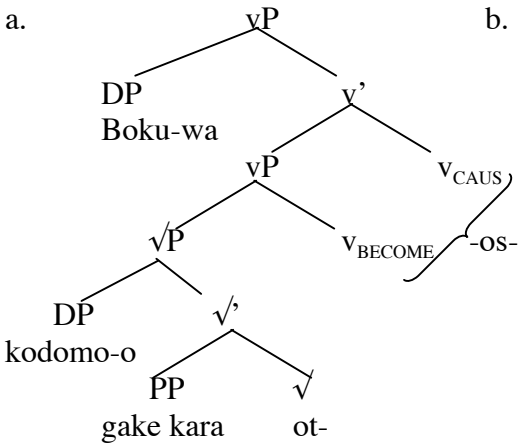
given the logic of the analysis above. If lexical causatives embedded an inchoative v° rather than a bare √P, it would become impossible to distinguish between syntactic causatives of inchoatives, and lexical causatives. Compare the structures, under the inchoative-inside-lexical-causatives hypothesis, for the following two sentences, from Miyagawa 1989:130, ex. 43a/b. The availability of the adversity reading for (38)a, as well as the irregular causativizer *-os-*, indicates that *ot-os-* is a lexical causative; the absence of the adversity reading in (38)b, along with the default causativizer *-sase-*, indicates that *ot-i-sase* is a productive causative.

(38) a. Boku-wa kodomo-o gake kara ot-os-ita
I-T child-A cliff-from drop-CAUS-PST
"I dropped the child from the cliff."
"The child dropped from the cliff, and I was adversely affected." **Lexical**

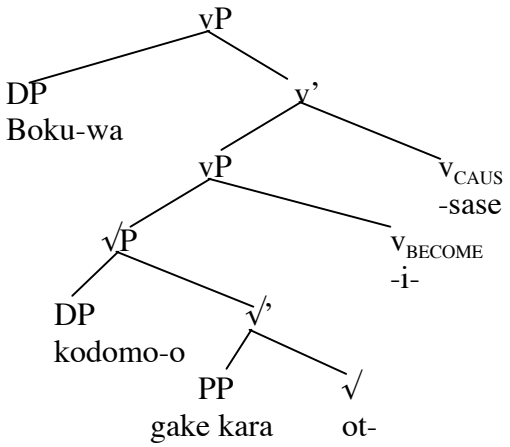
b. Boku-wa kodomo-o gake-kara ot-i-sase-ta
I-T child-A cliff from drop-BECOME-CAUS-PST
"I caused the child to drop from the cliff."
#"The child dropped from the cliff, and I was adversely affected" **Productive**

On Miyagawa's 1994/1998 structures, where the lexical causative embeds the inchoative, these two sentences would be represented as in (39):

(39) a.



b.



If the lexical causative *ot-os* includes a v_{BECOME} in its structure, then the only difference between the lexical causative and the productive causative is whether or not

Fusion (a post-syntactic operation) has applied to the v_{BECOME} and v_{CAUS} roots to ensure that they are spelled out by the single *-os-* morpheme. This type of post-syntactic operation cannot account for the syntactic distinctions observed above between lexical and productive causatives, in terms of adverbial scope, control possibilities, availability of adversative readings, etc. The lexical/productive distinction must be more categorical than a mere postsyntactic morphological diacritic, since it has such strong consequences for meaning. The distinction must be represented at LF. Consequently, it is preferable to treat the lexical causative as directly embedding the √P, hence lacking the intervening vP_{BECOME}.

The notion that *-gar* in *iya-gar-sase,* 'bother', is not the inchoative but some other type of morpheme is supported by the fact that it seems to appear in psychological predicates only, such as *kuyasi-garu*, 'dumb-*gar*', lit. 'regret', *samu-garu*, 'cold-*gar*', lit. 'feel cold', *atsu-garu*, 'hot-*gar*', lit. 'feel hot', *hoshi-garu*, 'want-*gar*', lit. 'feel like' and *kowa-garu*, 'fear-*gar*', lit 'fear' (Yosuke Sato, p.c.). Indeed, Miyagawa 1989:157 notes that *-gar-* affixation only appears with these adjectives when they have a non-first person subject—in the first person, the *-gar-* affix is not needed. This suggests perhaps some connection of *-gar-* to evidentiality, rather than to the BECOME v° predicate, since presumably the event/argument structure of experiencing these emotions is identical no matter what the person of the subject is.

3.6 Correlations with other proposals in the literature

One significant distinction between the lexical causative and syntactic causative that we have not discussed much above is the possibility of idiomatization in the former, and the impossibility of it in the latter. In fact, this pattern fits well with independent

proposals in the literature by Kratzer 1996 and Marantz 1997, according to which the agent-selecting vP is the boundary of a domain for special meaning specification—no projection outside a vP can participate in an idiomatic specification that depends on the root. This proposal was introduced to account for a pattern of facts first observed in Marantz 1984: idiomatic meanings for verbs are often conditioned by the object selected for by a transitive verb ('kill the afternoon/kill the bottle/kill an audience'), but are seldom or never conditioned by the subject associated with a transitive verb. Assuming that agent-introducting v° is an interpretive boundary of this type can account for those facts, and also predicts the pattern of facts about idiomatization observed here: lexical causatives, with nothing intervening between the causative head and the root, often idiomatize, while productive causatives, with a vP between the causative head and the root, never do.

Another proposal has to do with the conditioning of allomorphy by the root only. So far, nothing we have said would prevent a particular root in combination with a particular v° from conditioning causative allomorphy for a productive causative which took that vP as its complement. However, that does not seem to occur: productive causatives are always realized with the default causative morpheme *-sase*.

Arad 2002 has claimed, based on evidence from Hebrew, that the domain for special meanings, i.e. the vP, is also a boundary domain for allomorphic conditioning of this type: roots can only condition specific allomorphs of morphemes which are syntactically directly adjacent to them. If this is true, it also predicts that Japanese productive causatives could never be allomorphically conditioned by the roots with which they occur.[25]

Both the proposal concerning vP as boundary for idiomatic semantic interpretation and the proposal taking vP to be a boundary for allomorphic conditioning correlate well with Chomsky (2001)'s claim that vP is a phase edge—a boundary in the syntactic derivation at which the v° complement is sent for interpretation to LF and PF, and which is subsequently impenetrable to later syntactic operations. Since in lexical causatives the complement to v° consists of a √ and its selected object, this constituent corresponds exactly to the V+O sequence which Marantz's generalization claims is the locus of idiomatization. The notion of interpretation by phase, then, can provide a theoretical basis for the claim that √+O may idomatize while Agent+√ (without O) may not.

3.7 The beginning of the High/Low Attachment Analysis

This was one of the first proposals in a very fruitful line of inquiry which I will call "high/low attachment analyses." Since then, many analyses have appealed to the idea that attachment of a morpheme to a higher functional projection results in regular morphology and compositional meaning, while attachment of the same morpheme to a lower projection (often the √), results in some allomorphy and potential meaning drift. Other early examples of such an analysis are the approach to English *of*-ing and *acc*-ing gerunds presented in Kratzer 1996, and the approach to Chichewa statives and passives sketched in Marantz 1997. Since then, such approaches have been extremely fruitful in looking at all kinds of morphology on the derivational/inflectional, unproductive/productive cusp, in many unrelated languages: Travis 2000 used such an approach to treat Malagasy lexical and syntactic causatives, in very much the same spirit as outlined here for Japanese. Embick 2004 adopts the idea to treat the distinction

between stative, resultative, and passive participle formation in English. Fortin 2004 applies it to Minnangkabu causatives. Jackson 2005 shows it applies to statives and resultatives in Pima. Alexiadou and Anagnostopoulou 2005 use it to treat adjectival participles in Greek. Svenonius 2005 continues the trend, discussing high/low treatments for causatives in several languages

4 Conclusion

I hope to have shown above that Japanese causatives have been extremely influential in shaping developments in syntactic theory, indeed, in many syntactic theories. Japanese causatives—even omitting the 'lexical' ones—either force one to do more syntax in the lexicon (Manning, Sag & Iida), or more morphology in the syntax (Baker).

It was argued that a careful examination of lexical causatives forces one to figure out a way to unify traditional idiosyncratic, irregular word-formation with regular, compositional syntax, and yet maintain a principled distinction between the two. A post-syntactic morphology—a 'late insertion' approach—with recursive vPs, allows a simple, unified treatment of all three types of lexical causatives, with a principled understanding of the nature of the distinction between lexical and syntactic causatives.

The analysis could in general be taken as additional evidence for the phasal status of vP, and for successive-cyclic QR through vP, among other things.

References

Alexiadou, A. and E. Anagnostopoulou. 2005. On the syntax and morphology of Greek participles. Talk presented at the Workshop on the Morphosyntax of Modern Greek, LSA Institute, July 2005.

Arad, Maya. 2003. Locality Constraints on the Interpretation of Roots: the Case of Hebrew Denominal Verbs. *Natural Language and Linguistic Theory* 21, p. 737-778

Baker, M. 1988. *Incorporation*. Chicago, IL: University of Chicago Press.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. In Kenneth Hale and Samuel Jay Keyser, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, 1-52. Cambridge, Mass.: The MIT Press

Chomsky, Noam. 2001. Derivation by Phase. In Michael Kenstowicz, ed, *Ken Hale: A Life in Language*. Cambridge, MA: MIT Press, 1-52.

Cipollone, Domenic. 2001. "Morphologically complex predicates in Japanese and what they tell us about grammar architechture. In *OSU Working Papers in Lingusitics 56*, ed. by Michael Daniels, David Dowty, Anna Feldman and Vanessa Metcalf.

Dubinsky, Stan. 1994. Predicate union and the syntax of Japanese causatives. *Journal of Linguistics* 30, 43-79.

Embick, David. 2004. On the structure of resultative participles in English. *Linguistic Inquiry* 35.3, 355-392.

Folli, Rafaella, Heidi Harley and Simin Karimi. 2005. Determinants of event structure in Persian complex predicates, *Lingua* 115.10, 1365-1401

Fortin, Catharine R. 2004. Minangkabau Causatives: Evidence for the l-syntax/s-syntax

division. Talk presented at AFLA 2004, April 2004, ZAS Berlin.

Harada, S. I. 1973. "Counter Equi NP Deletion," *Annual Bulletin 7*, The Research Institute of Logopedics and Phoniatrics, University of Tokyo.

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

Hale, K. and S. J. Keyser. 2002. *Prolegomena to a theory of argument structure*. Cambridge, MA:MIT Press.

Harley, H. 1995a. *Subjects, Events and Licensing*. PhD. Dissertation, MIT.

Harley, H. 1995b. '*Sase* bizarre: The structure of Japanese causatives.' In *Proceedings of the Canadian Linguistic Society Meeting,* ed. by P. Koskinen.

Harley, H. and R. Noyer. 2000. Licensing in the non-lexicalist lexicon. In B. Peeters, ed., *The Lexicon/Encyclopedia Interface*, 349-374, Amsterdam: Elsevier Press.

Jackson, Eric. 2005c. Derived statives in Pima. Paper presented at the SSILA Annual Meeting, 7 January 2005. http://www.linguistics.ucla.edu/people/grads/ejackson/SSILA05PimaDerivedStatives.pdf

Jacobsen, W. M. 1981. *Transitivity in the Japanese Verbal System.* Ph D. dissertation, University of Chicago.

Jacobsen, W.M. 1992. The transitive structure of events in Japanese. *Studies in Japanese Linguistics* I, Tokyo: Kurosio *Publishers*

Kitagawa, Y. 1986. *Subjects in Japanese and English*. Doctoral dissertation, University of Massachusetts, Amherst.

Kitagawa, Y. 1994. *Subjects in Japanese and English*. Outstanding Dissertations in Lingusitics series. New York: Garland.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In J. Rooryck and L. Zaring eds., *Phrase Structure and the Lexicon*, 109-137. Dordrecht: Kluwer.

Kuno, S. 1973. *The Structure of the Japanese Language*. Cambridge, MA: MIT Press.

Kuroda, S.-Y., 1965a. Causative forms in Japanese. *Foundations of Language* 1.30-50.

Kuroda, S-Y. 1965b. *Generative Grammatical Studies in the Japanese Language*. Doctoral dissertation, MIT.

Kuroda, S.-Y., 1981. Some recent issues in linguistic theory and Japanese syntax. Coyote Papers 2.103-122.

Kuroda, S.-Y., 1990. Shieki no jodoshi no jiritsu-sei ni tsuite. Bunpo to imi no aida: Kunihiro Tetsuya kyoju kanreki taikan kinen ronbunshu. 93-104. Tokyo: Kurosio.

Kuroda, Y (1994) "Lexical and Productive Causatives in Japanese: an examination of the theory of paradigmatic structure," in *Journal of Japanese Linguistics*

Kuroda, S-Y. 2003. Complex predicates and predicate raising. In N. Fukui (ed.), Formal Japanese syntax and universal grammar: The past 20 years, *Lingua.*4-6:447-480

Manning, C, I. Sag and M. Iida. 1999. The lexical integrity of Japanese causatives. In Levine, R.D. and Green, G. (eds.) *Studies in contemporary phrase structure grammar.* Cambridge: CUP.

Marantz, Alec. 1991. Case and licensing. In *ESCOL '91: Proceedings of the Eighth Eastern States Conference on Linguistics*, ed. German Westphal, Benjamin Ao, and Hee-Rahk Chae, 234–253. CLC publications.

Marantz, A. 1997. No escape from syntax: Don't try a morphological analysis in the privacy of your own lexicon' In A. Dimitriadis, L. Siegel, et. al., eds. *University of Pennsylvania Working Papers in Linguistics*, vol. 4.2, Proceedings of the 21st Annual Penn Linguistics Colloquium, 1997, pp. 201-225.

Matsumoto, Yo. 2000. "On the Crosslinguistic Parameterization of Causative Predicates: Implications from Japanese and Other Languages," In Miriam Butt and Tracy Holloway King (eds.), *Argument Realization*. Stanford: CSLI Publications, 135-169.

Miyagawa, S. 1980. Complex verbs and the lexicon. PhD. dissertation, University of Arizona.

Miyagawa, S. 1984. Blocking and Japanese causatives. *Lingua* 64, 177-207.

Miyagawa, S. 1989. *Structure and Case Marking in Japanese*. New York: Academic Press.

Miyagawa, S. 1994. "(S)ase as an Elsewhere Causative," *Program of the Conference on Theoretical Linguistics and Japanese Langauge Teaching*, Tsuda University, pp. 61-76.

Miyagawa, S. 1998. "(S)ase as an Elsewhere Causative and the Syntactic Nature of Words," *Journal of Japanese Linguistics* 16, pp. 67-110

Miyagawa, S. 1999. "Causatives," Natsuko Tsujimura, ed., *The Handbook of Japanese Linguistics*, Blackwell, pp. 236-268.

Murasugi, Keiko, Tomoko Hasimoto , and Sachiko Kato. 2004. On the Acquisition of Causatives in Japanese*. *BU Conference on Language Development 28 Proceedings Supplement*, http://www.bu.edu/linguistics/APPLIED/BUCLD/supp.html

Nishiyama, Kunio. This volume. Morphology and predicate formation.

Pylkkanen, L. 2002. *Introducing Arguments*. Ph. D Thesis, MIT.

Sadakane, N. and M. Koizumi. 1995. On the nature of '**dative**' particle -ni in Japanese. *Linguistics* 33:5-33.

Shibatani, Masayoshi. 1990. *The Languages in Japan*. Cambridge: Cambridge University Press.

Svenonius, P. 2005. "Two domains of causatives." Talk presented at CASTL, March 10, 2005. http://www.hum.uit.no/a/svenonius/papers/Svenonius05TwoDomains.pdf

Takano, Yuji. 2004. Coordination of verbs and two types verbal inflection. *Linguistic Inquiry* 35-1: 168-178.

Terada, M. 1991. *Incorporation and Argument Structure in Japanese,* PhD dissertation, University of Massachusetts, Amherst, Amherst:GLSA

Travis, Lisa. 2000. Event structure in syntax. In *Events as Grammatical Objects: The Converging Perspectives of Lexical Semantics and Syntax*, edited by Carol Tenny and James Pustejovsky, pp. 145-185. CSLI, Stanford

Volpe, Mark. 2005. *Japanese Morphology and Its Theoretical Consequences: Derivational Morphology in Distributed Morphology.* PhD. Dissertation, SUNY Stony Brook.

Zenno, Y. 1985. *Paradigmatic Structure and Japanese Idioms*. Master's thesis, Ohio State University, Columbus.

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[*] I wish to express my gratitude to the workshop organizers, Shigeru Miyagawa and Mamoru Saito, for inviting me to present at the Workshop on Linguistic Theory and the Japanese Language in July, 2005 at Harvard University, and for their valuable feedback, as well as that of the audience there. Thanks also to Yosuke Sato and Kunio Nishiyama for their detailed comments, which have improved the manuscript greatly. Caroline Heycock and Akira Watanabe also provided important comments. Takaomi Kato, Yosuke Sato, Hironobu Kasai and Kazutoshi Ohno helped me with some of the Japanese example sentences herein. Any and all remaining shortcomings and mistakes are of course my responsibility entirely.

[1] Kuroda 1981, 1990 (as cited in Kuroda 2003) presents some examples from negation and intervening particles to suggest that *-sase-* does have an independent existence as a verbal morpheme; Miyagawa 1989:115f, and Kitagawa 1994:184f., followed by Manning, Sag and Iida 1999:47, argue that in fact these are examples of the *-ase-* allomorph suffixed to light verb *s-*, 'do'. Kuroda (2003 n. 14) disagrees, ascribing Kitagawa's position to grammaticality judgment differences.

[2] In the case of the *make*-reading of a causative of a transitive verb, it seems that the dative *-ni* on the Causee is the structural case-marker *-ni*, not postpositional *-ni* (Sadakane & Koizumi 1995). In *let*-reading causatives, with both transitive and intransitive root verbs, the *-ni* on the Causee seems to be P *-ni*

[3] An interesting piece of evidence showing the monoclausal nature of the case-marking of productive causatives is noted by Manning, Sag and Iida: when a productive causative is suffixed with the potential/abilitative morpheme *-e-*, the embedded accusative argument

may be optionally marked with nominative case, rather than accusative—just like the accusative arguments of monoclausal, morphologically simple transitive verbs suffixed with the same morpheme. An example illustrating this phenomenon is given below:

(i) Sensei-ga Taroo-ni tsukue-ga/o soujis-ase-re-naka-tta (koto)
teacher-N Taroo-D desk-N/A clean-CAUSE-ABL-NEG-PAST (fact)
"The teacher was not able to make Taroo clean his desk.'

[4] See Nishiyama (this volume) for discussion of this problem with respect to other types of morphologically complex words in Japanese.

[5] Akira Watanabe (p.c.) notes that this same problem for lexicalist treatments of complex predicates arises with the affixal light-verb constructions in Japanese.

[6] Interestingly, it seems that this structure is not available for examples involving true coordination, rather than disjunction (thanks to Takaomi Kato for these examples and discussion):

(i). *Ken-wa [Naomi-ni [kesa hurui huku-o sute]
K.-Top [N.-D [this.morning old clothes-A throw:away]
[sakuban kuroozetto-o soozi]]-sase-ta.
[last:night closet-acc cleaning]]-*sase*-PST
"Ken made Naomi throw away her old clothes this morning and clean out the closet last night."

(ii) *Yamada kyoozyu-wa [betubetu-no gakusei-ni [toogoron-no ronbun-o yomi]
Yamada professor-Top [different-G student-D [syntax-G paper-A read]
[oninron-no ronbun-o kak]]-ase-ta.
[phonology-G paper-A write]]-*sase*-PST.

"Prof. Yamada made different students read a paper on sytax and write a paper on phonology."

In (i), temporal modifiers are included which make the first VP temporally follow the second; in (ii), *betubetu* 'different' is attached to the Causee argument. Both these controls are intended to enforce a true coordination structure, and the sentences are ungrammatical. (See Takano 2004 on relevance of *betubetu* for ensuring that a given sentence with a bare V-stem VP contains a true coordination structure, rather than an adjoined, VP-modifier position for the first VP). Similar examples without the temporal modifiers or *betebetu* seem clearly to involve adjunction, as argued by Manning, Sag & Iida; they get a sequential, 'After Xing, Y', or 'X, then Y' reading. Interestingly, the same is true in Korean, which, unlike Japanese, has an overt coordination particle. It's quite mysterious why coordination is not allowed under *-sase* but disjunction is—especially since, as Takano 2004 shows, coordination in Japanese can apply to bare verb stems, below, e.g., a single tense morpheme. See XX below for speculation.

[7] Since I have said that such an approach should treat all productive morphology (esp. inflectional morphology) as syntactically attached, I have adopted a 'KaseP' hypothesis for Japanese case particles in this tree. For discussion of how these case morphemes can be licensed by particular case-marking heads, see Miyagawa 1999.

[8] Because productive causatives can undergo nominalization, this theory has to allow the syntax to derive *-kata* 'way of' nominals, too.

[9] This basic picture once established, many questions remain to be solved, concerning the *make*/*let* distinction, the role of unergativity, unaccusativity and agentivity, psych-

predicate causatives, restructuring effects, and more. See the survey literature cited above and references therein.

[10] The number of pairs does not include other pairs derived from a root already on the list even when these are not transparently semantically related; the number of listemes on each list, then, is likely somewhat larger.

[11] Mamoru Saito and Yosuke Sato (p.c.) inform me that the forms listed as meaning 'open' here, *hirakeru~hiraku*, are not used (the pair from class II, *aku~akeru*, is the appropriate one). Some other particular items in Jacobsen's lists also seem to not currently be in use, for example *bakasu, dekasu,* and *nukumeru.*

[12] See also Matsumoto 2000.

[13] The adversity interpretation is not available for these examples for at least some speakers (Yosuke Sato, p.c.).

[14] Kunio Nishiyamia (p.c.) notes that some clearly monoclausal (and hence lexical) causatives nonetheless do not have an adversity interpretation, such as *sir-ase-ru*, 'inform', lit 'know-cause'. The idiomatization and adversity causative implications are thus unidirectional: If a causative has an idiomatic interpretation or an adversative interpretation, it is lexical; if it does not, the case is still underdetermined. Tests involving the full constellation of monoclausal/biclausal properties listed above is necessary to establish lexical vs. syntactic status in many individual cases. The testing situation is complicated in cases where a √ and the unaccusative/inchoative form of the verb are phonologically identical, however, since both the lexical reading (embedding the root) and the syntactic reading (embedding the inchoative vP) may be available in such cases.

[15] Another clear example of blocking arises in the case of verb-specific honorific morphology in Japanese, as for *tabe*, 'eat'. It cannot be marked with the productive honorific **o-tabe-ni naru*. Rather its irregular honorific form must be used: *mesiagaru*, 'eat.HON'. For discussion, see Volpe 2005.

[16] In such theories, there is an important distinction between the root lexeme itself, which is the 'real' lexical entry, and its word forms, which merely occupy the slots of its paradigm. In theories which allow paradigms to attach derivational morphology, like Miyagawa's, the word forms which fill the slots in a derivational paradigm are also themselves lexemes which have their own *inflectional* paradigms attached — paradigms within paradigms, as it were.

[17] Most of the following is a mildly revised version of Miyagawa's 1994, 1998 analysis, which appeared in Harley 1995. It has been updated to take recent Minimalist terminology into account, but the crucial mechanisms remain the same.

[18] Though cf. Takano 2004.

[19] In the DM account of Harley 1995 and Marantz 1997, there is no constituent V°, and hence no VP: a verb is created in the syntax by combining a √ and a v° head. The distinction between a 'light verb' and a 'main verb', then, comes down to whether the v° element has had a √ element combined with it or not: main verbs are v°+√ combinations; light verbs like *-sase-* are pure v°. The question of whether any given verb in a language is a realization of just v° or of v°+√, then, is an empirical question. For instance, English *make* might be a v°, like *-sase-*, or a v°+√ (=V) combination, like *coerce* or *permit*. See also footnote 22.

[20] Although, in the analysis about to be described, the class of causatives we have been calling 'lexical' are formed in the syntax, and no pre-syntactic word-forming lexical component is assumed, the major conceptual advantage of the analysis. For terminological consistency, however, I'll continue referring to these monoclausal causatives as 'lexical'.

[21] To make the accounts of the English and Japanese lexical causatives as parallel as possible, we will assume that the v° head has had the √ node adjoined to it by head-movement. Because Japanese is head-final, however, the head-movement is not necessary to get all the morphemes in the correct order; they could remain in situ but simply merge under adjacency.

[22] Sometimes, of course, the appropriate v° causative morpheme in a lexical causative is itself the null v° morpheme, as for Jacobsen's classes I and IV above, e.g. *ak-Ø-U,* 'open.tr'. The question of why the root √*ak*, 'open', may also be embedded under $v°_{BECOME}$ (allomorph *-e-*) but the root √*tabe*, 'eat', apparently may not, despite also taking the Ø allomorph of the external-argument-selecting v°, can be answered in one of two ways. If *-rare-*, the passive morpheme, is the Elsewhere form of $v°_{BECOME}$, then it is perhaps the case that √*tabe* does alternate, with its passive form *tabe-rare* involving replacing the Ø $v°_{CAUS}$ morpheme for a $v°_{BECOME}$, *-rare-*, thus explaining the suppression of the external argument, similar to the analysis of Persian light verbs presented in Folli, Harley and Karimi 2005. Alternatively (if the productive passive is assumed to involve embedding vP, rather than √P, like the productive causative), the failure of √*tabe* to alternate can be taken as an indication that the immediate licensing environment for √*tabe* insertion does not allow a $v°_{BECOME}$; for discussion on how to restrict the

productivity of inchoative/causative alternations in a syntactic approach to verb-formation, see Harley and Noyer 2000.

[23] This is the case no matter whether the √° and embedded v° head move to the matrix v°, or if they are attached just by virtue of their head-final adjacency in Japanese. In either case, the same remarks obtain: a productive causative v° will never be adjacent to a root, but will always be separated from it by another v°, the one that comes lexically with that √.

[24] There are still generalizations about the various causatives which remain uncaptured on this analysis. For instance, why does lexical *-sase-* always alternate with an inchoative form whose inchoative suffix is Ø? In principle, a root could be on a special list for an unaccusative morpheme like *-r-* or *-e-*, but not for a causative morpheme, and hence *-r-* or *-e-* could in principle alternate with *-sase-*, yet this does not seem to occur. See Miyagawa 1998 for a proposal. Similarly, the haplological restriction on multiple occurrences of *-sase* are unexplained—one would expect that inifinite recursion should be possible—as with *John made Mary make Joe make Sue eat pizza*—but more than one syntactic *-sase* embedding is ungrammatical (though Kuroda 1994 shows that a lexical *-sase* may combine with one syntactic *-sase*).

[25] There are interesting reasons to question this precise formulation of both of these claims, brought up by Volpe (2004). Lexical causatives can be the input to nominalization, with nominalizing morphemes conditioned by the particular lexical causative involved, and subject to subsequent meaning drift. For example, the lexical causative *chir-as-u*, 'to scatter', when suffixed by nominalizing *-i* (*chirashi*), refers idiomatically to 'leaflets', not to any scattered item. Yet this idiomatic nominalization

clearly includes the causative suffix *-as-*, which should have been a barrier to special meaning assignment, under the Marantz/Arad hypothesis. Pylkkanen (2002) proposes that the causative head and agent-introducing heads are distinct, with the latter selecting the former as its complement, and that only the agent-introducing head is the boundary for special meaning. It's possible that her approach could resolve the conflict between Volpe's idiomatic nominalization facts (including v_{CAUS} but not the agent head) and Miyagawa's verbal idiomatization facts (assuming the productive causative embeds the agent-introducing phrase, not just $v_{CAUS}P$).