The Lexical Integrity of Japanese Causatives

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1 Introduction

Grammatical theory has long wrestled with the fact that causative constructions exhibit properties of both single words and complex phrases. However, as Paul Kiparsky has observed, the distribution of such properties of causatives is not arbitrary: 'construal' phenomena such as honorification, anaphor and pronominal binding, and quantifier 'floating' typically behave as they would if causatives were syntactically complex, embedding constructions; whereas case marking, agreement and word order phenomena all point to the analysis of causatives as single lexical items.

In this paper, we sketch a strictly lexical theory of Japanese causatives that deals with the evidence offered for a complex phrasal analysis. The conclusions we will reach are given in (1) on the handout:

(1) a. Japanese causatives must be treated as single verbal forms with complex morphological structure.

b. The construal phenomena that seem to motivate an analysis of Japanese causatives in terms of embedded constituent structures can be explained in terms of hierarchical lexical argument structures.

c. It is possible to maintain a strictly lexical analysis, once a suitable conception of lexical structure and organization is adopted.

Our analysis, which provides a simple alternative to current proposals making extensive use of functional projections and empty categories, is cast within the framework of Head-driven Phrase Structure Grammar (HPSG), but is easily adapted to other lexical frameworks, e.g., LFG, Categorial Grammar, or GB accounts like those offered by Miyagawa (1980) and Kitagawa (1986).

2 The Data

2.1 Phonological Arguments

The claim that causative verbs are formed in the lexicon is supported by a number of phonological observations made by McCawley, Kitagawa, Poser and others: the idiosyncracy of the phonological process producing allomorphy between *-sase* and *-ase* (see (2)), the fact that reduplication cannot exclude the causative morpheme (as shown in (3)), and the patterns of accentuation seen in (4).

(2) a. tabe -sase
eat -CAUS

b. kak -ase
write -CAUS

(3) a. gohan o tabe tabe
rice ACC eat eat
'eating rice repeatedly'

b. ?gohan o tabesase tabesase
rice ACC eat-CAUS eat-CAUS
'causing someone to eat rice repeatedly'

c. *gohan o tabesase sase
rice ACC eat-CAUS CAUS

(4) a. tabé-ru (eat-PRES)

b. tábe-ta (eat-PAST)

c. tabe-sasé-ru (eat-CAUS-PRES)

d. tabe-sáse-ta (eat-CAUS-PAST)

2.2 Morphosyntactic Arguments

A number of morphosyntactic arguments also seem to favor the lexical analysis, e.g. subject honorification, the double-*o* constraint, and nominalization.

2.2.1 Subject Honorification

When the person denoted by the subject NP is socially superior to the speaker, the verb that governs that subject conventionally bears subject honorification morphology, as illustrated in (5a), which involves the syntactically complex *-te yaru* construction.

Note that only the main verb can bear subject honorification morphology, as shown by the ungrammaticality of (5b).

(5) a. Tanaka-sensei ga kodomo ni hon o yonde o-yari ni natta.
Prof. Tanaka NOM child DAT book ACC read-GER Hon-give become-PAST
'Prof. Tanaka gave the child the favor of reading a book.'

b.*Tanaka-sensei ga kodomo ni hon o o-yonde yari ni natta.
Prof. Tanaka NOM child DAT book ACC Hon-read-GER give become-PAST
'Prof. Tanaka gave the child the favor of reading the book.'

Now, a causative verb as a whole can bear subject honorification morphology, whereas the causative morpheme *-(s)ase* alone cannot bear that morphology, as shown in (6):

(6) a. Tanaka-sensei ga Suzuki ni hon o o-yom-ase ni natta.
Prof. Tanaka NOM Suzuki DAT book ACC Hon-read-CAUS become-PAST
'Prof. Tanaka made Suzuki read a book.'

b.*Tanaka-sensei ga Suzuki ni hon o yomi o-sase ni natta.
Prof. Tanaka NOM Suzuki DAT book ACC read Hon-CAUS become-PAST
'Prof. Tanaka made Suzuki read a book.'

This observation argues for a lexical analysis of the causative. If the construction were syntactically complex, the honorific prefix should precede only the causative morpheme, in parallel to (5a).

2.2.2 The Double-O Constraint

Example (7) shows that the causative construction observes the double-*o* constraint.[1] When the embedded verb is transitive, the causee cannot be marked with accusative.

(7) Taroo ga Ziroo *o/ni Kazuo o koros-ase-ta
Taro NOM Ziro ACC/DAT Kazuo ACC kill-CAUS-PAST
'Taro made Ziro kill Kazuo.'

The case marking in the morphological causative thus parallels that of the lexical causative and that of simplex three-argument verbs as shown in (8).

(8) a. Taroo ga Ziroo *o/ni e o mise-ta.
Taro NOM Ziro ACC/DAT picture ACC show-PAST
'Taroo showed a picture to Ziroo.'

b. Taroo ga Ziroo *o/ni e o age-ta.
Taro NOM Ziro ACC/DAT picture ACC give-PAST
'Taroo gave a picture to Ziroo.'

Only the lexical analysis predicts the case marking of causatives from the general case marking requirements for three-argument verbs without a further stipulation.

[1] Harada (1973), Poser (1989)

2.2.3 Nominalization

Nominalizations also support the lexical approach. Suffixation of *-kata* creates a nominal meaning 'way of', and can apply to causatives, as illustrated in (9b).

(9) a. kodomo ni hon o yom-ase-ta.
child DAT book ACC read-CAUS-PAST
'(I) caused the child to read a book.'

b. ?(kodomo e-no) hon no yom-ase-kata
(child DAT-GEN) book GEN read-cause-way
'the way to cause (the child) to read a book'

The genitive case-marking on the object *hon* shows that *yomasekata* is a noun.

2.3 Syntactic Puzzles for a Lexical Analysis

Now let us turn to syntactic arguments, which are often taken to favor a non-lexical analysis. We will show that all relevant data can in fact be satisfactorily explained within the lexical analysis we develop. We consider data from apparent coordination, binding, and adverb scope.

2.3.1 Coordination

It is sometimes assumed that examples like (10) involve coordinate structures, even though there is no overt coordinating particle.

(10) Ken wa Naomi ni [[hurui kutu o sute]-te
TOP DAT old shoes ACC throw

[atarasii kutu o kaw]] -ase-ta.
new shoes ACC buy CAUS-PAST
'Ken made Naomi throw away her old shoes and buy new ones.'

Given this assumption, the intended reading suggests, as noted by Gunji (1987), that the VPs *hurui kutu o sute* and *atarasii kutu o kaw* are conjoined and *-sase* is attached to this complex VP.

These sentences, however, cannot provide strong evidence for any non-lexical analysis because the phrases containing a gerundive verb (*sutete*) should be considered as adverbial phrases, rather than as conjoined VPs. Sentence (11) shows that the phrase 'throw away old shoes' is indeed acting as an AdvP because, as an adjunct, it can be placed inside the middle of the other supposed conjunct.[2]

(11) Ken wa Naomi ni atarasii kutu o [hurui kutu o sute-te] kaw-ase-ta.
Ken TOP Naomi DAT new shoes ACC old shoes ACC throw buy-CAUS-PAST
'Ken made Naomi throw away old shoes and buy new shoes.'

[2]Some speakers appear to rate this sentence as deserving a '?' in front, while others regard it as fine. At any rate, this situation contrasts clearly with real conjunction.

Asymmetries in the desiderative *ga/o* alternation with these putative "coordinated VPs", as in (12), provide further support for our claim.

(12) a.*Boku wa [kootya ga non-de], [keeki ga tabe]-tai.
I TOP tea NOM drink cake NOM eat-DESIRE
'I want to drink tea and eat cake.'

b.*Boku wa [kootya ga non-de], [keeki o tabe]-tai.
I TOP tea NOM drink cake ACC eat-DESIRE

c.?Boku wa [kootya o non-de], [keeki ga tabe]-tai.
I TOP tea ACC drink cake NOM eat-DESIRE

d. Boku wa [kootya o non-de], [keeki o tabe]-tai.
I TOP tea ACC drink cake ACC eat-DESIRE

The asymmetry can be explained by assuming that the first apparent VP is actually an AdvP, and that therefore the case marking of the first object ('tea') cannot be affected by properties of the suffix *-tai*.

2.3.2 Binding

Binding facts are used as further syntactic evidence to support a non-lexical analysis. It has been widely accepted in the literature that *zibun* ('self') is a subject-oriented reflexive. The fact that causee arguments can antecede reflexives as shown in (13) appears to support the embedding-structure analysis of causatives: *zibun*-binding to the causee *Taroo* is possible because *Taroo* is the embedded complement subject.

(13) Hanako ga Taroo ni zibun no syasin o mi-sase-ta.
Hanako NOM Taroo DAT self POSS picture ACC see-CAUS-PAST
'Hanako$_i$ made Taroo$_j$ see her$_i$/his$_j$ picture.'

In contrast, there is no ambiguity in (14) where the lexical causative form *miseru* ('show') is used.

(14) Hanako ga Taroo ni zibun no syasin o mise-ta.
Hanako NOM aro DAT self POSS picture ACC show-PAST
'Hanako showed Taroo her/*his picture.'

However, as Iida (1992) has shown, there is reason to question the subject-based account of *zibun*-binding (see (15)).

(15) a. Zibun no buka no husimatu ga Taroo no syusse o samatageta.
self GEN subordinate GEN misconduct NOM Taroo NOM promotion ACC marred
'The misconduct of his$_i$ subordinate marred Taroo$_i$'s promotion.'

b. Taroo wa Ziroo$_i$ ni zibun$_i$ no ayamati o satosi-ta.
Taroo NOM Ziroo DAT self GEN mistake ACC make-realize-PAST
'Taroo made Ziroo$_i$ realize his$_i$ mistake.'

But even assuming the subject-based generalization is right, it is possible to account for the *zibun*-binding facts without assuming an embedded constituent structure. Within HPSG, binding theory is universally based on argument structure, and hence the subject-orientation of *zibun*-binding need not stated in terms of constituent structure at all. We will return to the binding of the anaphor *zibun-zisin* in a moment.

Both the overt pronoun *kare* ('he') and the zero pronoun ('little pro') are regarded as pronominal elements and subject to Principle B, as shown in (16).

(16)*Taroo$_i$-wa Hanako-ni kare$_i$-o/$\emptyset_i$ sarakedasi-ta.
Taroo-TOP Hanako-DAT he-ACC reveal-PAST
*'Taroo$_i$ revealed him$_i$ to Hanako.'

However, in the morphological causative construction, as shown in (17), *kare* and the zero pronoun in the lower object position may be bound by the subject, but must be disjoint in reference with the dative causee (Kitagawa 1986, Shibatani 1990).

(17) a. Taroo$_i$ wa Ziroo$_j$ ni kare$_{i/*j}$ o bengos-ase-ta.
Taroo TOP Ziroo DAT he ACC defend-CAUS-PAST
'Taroo$_i$ made Ziroo$_j$ defend him$_{i/*j}$.'

b. Taroo$_i$ wa Ziroo$_j$ ni $\emptyset_{i/*j}$ bengos-ase-ta.
Taroo TOP Ziroo DAT defend-CAUS-PAST
'Taroo$_i$ made Ziroo$_j$ defend him$_{i/*j}$.'

These facts have also been used as evidence to support the embedded analysis of the morphological causative.

Although *kare* exhibits various peculiarities that challenge its traditional classification as a simple pronominal,[3] we will nonetheless assume here that it falls within the scope of Principle B.

[3]For example, *kare* does not serve as a bound variable: *kare* does not refer to the quantified subject NP in (i) and (ii).

(i) ?*dono otoko mo kare no tomodati o hihansi-ta.
which man also he POSS friend ACC criticize-PAST
'Every man(i) criticized his(i) friend.'

(ii) *dono otoko mo [Masaru ga kare o tataita] koto ni odoroi-ta.
which man also Masaru NOM he ACC hit COMP DAT be-surprised-PAST
'Every man(i) was surprised at the fact that Masaru hit him(i).'

Furthermore, as Takubo (1990) observes, *kare* can only refer to a person whose identity has been established in the speaker's knowledge.

2.3.3 Adverb Scope

Finally we consider adverb scope. Adverbs in the causative construction can in general be interpreted as modifying either the event denoted by the verb stem or the causation event. For instance, (18) is ambiguous.

(18) Noriko ga Masaru ni gakkoo de hasir-ase-ta.
Noriko NOM Masaru DAT school at run-CAUS-PAST
'Noriko made Masaru run at school.'

What happened at school may be either the causing event performed by Noriko or the running event caused by Noriko and performed by Masaru.

If adverb scope could be captured only by providing phrase structural domains for an adverb to take scope over, then this would be an argument for a syntactic analysis. Different interpretations could be obtained by assuming different positions for the adverb as illustrated in (19).

(19) a. [Noriko-ga Masaru-ni [gakko-de [[hasir]-ase]]]

b. [Noriko-ga Masaru-ni [[gakko-de [hasir]]-ase]]

On this view, the ambiguity of adverb scope is attributed to the presence of an embedding structure, i.e., the presence of two sentential domains over which adverbs can take scope. Some authors have suggested that, as a result, certain adverb positions have unambiguous scope readings, as shown in (20).

(20) a. Ken ga issyokenmei Naomi ni hon o yom-ase-ta.
Ken NOM diligently Naomi DAT book ACC read-CAUS-PAST
'Ken diligently made Naomi read a book.' [unambiguous] (Gunji 1992)

b. Taroo ga damatte Hanako o heya ni hair-ase-ta.
Taroo NOM silently Hanako ACC room into enter-CAUS-PAST
'Taroo made Hanako enter the room silently.' [ambiguous] (Kitagawa 1986)

c. Damatte Taroo ga Hanako o heya ni hair-ase-ta.
Silently Taroo NOM Hanako ACC room into enter-CAUS-PAST
'Taroo made Hanako enter the room silently.' [unambiguous] (Kitagawa 1986)

While a full account of different scope preferences for adverbs is beyond the scope of this paper, the contradictory judgements above and the existence of adverbs such as those in (21) which can clearly modify either the causation event or the caused event argue against an account where certain positions have unambiguous scope readings. We will take it as our goal to allow both scopal possibilities.

(21) a. Ken-ga hitori-de Naomi-ni hon-o yom-ase-ta
Ken-NOM by oneself Naomi-DAT book-ACC read-CAUS-PAST
'Ken made Naomi read the book by herself.'
'Ken made Naomi read the book all by himself.'

b. Ken-ga damatte Naomi-o suwar-ase-ta.
Ken-NOM silently Naomi-ACC sit-CAUS-PAST
'Ken (silently) made Naomi sit (silently).'

c. Ken-ga zibun-no pen-de Naomi-ni sakubun-o kak-ase-ta.
Ken-NOM self-GEN pen-with Naomi-DAT composition-ACC write-CAUS-PAST
'Ken (with his own pen) made Naomi write a composition (with her own pen).'

3 The Essentials of the Framework

Our general proposal for a lexical treatment of *-sase* causatives is compatible with a variety of lexical frameworks. The crucial ingredient we need is embedded argument structures that allow constraints to have access to the argument structures of both the causative verb as a whole and also the stem to which the causative suffix has been added.[4]

The conception of argument structure that we employ is based on essentially the same notion of SUBCAT lists as that used by Pollard and Sag (1987) and Gunji (1987). However, following recent work in HPSG,[5] we distinguish argument structure (ARG-S) from a word's valence, which is specified in terms of the features SUBJECT (SUBJ), COMPLEMENTS (COMPS), and SPECIFIER (SPR). Canonically, the values of a word's valence features 'add up' (via the append relation) to the verb's ARG-S value, as illustrated for the English words in (22).

(22) a. likes

$$\begin{bmatrix} \text{HEAD} & \textsc{verb}\ [\textsc{fin}] \\ \text{SUBJ} & \langle \boxed{1}\text{NP}[\textsc{n}]_{3s} \rangle \\ \text{COMPS} & \langle \boxed{2}\text{NP} \rangle \\ \text{ARG-S} & \langle \boxed{1}, \boxed{2} \rangle \end{bmatrix}$$

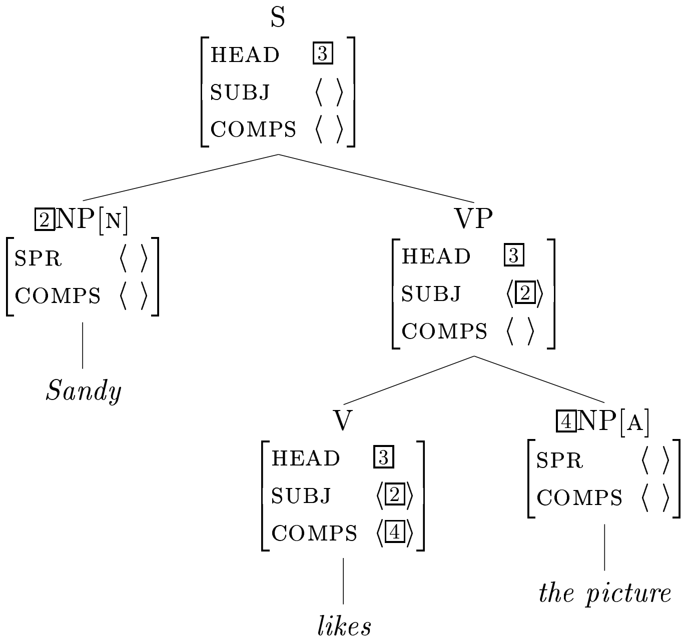
b. picture

$$\begin{bmatrix} \text{HEAD} & \textsc{noun} \\ \text{SPR} & \langle \boxed{1}\text{Det} \rangle \\ \text{COMPS} & \langle (\boxed{2}\text{PP}[\textsc{of}]) \rangle \\ \text{ARG-S} & \langle \boxed{1}, \boxed{2} \rangle \end{bmatrix}$$

In this theory, it is the valence features (not ARG-S) whose values are 'cancelled off' (in a Categorial Grammar-like manner) as a head projects a phrase. A lexical head combines with its complements and subject or specifier (if any) according to the lexically inherited specification, as shown in (23).

[4]Cf. the embedded argument structures in recent LFG work, such as Alsina 1993, Butt 1993.
[5]Borsley (1989), Pollard and Sag (1994, chap.9), Miller and Sag (1993), Abeillé et al. (to appear)

(23)



Note that subjects and complements in Japanese can be cancelled in any order, predicting clause-bounded scrambling.

The ARG-S list remains unaffected in the construction of syntactic phrases, except that, in virtue of the various identities between ARG-S members and members of valence lists, the ARG-S list's members become fully specified as the valence list values are identified with actual subjects, complements and specifiers. Once a complete phrase is constructed, the lexical head's ARG-S list is a fully specified hierarchical argument structure. As we will see below, it is the ARG-S list that is the locus of binding theory.

Basic lexical entries like those in (23) may give rise to further forms through the application of derivational morphology.[6] Thus the Japanese causative yields a new lexical form. Its relationship to the stem's sign can be expressed as in (24).

(24) a. *-(s)ase* is suffixed in the PHONOLOGY,

b. the stem's CONTENT is embedded as the third argument of the derivational form's CONTENT, which is a ternary *cause* predicate,

c. the SUBJ in the stem's lexical entry is replaced with a new complement (marked dative, or optionally accusative with intransitive stems), and a new SUBJ, the causer, is introduced.

This process will thus derive causative verbs with complex word structure, as illustrated in (25) for the causative of the simple transitive verb *tazune* ('visit'):

[6]This may involve lexical rules as in Pollard and Sag (1987, 1994) and Flickinger (1987), or following the proposals of Riehemann (1993), we could define the properties of complex lexical forms declaratively in terms of a set of constraints associated with a particular sort in a hierarchical lexicon.

(25)

$$\text{V}\;\begin{bmatrix} \text{PHON} & \langle\text{tazune+sase}\rangle \\ \text{SUBJ} & \langle\boxed{1}\text{NP}[\text{N}]_i\rangle \\ \text{COMPS} & \langle\boxed{2}\text{NP}[\text{D}]_j,\ \boxed{3}\text{NP}[\text{A}]_k\rangle \\ \text{ARG-S} & \langle\boxed{1},\ \boxed{2},\ \boxed{3}\rangle \\ \text{CONTENT} & \mathit{cause}_3(i,\ j,\ \mathit{visit}(j,\ k)) \end{bmatrix}$$

$$\text{V}\;\begin{bmatrix} \text{PHON} & \langle\text{tazune}\rangle \\ \text{SUBJ} & \langle\boxed{4}\text{NP}[\text{N}]_j\rangle \\ \text{COMPS} & \langle\boxed{3}\rangle \\ \text{ARG-S} & \langle\boxed{4},\ \boxed{3}\rangle \\ \text{CONTENT} & \mathit{visit}(j,\ k) \end{bmatrix} \qquad \textit{-sase}$$

tazune

Note that here the object NP (tagged $\boxed{3}$) is present on both the lower and higher COMPS lists. The subject of the lower list is however distinct from, but coindexed with, the dative NP on the higher list. This coindexing has the effect of identifying the causee semantically with the subject argument of the lower verb. Following derivational processes such as causativization, the value of the ARG-S list still bears the canonical relation to the form's SUBJ and COMPS value, i.e., the append relation.

Let us now see how this analysis can be applied first to the adjuncts, to the alleged coordination facts, and then to issues in the binding theory.

4 Analysis

4.1 Scope: Adjuncts, "Coordination" and *-nagara* clauses

As we have seen, the verbal ending *-te* marks phrases that are better analyzed as adverbials, not conjuncts. We provide a uniform treatment of scope that covers the interpretation of adverbs, alleged coordination, and a number of related issues.

The analysis we will sketch, if nothing more is said, entails that adverbs will be added to valence lists freely and hence, given our assumptions about scrambling, freely ordered among the other complements.

The essence of our proposal is a lexical rule that adds an adjunct onto a verb's COMPS list. This rule is quite in the spirit of the Type-Raising rule of categorial grammar.[7] So consider again the conjunctive adverbial in (26).

(26) Ken-wa Naomi-ni hurui kutu-o sute-te atarasii kutu-o kaw-ase-ta.
Ken-TOP Naomi-DAT old shoes-ACC throw new shoes-ACC buy-CAUS-PAST
'Ken made Naomi throw away her old shoes and buy new ones.'

[7]It's a bit more complicated than standard type-raising, as it is done before other arguments are discharged, but all uses of the rule remain theorems of the Lambek calculus.

The Type-Raising lexical rule will change the verb's lexical entry as in (27).

(27) *tabe* $\Rightarrow$ *tabe*

$$\begin{bmatrix} \textsc{arg-s} & \langle \mathrm{NP[\textsc{n}]}_j, \mathrm{NP[\textsc{a}]}_k \rangle \\ \textsc{content} & \textit{eat(j,k)} \end{bmatrix} \Rightarrow \begin{bmatrix} \textsc{arg-s} & \langle \mathrm{NP[\textsc{n}]}_j, \mathrm{NP[\textsc{a}]}_k, \mathrm{ADV} \rangle \\ \textsc{content} & \mathrm{ADV}'(\textit{eat(j,k)}) \end{bmatrix}$$

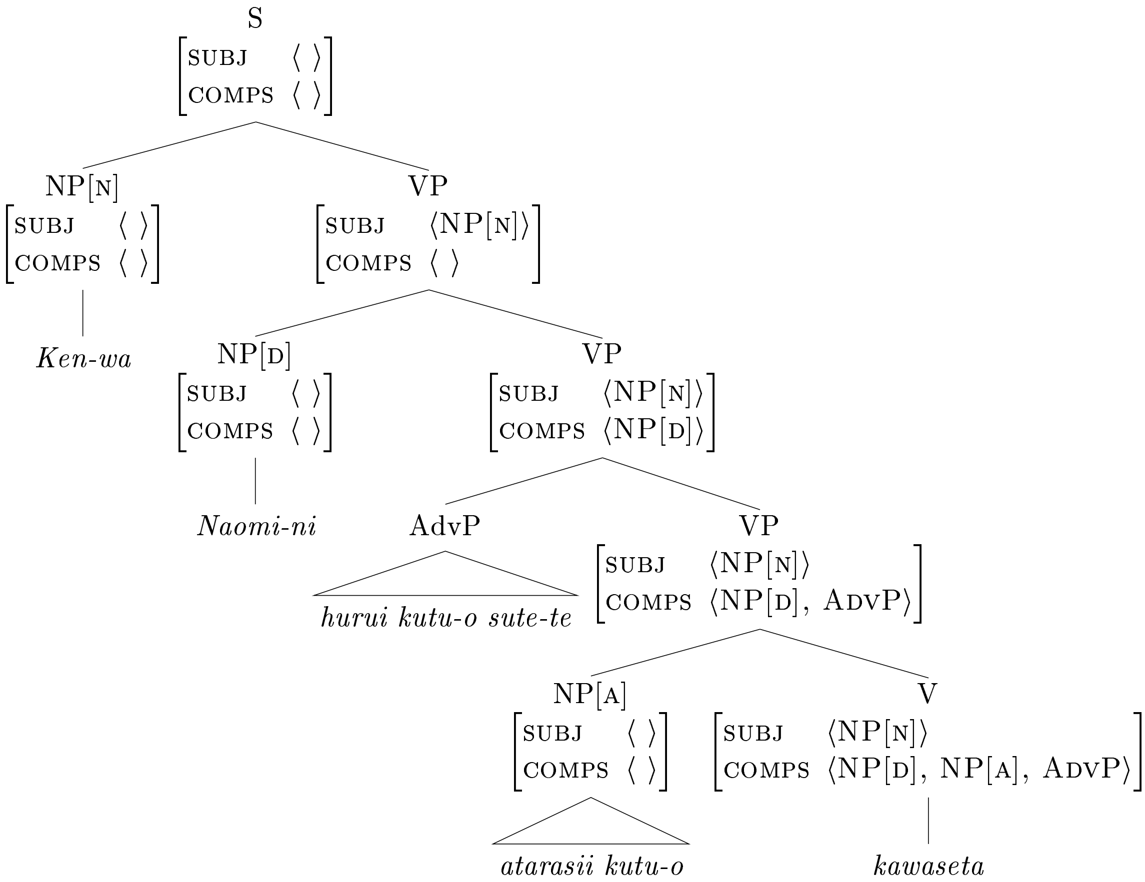
This then gives us the causative shown in (28):

(28) *tabe-sase*

$$\begin{bmatrix} \textsc{arg-s} & \langle \mathrm{NP[\textsc{n}]}_i, \mathrm{NP[\textsc{d}]}_j, \mathrm{NP[\textsc{a}]}_k, \mathrm{ADV} \rangle \\ \textsc{content} & \textit{cause}_3(\textit{i,j}, \mathrm{ADV}'(\textit{eat(j,k)})) \end{bmatrix}$$

which occurs in structures like (29).

(29)



Note that the adverbial phrase in this example appears higher in the tree than the causative verb, but nonetheless modifies only the verbal stem *kaw*. Given that the modification relations are fixed by the lexical entries and the phrases they project, the same interpretation results from a scrambled example such as (30):

(30) Ken wa Naomi ni atarasii kutu o [hurui kutu o sute-te] kaw-ase-ta.
Ken TOP Naomi DAT new shoes ACC old shoes ACC throw buy-CAUS-PAST
'Ken made Naomi throw away old shoes and buy new shoes.'

It is hard to see how such scrambled examples could be handled if *-te* phrases are analyzed as conjuncts.

4.2 Binding Theory

4.2.1 Reflexives

The HPSG binding theory is based on hierarchical argument structure rather than constituent structure. As Pollard and Sag (1992, 1994) demonstrate, this approach to binding provides an immediate solution to a variety of dilemmas facing any account of English binding stated in terms of constituency-based notions such as c-command. Our account of binding in Japanese is based on principles identical to those posited for English by Pollard and Sag, informally, those in (31):

(31) HPSG Binding Theory:

Principle A. A locally o-commanded anaphor must be locally o-bound.
Principle B. A personal pronoun must be locally o-free.
Principle C. A non-pronoun must be o-free.

The effect of these principles is to require an anaphor to be coindexed with a less oblique ARG-S member, if there *is* such a less oblique coargument. Otherwise, anaphors are free (subject to various discourse and processing considerations) to appropriate elements in the discourse context.

Perhaps the best candidate for a true anaphor in Japanese is the expression *zibun-zisin* which appears to obey Principle A in multiclausal structures. Apparently, Principle A must be parameterized for Japanese to allow only subjects as binders, as shown in (32).

(32) Hanako$_i$ ga Taroo$_j$ ni zibun-zisin$_{i/*j}$ no e o mise-ta.
Hanako NOM Taroo DAT self GEN picture ACC show-PAST
(lit.) 'Hanako showed Taroo self's picture.'

But (33) shows that the basic prediction of the HPSG binding theory, that anaphors with no local o-commander are exempt from Principle A, is also confirmed for Japanese.

(33) Zibun-zisin$_i$ ga hihansareta koto ga Taroo$_i$ o nayamaete-iru.
self NOM was-criticized COMP NOM Taroo ACC bother-PROG
(lit.) 'The fact that self was criticized bothers Taroo.'

We may now examine the predictions made by our lexical analysis of causatives. One key aspect of the analysis is that all members of the COMPS list of the lower verb are also on the causative verb's COMPS list. Further, the ARG-S list of the causative verb is the append of that verb's SUBJ and COMPS values, as illustrated in (34).

(34)

$$
\begin{array}{cc}
\multicolumn{2}{c}{\begin{array}{c}\text{V}\\ \left[\begin{array}{ll}\textsc{subj} & \langle \boxed{1}\text{NP}[\textsc{n}]_i \rangle \\ \textsc{comps} & \langle \boxed{2}\text{NP}[\textsc{d}]_j,\ \boxed{3}\text{NP}[\textsc{a}]_k \rangle \\ \textsc{arg-s} & \langle \boxed{1}, \boxed{2}, \boxed{3} \rangle \end{array}\right]\end{array}} \\
\begin{array}{c}\text{V}\\ \left[\begin{array}{ll}\textsc{subj} & \langle \boxed{4}\text{NP}[\textsc{n}]_j \rangle \\ \textsc{comps} & \langle \boxed{3} \rangle \\ \textsc{arg-s} & \langle \boxed{4}, \boxed{3} \rangle \end{array}\right] \\ | \\ \textit{tazune}\end{array} & \textit{-sase}
\end{array}
$$

In (34), the lower object $\boxed{3}$ is on both the superordinate and subordinate ARG-S lists. This raises the important issue for the binding theory that is irrelevant for English, namely how to construe binding principles in cases of argument sharing. Suppose we interpret locally o-bound as 'locally o-bound in some argument structure'. This means that if the object $\boxed{3}$ is in fact the anaphor *zibun-zisin*, then Principle A can be satisfied by $\boxed{3}$ being coindexed with either $\boxed{1}$ or $\boxed{4}$, both of which are local o-commanders and subjects. This is exactly the right result, as pointed out by Kitagawa,[8] who observes the ambiguity of (35).

(35) Taroo$_i$ ga Ziroo$_j$ ni aete zibun-zisin$_{i/j}$ o hihans-ase-ta.
Taroo NOM Ziroo DAT purposefully self ACC criticize-CAUS-PAST
'Taroo purposefully made Ziroo criticize himself.' (Kitagawa (1986:(92)))

4.2.2 Pronouns

Now let us consider again the pronominal coreference facts shown in (36).

(36) Taroo$_i$ wa Ziroo$_j$ ni $\emptyset_{i/*j}$ bengos-ase-ta.
Taroo TOP Ziroo DAT defend-CAUS-PAST
'Taroo$_i$ made Ziroo$_j$ defend him$_{i/*j}$.'

The zero pronoun, or *kare*, in the lower object position allows the surface subject, but not the lower subject (the causee), as it antecedent.

Again, the observed facts follow immediately from an existential interpretation of the binding theory – pronouns must be locally o-free in *some* argument structure. Considering again (34), we see that coindexation of the subject and the lower object is possible, because there remains an ARG-S list, the lower one, with an o-commander on which the lower object is o-free. However, the lower object cannot be coindexed with the causee, because the causee shares an index with the lower subject, hence indexing the lower object in this way would leave no argument structure where that pronominal was locally o-free, in violation of Principle B. Hence, simply by imposing an existential interpretation (one which alters none of the binding theory's predictions for English), Principle B rules out coreference between the downstairs object and the causee, but nothing blocks coreference between the lower object and the subject because the surface subject isn't on the lower ARG-S list.

[8]Kitagawa (ref); also cite Yatabe.

4.3 Passives

A final point to be addressed is the interaction of causativization with passivization. It is well-known (e.g., Kuno 1973) that causatives of transitive verbs allow passivization of the *-ni* marked phrase, but not of the *-o* marked (lower) object, as in (37).[9]

(37) a. Mitiko ga Taroo ni Ziroo o yob-ase-ta.
Mitiko NOM Taroo DAT Ziroo ACC call-CAUS-PAST
'Mitiko made Taroo call Ziroo.'

b. Taroo ga Mitiko ni Ziroo o yob-ase-rare-ta.
Taroo NOM Mitiko by Ziroo ACC call-CAUS-PASS-PAST
'Taroo was made by Mitiko to call Ziroo.'

c.*Ziroo ga Mitiko ni(-yotte) Taroo ni yob-ase-rare-ta.
Ziroo NOM Mitiko by Taroo DAT call-CAUS-PASS-PAST
'(lit.) Ziroo was made called by Taroo by Mitiko.'

In contrast, monomorphemic ditransitive verbs allow passivization of either object.

Here we adopt Hasegawa's (1981) suggestion that passivization of the lower object is impossible because it doesn't have a thematic role (i.e., it is not the value of a role attribute in the top-level CONTENT of the clause). This suggestion receives independent support from the fact that this constraint appears to hold generally in Japanese.

First, (38) shows that idioms (whose argument we assume not to be assigned a thematic role), cannot passivize (Yatabe 1990):

(38) a. Kenitiroo ga saba o yonda
Kenitiroo NOM mackerel ACC read.PAST
'Kenichiroo gave a false count.'

b.*saba ga Kenitiroo ni yom-are-ta
mackerel NOM Kenitiroo DAT read-PASS-PAST

Further, Kuno (1976) argues that (39a) is an example of raising-to-object in Japanese and he notes that the raised object fails to passivize as can be seen in (39b).

(39) a. Noriko ga Masaru o hannin da to omot-ta.
Noriko NOM Masaru ACC culprit is COMP think-PAST
'Noriko thinks Masaru to be the culprit.'

b.*Masaru ga Noriko ni hannin da to omow-are-ta.
Masaru NOM Noriko DAT culprit is COMP think-PASS-PAST
'Masaru was thought to be the culprit by Noriko.'

Thus the failure of passivization is expected on independent grounds, and provides no evidence against the merged argument structures embodied in our analysis.

[9] Ishikawa (1985) questions this generalization suggesting that passivization is possible in examples such as *Hukei o yorokob-aseru tame, toku-ni muzukasii zi ga kodomotati ni kak-ase-rare-ta* 'In order to impress the parents, particularly difficult characters were caused (by the teachers) to be written by the children.' But our informant work suggests that such examples are judged unacceptable by virtually all the Japanese speakers we have consulted.

5 Conclusion

In this paper we have mentioned the various kinds of phonological and morphological evidence that motivate a lexical analysis of Japanese causatives. In addition, we have examined the diverse phenomena that have been assumed to motivate the multiclausal analysis of Japanese causatives, reaching the conclusion that all such data are handled at least as well or better within our single-clause, embedded argument structure approach.

We started out with Kiparsky's observation on the non-arbitrariness of the diverse properties that causative constructions exhibit. Our account provides the beginnings of an explanation for the duality of causatives. Since case marking, agreement and word order are all determined by the interaction of principles constraining the way lexical items can appear in constituent structures, it follows that, with respect to these properties, morphological causatives behave just like other words of similar valence, exhibiting essentially all the properties of single lexical items. But construal processes such as honorification, binding and quantifier floating are in general sensitive to argument structure, as Yatabe (1993) has observed. Thus our analysis of causative constructions in terms of complex argument structures leads us to predict evidence of embedding with all and only phenomena of this type. We find these results highly suggestive, not just for the treatment of causatives, but for the design of grammar in the broadest sense.

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