Weak Transitivity: Another View of Psych-Predicates

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1. Introduction

Anomalous properties displayed by mental experiencer predicates can be seen representatively in paired sentence structures with English *fear* and *frighten*. *Fear* and *frighten* offer near synonymous sentences, but have distinct grammatical realizations of Experiencer and Theme arguments. As in (1) with *fear*, the grammatical relationship of the Experiencer-Theme is that of subject-object of the clause, but in (2) with frighten, this relationship is inverted into that of object-subject of the clause.

> (1)   The politicians$_i$ fear each other$_i$'s scandal.
>
>   Experiencer   Theme

> (2)   Each other$_i$'s scandal frightens the politicians$_i$.
>
>   Theme   Experiencer

Such an inversion of the two arguments, which we may call the "alignment" problem, following Perlmutter and Postal (1984) (see also Pesetsky 1988), goes against a fairly standard assumption that the mapping of the thematically specified arguments onto grammatical positions is uniform, as spoken for by Baker's (1988) Uniformity of Theta Assignment Hypothesis (UTAH) or Perlmutter and Postal's (1984) Universal Alignment Hypothesis (UAH). Their hypotheses appear in (3) and (4).

> (3) *Uniformity of Theta Assignment Hypothesis (UTAH)*:
> Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure. (Baker 1988)

(4) *Universal Alignment Hypothesis (UAH)*:
There exist principles of UG which predict the initial relation borne by each
[argument] in a given clause from the meaning of the clause. (Perlmutter and
Postal 1984)

For example, the Agent-Patient relationship is uniformly that of subject-object
of the clause; the inversion of the two arguments does not maintain the same
meaning, as shown in (5-6).

(5)   John kicked the dog.   (6) *The dog kicked John.

      Agent   Patient   Patient   Agent

Also well-known is the binding problem consistently exhibited in the sentence
structure with *frighten*, but not the one with *fear*. In (2), but not in (1), the reciprocal
anaphor *each other* is not c-commanded by its Experiencer antecedent *the politicians*;
yet the intended binding relationship is achieved. The c-command requirement of
the standard binding theory (Chomsky 1981) is allowed to be violated (see Giorgi
1983/84 and Pesetsky 1987, among others).

Given that the *fear*-class is the standard experiencer predicates, we specifically
refer to the *frighten*-class as "psych-predicates", exhibiting the above discussed ano-
malous behavior. (7) and (8) give us some of the English examples that belong to
each class.

(7)   Experiencer predicates in English (the *fear*-class):
      abhor   despite   love   deplore   appreciate
      admire   detest   resent   despise   fear
      adore   enjoy   respect   hate   scorn

(8)   Psych-predicates in English (the frighten-class):
      amaze   distress   inspire   disappoint   worry
      anger   disturb   insult   disgust   astonish
      annoy   enrage   irritate gloom   frighten
      appall   excite   please   grieve   sadden

Possible solutions to these problems seem divergent. Besides a classical solution
proposed by Lakoff (1970) and Postal (1970), namely a Psych-Movement Analysis,
we may count an Unaccusative Analysis by Belletti and Rizzi (1988), a Thematic
Reanalysis by Pesetsky (1988; 1990), a Multiple Tier Analysis by Grimshaw (1990),
a Distorted Mapping Analysis by Zubizarreta (1987, to appear), among others.

The purpose of this paper is to scrutinize data from Japanese and to propose
afresh another solution to the alignment problem.[1] The paper specifically demons-
trates a striking morphological and semantic parallelism between experiencer and
nonexperiencer predicates with respect to forms of causatives, leading to the claim
that psych-predicates are instances of causative-transitives. I draw special attention
to the notion of "weak transitivity", proposed by Kuroda (1965), and show that this
notion applying to a set of experiencer predicates leads to a solution to the
alignment problem.

(1) See Katada (1992) for a possible structural solution for the binding problem.

2. Morphological facts

Just as in other languages, there are two types of causatives in Japanese. One type is the one we call "causative-transitives" whose lexical nature has never been disputed. Another type is the one which we call "morphological causatives" accompanied with the causative morpheme sase; this type is often assumed to be syntactic. These two types are found in both sets of experiencer and nonexperiencer predicates (V[+exp] and V[-exp]) with a striking morphological parallelism between the two. In (9), (b) forms are the morphological causatives and (c) forms the causative transitives:

(9)		V[-exp]	V[+exp]
a.		susum-(r)u	kurusim-(r)u
		advance-PRS	be-distressed-PRS
b.		susum-(s)ase-ru	kurusim-(s)ase-ru
		advance-CAUSE-PRS	be-distressed-CAUSE-PRS
c.		susum-e-ru	kurusim-e-ru
		advance(CT)-PRS	distress(CT)-PRS

(10) gives us additional examples of nonexperiencer causatives, where we may notice that, unlike morphological causatives, causative transitives are morphologically neither productive nor uniform; that is, causative transitives may only be related to a handful examples of intransitive/inchoative predicates (Kuroda 1965), while morphological causatives can be related to most predicates irrespective of transitivity.

(10) V[-exp]

stem	morphological causatives	causative transitives
susum 'to advance'	susum-(s)ase	susum-e
nie 'to boil'	nie-sasse	ni
oki 'to wake'	oki-sase	ok-o
same 'to cool'	same-sase	sam-as
ori 'to unload'	ori-sase	or-os
tomar 'to stop'	tomar-(s)ase	tom-e
nar 'to become'	nar-(s)ase	su
aruk 'to walk'	aruk-(s)ase	—
tabe 'to eat'	tabe-sase	—
araw 'to wash'	araw-(s)ase	—

Leaving the notion of transitivity aside for the moment,[2] only a couple of straightforward forms are found that are experiencer causative transitive, as shown in (11).

(11) V[+exp]

stem	morphological causatives	causatives transitives
kurusim 'to be-distressed'	kurusim-(s)ase	kurusim-e
kanasim 'to be-saddened'	kanasim-(s)ase	kanasim-e
kowagar 'to fear'	kowagar-(s)ase	—
yorokob 'to be-pleased'	yorokob-(s)ase	—
tanosim 'to enjoy'	tanosim-(s)ase	—

(2) Later in sections 4, 5, and 6, we will see that the notion of transitivity is relevant to the analysis.

There is also a semantic parallelism between the two sets of predicates. In (12) with the nonexperiencer predicate *susum* 'to advance', (b) and (c) are roughly synonymous to each other with a semantic difference, "indirect" versus "direct" readings (see Shibatani 1976), as reflected in the English translation. Such difference is also observed between (b) and (c) of (13) with the experiencer predicate *kurusim* 'to be-distressed', as also reflected in the English translation.

     (12) (from Kuroda 1981a, 1981b)
         a. Hei-ga   susum-(r)u.
            soldier-NOM advance-PRS
            'The soldiers advance (go forward)'.
         b. Syoogun-ga   hei-o   susum-(s)ase-ru.
            general-NOM soldier-ACC advance-CAUSE-PRS
            'The general causes the soldiers to go forward'.
         c. Syoogun-ga   hei-o   susum-e-ru.
            general-NOM soldier-ACC advance(CT)-PRS
            'The general advances the soldiers'.

     (13) a. Taroo-ga sono   koto-o/ni   kurusim-(r)u.
            NOM that matter-ACC/DAT be-distressed-PRS
            'Taro is distressed at/about that matter'.[3]
         b. Sono koto-ga Taroo-o kurusim-(s)ase-ru.
            that matter-NOM ACC be-distressed-CAUSE-PRS
            'That matter causes Taro to be distressed'.
         c. Sono koto-ga Taroo-o kurusim-e-ru.
            that matter-NOM ACC distress(CT)-PRS
            'That matter distresses Taro'.

(13b) and (13c) apparently present the identical argument structure, due to an agglutinative nature of the language. However, it is rather reasonable to claim that (13c), but not (13b), is the proper instance of psych-predicates in Japanese;[4] hence (14):

     (14) Psych-predicates are instances of causative transitives.

3. Discrepancies

In order to proceed this line of analysis, some important syntactic discrepancies between experiencer and nonexperiencer causatives must first be explained. Let us examine the nonexperiencer causative paradigm first. (15a) is a simple intransitive with the monadic predicate *susum* 'to advance'. When we causativize the predicate, either morphologically as in (15b) or lexically as in (15c), a new argument *syoogun* 'the general' is promoted.

     (15) (= (12))
         a. Hei-ga   susum-(r)u.
            soldier-NOM advance-PRS
            'The soldiers advance (go forward)'.

(3) The choice of the two prepositions *at* and *about* in the English translation may render the *o/ni* contrast in Japanese. I thank Stephan Matthews for this observation.

(4) In this respect, some of the literatures such as Pesetsky (1988, 1990) and Grimshaw (1990) may be mistaken by referring to the form of V[+exp]-*sase* as Japanese psych-predicates.

    b. Syoogun-ga   hei-o   susum-(s)ase-ru.
       general-NOM soldier-ACC advance-CAUSE-PRS
       'The general causes the soldiers to go forward'.
    c. Syoogun-ga   hei-o   susum-e-ru.
       general-NOM soldier-ACC advance(CT)-PRS
       'The general advances the soldiers'.

A causativization process accompanied by promotion of an extra argument cannot straightforwardly apply to experiencer predicates. Consider (16). In (16a), *kanasim* 'to be-saddened' presumably takes two arguments, the subject *hahaoya* 'the mother' and the object *kodomo-no byooki* 'the childs illness'; it functions as transitive. (Note that the adjectival form of the predicate in the English translation does not reflect the grammatical function of the object argument). When the predicate is causativized either morphologically as in (16b) or lexically as in (16c), the two arguments are inverted or flipped.

    (16) a. Hahaoya-ga kodomo-no   byooki-o/ni   kanasim-(r)u.
          mother-NOM child-GEN illness-ACC/DAT be-saddened-PRS
          'The mother is saddened at/with the child's illness'.
       b. Kodomo-no byooki-ga hahaoya-o   kanasim-(s)ase-ru.
          child-GEN illness-NOM mother-ACC be-saddened-CAUSE-PRS
          'The child's illness causes the mother to be saddened'.
       c. Kodomo-no byooki-ga   hahaoya-o kanasim-e-ru.
          child-GEN illness-NOM mother-ACC sadden(CT)-PRS
          'The child's illness saddened the mother'.

If we locate psych-predicates in the general causative system, discrepancies between the nonexperiencer and experiencer causative paradigms, schematized in (17) and (18), must first be explained.

    (17) V[-exp]
       a. NP_1 V[int]
       b. $NP_2\,NP_1$ V-sase   ← Promotion of NP_2
       c. $NP_2\,NP_1$ V[CT]   ← Promotion of NP_2

    (18) V[+exp]
       a. $NP_1\,NP_2$ V[tran]
       b. $NP_2\,NP_1$ V-sase   ← Flip of NP_1 & NP_2
       c. $NP_2\,NP_1$ V[CT]   ← Flip of NP_1 & NP_2

Let us clarify inconsistencies found in (17) and (18). First, the function of sase is to promote a new argument in (17), but to flip the two arguments in (18). Second, lexical causativization is to promote a new argument in (17), but to flip the two arguments in (18). Third, lexical causativization applies to an intransitive predicate, deriving a causative transitive. Earlier in (10), we have seen that causative transitives can only be related to some of the intransitive/inchoative predicates (Kuroda 1965). This would indicate that only some of the intransitives can undergo a lexical causativization process, which is a transitivizing process, and that (19) should hold true, as far as nonexperiencer predicates are concerned.

(19) Transitives cannot further be transitivized.

A problem then arises since experiencer predicates are diadic, functioning as transitive. If an experiencer predicate, *kanasim* 'to be-saddened' in (16a) for example, is already transitive, it should not be transitivized any further in deriving another transitive, for example *kanasim-e* 'to sadden' in (16c).

I would like to show that a possible explanation of these inconsistencies involves the notion of "weak transitivity" proposed by Kuroda (1965) and that this notion leads to a solution to the alignment problem defined earlier.

4. Weak Transitivity and Intransitivization

The notion of "weak transitivity" is proposed by Kuroda (1965), analogously to the notion of "pseudo-intransitivity" used by Lees (1963) for English. (Observation of the relevant phenomenon itself is due to Chomsky 1962). The idea summarized in Kuroda (1965) is that some verbs are transitive but allow their objects to be freely deleted. This object deletion is referred to as "Intransitivization" of transitives. Semantically, verbs of this class form a concrete notion without any reference to their objects. One such example in English is the verb *eat*, which can appear with or without its object as in (20).

> (20) a. John eats an apple.
> b. John eats.   ←   Intransitivization

Eat refers to a particular action of eating with reference to what is eaten; however, this action of eating itself is quite conceivable independently from particular objects to be eaten, just as the action of walking by itself forms a concrete notion without referring to a particular manner of walking. Pure transitives do not have this property. For example, an action of *kick* is conceivable only with reference to what is to be kicked. Such property is manifested syntactically in the fact that the verb *kick* must accompany its object:

> (21) a. John kicked the tree.
> b. *John kicked.   ←   *Intransitivization

In Japanese, however, deletion of an object of a verb does not necessarily imply Intransitivization of the transitive verb. This is due to general null pronominalization phenomena of this language. As in (22b), it is not necessary for an object to appear overtly; the null pronominal *pro* gives an implicit understanding of an object.

> (22) a. Taroo-ga ki-o   ker-ta.
> NOM tree-ACC kick-PST
> 'Taro kicked the tree'.
> b. Taroo-ga pro ker-ta. ←   Null pronominalization
> NOM   kick-PST
> 'Taro kicked (something)'.

Thus the difference between (23b), in which the object is null pronominalized, and (23c), in which the object is completely deleted, does not overtly surface.

(23) a. Taroo-ga ringo-o   tabe-ru.
   NOM apple-ACC eat-PRS
   'Taro eats an apple'.
  b. Taroo-ga pro tabe-ru. ← Null pronominalization
   NOM eat-PRS
   'Taro eats (something)'.
  c. Taroo-ga tabe-ru ← Intransitivization
   NOM eat-PRS
   'Taro eats'.

Consequently, it is difficult to detect whether the same type of pseudo-intransitives exists in Japanese.

Nonetheless, Kuroda (1965) claims that such verbs do exist in Japanese, calling them "weak transitives", and that an intransitivization process is observable but only in connection with *sase*-causativization. Consider possible readings of the two verbs *tabe* 'to eat' in (24) and *nusum* 'to steal' in (25), both of which have undergone *sase*-causativization. The contrast between the two appears in the English translation; that is, (24) is ambiguous whereas (25) is not. The reading of *usi* 'cattle' in (24) is either with the subject or the object of *tabe* 'to eat'. In (25), the object *kodomo* 'child' can only be read as the object of *nusum* 'to steal'.

(24) Taroo-ga [usi-o tabe]-sase-ru.
   NOM cattle-ACC eat-CAUSE-PRS
  a. 'Taro makes cattle eat'. b. 'Taro makes (someone) eat cattle (beef)'.

25) Taroo-ga [kodomo-o nusum]-(s)ase-ru.
   NOM child-ACC steal-CAUSE-PRS
  a. *'Taro makes the child steal'.
  b. 'Taro makes (someone) steal the child'.

The source of this contrast is traced back to the notion of "weak transitivity", applying to *tabe* "to eat, but not to *nusum* 'to steal'. Because *tabe* is weakly transitive, an intransitivization optionally applies, deleting its object. This would make the two constituent sentences (26a) and (26b) available for (24). (The subject of (26b) is null pronominalized.)

(26) a. [usi-ga tabe]   ← Intransitivization
   cattle-NOM eat
  b. [pro usi- o tabe] kodomo-o nusum]
   (someone) cattle-ACC eat

If (26a) is the constituent sentence of (24), we have the subject reading of *usi* 'cattle'; if (26b) is the constituent sentence, we have the object reading.

In contrast, *Nusum* 'to steal' is transitive, but not weakly. Thus an intransitivization does not apply. The only possible constituent sentence for (25) thus would be ((27b).

(27) a. *[kodomo-ga nusum] ← *Intransitivization
   child-NOM steal

      b. [pro   kodomo-o nusum]
          (someone) child-ACC steal

Consequently, (25) induces only the object reading of *kodomo* 'child'.

Note that the difference between (26) and (27) is not accessible in simple sentence structure, since the object can be null pronominalized, a language-specific property. But if there were no such difference, the contrast in the available readings between (24) and (25) would not be accounted for. Kuroda's (1965) conclusion is the following:

    (28) A transitive verb V is weakly transitive if NP_2 is the subject of V in the
          sase-causative sentence:
          NP_1-ga [NP_2 -o V]-sase
          NOM   ACC CAUSE

5. Weakly Transitive Nature of Experiencer Predicates

What is relevant to the issue of psych-predicates is that (28) applies to a set of experiencer predicates, and it can be concluded that experiencer predicates are weakly transitive (Kuroda 1965).

An example is given in (29), which is ambiguous between the (a) and (b) readings; *byoozyakuna musuko* 'the sickly son' gives either the subject or the object reading of the constituent sentence.

    (29) Sono koto-ga   [byoozyakuna musuko-o nagek]-(s)ase-ta.
          that matter-NOM sickly   son-ACC grieve-CAUSE-PST
          a. 'That matter caused the sickly son to grieve over it'.
          b. 'That matter caused (someone) to grieve over the sickly son'.

The source of this ambiguity is traced back to the weakly transitive nature of *nagek* 'to be-grieved'. Because it is weakly transitive, an intransitivization optionally applies as in (30a), and we have either (30a) or (30b) for the constituent sentence of (29), resulting in the ambiguity.

    (30) a. [Byoozyakuna musuko-ga   nagek]   ← Intransitivization
             sickly   son   NOM grieve
        b. [pro   byoozyakuna musuko-o/ni   nagek]
             (someone) sickly   son ACC/DAT grieve

An additional example is provided in (31), which is also ambiguous between the subject and object readings of *iedesita musuko* 'the son who ran away home'.

    (31) Ziko-no   sirase-ga   [iedesita   musuko-o   sinpais]-(s)ase-ta.
          accident-GEN news-NOM run-away-home son-ACC worry-CAUSE-PST
          'The news about the accident caused the son who ran away home to worry'.
          'The news about the accident caused (someone) to worry about the son
          who ran away home'.

In short, we reach the following conclusion:

    (32) Experiencer predicates are weakly transitive,[5] subjected to an optional rule
          of Intransitivization.

Though Kuroda's (1965) discovery was done only in the contexts of *sase*-causatives, I would like to show how (32) is relevant to the present issue of psych-predicates and how the alignment problem can be solved.

6. A Solution to the Alignment Problem

Following the quite agreed assumption that causative transitives are lexical causatives, formed in the lexicon, we may characterize a process of lexical causativization, which takes place in the lexicon, as involving internalization of an external argument (x in (33a)) followed by promotion (creation/insertion) of a new external argument (z in (33b)). (A variable within a bracket stands for an internal argument and the one outside an external argument —that is, grammatical subject. This representation is due to Zubizarreta (1987, 1988).

$$(33) \quad \text{a.} \quad [V], x$$
$$\text{b.} \quad [V(CT) x], z \qquad \leftarrow \text{Lexical causativization}$$

I propose that Intransitivization is also a lexical process that applies to lexically marked weak transitives, denoted as $V(wt)$. As characterized in (34), this process deletes the object, an internal argument y of the predicate.

$$(34) \quad \text{a.} \quad [V(wt) y], x$$
$$\text{b.} \quad [V(int)], x \qquad \leftarrow \text{Intransitivization}$$

Since experiencer predicates are weakly transitive (32), the two structures are available in the lexicon for experiencer predicates, (34a) and (34b). (34b), in particular, satisfies the structural condition for lexical causativization to apply. When it applies, x in (34b) is internalized and a new external argument z is promoted. An entire process is characterized in (35).

$$(35) \quad \text{a.} \quad [V(wt) y], x$$
$$\text{b.} \quad [V(int)], x \qquad \leftarrow \text{Intransitivization}$$
$$\text{c.} \quad [V(CT) x], z \qquad \leftarrow \text{Lexical Causativization}$$

Under the analysis (35), the predicate argument structure of the psych-predicate *kanasime* in (16c), which is an experiencer lexical causative, is not directly related to that of the transitive *kanasim* 'to be-saddened' in (16a). Instead, the intransitivized *kanasime* mediates between the two; schematically:

$$(36) \quad \text{a.} \quad [\text{kanasim } y], x$$
$$\text{b.} \quad [\text{kanasim}], x \qquad \leftarrow \text{Intransitivization}$$
$$\text{c.} \quad [\text{kanasime } x], z \qquad \leftarrow \text{Lexical Causativization}$$

In other words, lexical causativization of experiencer predicates in fact involves promotion of an extra argument. This would explain the promotion versus flip discrepancy seen in (17) and (18).

Notice that the external argument z in (36c) is not directly related to the internal argument y in (36a), a reason for which distinct variables are used; y and z are thus completely independent of each other, though they may bear identical referential

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(5) See Katada (1992) for additional support for weakly transitive nature of experiencer predicates and its further implication.

contents. Thus, *kodomono byooki* 'the childs illness' in (16a) and (16c), repeated as (37a) and (37b), are instances of the two independent variables; the former being the object of *kanasim* and the latter a newly promoted Cause of the emotion.

(37) a. Hahaoya-ga kodomo-no byooki-o/ni kanasim-(r)u.

                             |

                       Object

     b. Kodomo-no byooki-ga hahaoya-o kanasim-e-ru.

               |

            Cause

In other words, the identity of the two arguments is simply accidental; it is not a true inversion. Thus we have the following conclusion:

The alignment problem raised by psych-predicates is not real.

7. Applicability to Morphological Causatives

The notion of weak transitivity applying to experiencer predicates consistently solve another inconsistency concerning the morphological *sase*-causatives. Recall that the function of *sase*, when attached to nonexperiencer predicates, is to promote a new argument, but to flip the two arguments of experiencer predicates (see (17) and (18)). Under the analysis (34), to which experiencer predicates are subjected, we have two structures available undergoing *sase*-causativization, namely (38a) and (38b). (Recall that the applicability of *sase*-causativization is not restricted to intransitive/inchoative verbs.) If *sase*-causativization applies to (38a), the result is (39a), and if (38b), the result is (39b),[6] where z is newly created and not directly related to y in (38a).

(38) a. $[V(wt)\ y],\ x$
     b. $[V(int)],\ x$ ← Intransitivization

(39) a. $[sase\ [V(wt)\ y],\ x],\ z$ ← *Sase*-causativization
     b. $[sase\ [V(int)\ x],\ z$ ← *Sase*-causativization

In fact, all four possible sentence structures, corresponding to those in (38) and (39), are attested as in (40) and (41), respectively.

(40) a. John-ga   ongaku-o tanosim-ta.   b. John-ga tanosim-ta.
        NOM music-ACC enjoy-PST   NOM enjoy-PST
        'John enjoyed the music'.   'John enjoyed (himself)'.

(41) a. Medetai sirase-ga [John-ni ongaku-o tanosim]-(s)ase-ta.[7]
        happy   news-NOM DAT music-ACC enjoy-CAUSE-PST
        'The happy news caused John to enjoy the music'.
     b. Ongaku-ga [John-o tanosim]-(s)ase-ta.
        music-NOM   ACC enjoy-CAUSE-PST
        'The music caused John to enjoy (himself)'.

In other words, the function of *sase*, when applied to a set of experiencer predica-

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(6) See Katada (1992) for theoretical implications of this analysis to the grammar of Japanese causatives.

(7) This example is due to Shige-Yuki Kuroda.

tes, is also to promote a new argument, and thus the promotion versus flip discrepancy found in (17b) and (18b) is not real either.

8. Conclusion

In this paper, I have provided another view of psych-predicates based on Japanese data. A crucial notion used here is the notion of *weak transitivity*, which applies to a set of mental experiencer predicates. I hope it is worth investigating to see how far this analysis can extend both internally and externally to a core grammar of Japanese.

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