



1-1-2000

# Event Heads and the Distribution of Psych-Roots

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## 1 Introduction

Most syntactic accounts of psychological predicates rely on the notion that the arguments within a verb phrase are “equidistant” for purposes of syntactic movement. Such a view was straightforward under the original “flat structure” approach to VP, in which, for example, the direct and indirect objects are both treated as sisters of V. Following extensive work on object asymmetries (Baker 1988, Barss & Lasnik 1986, Bresnan & Moshi 1993, Larson 1988, Marantz 1984, 1993, among others), it is now generally agreed that the verb phrase has an internal hierarchical structure. Nevertheless, unlike raising from one subject position to another, movement of internal arguments to subject position has often been treated as though it cannot be held to a strict locality (“shortest move”) condition. Accounts involving nonlocal movement of internal arguments have been especially prevalent in the literature on causative psych-verbs (PsyCaus verbs).<sup>1</sup> My ulterior motive here is to establish that the syntax of psych-predicates actually supports locality in A-movement. The approach sketched below points the way towards overcoming a potential stumbling block for theories of A-movement, making it possible to maintain the strong hypothesis that all syntactic movement respects locality.

## 2 The T/SM Restriction Without Movement

As a point of departure I take the analysis proposed by Arad (1998, 1999). Arad dispenses with the traditional view that the subject of a PsyCaus predicate originates structurally below the object (Belletti & Rizzi 1988, Pesetsky

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\*Thanks go to Maya Arad, Heidi Harley, Alec Marantz, Liina Pylkkänen, two anonymous reviewers, and the rest of the Lexical Categories reading group at Penn. This work was supported by a postdoctoral fellowship from the Social Sciences and Humanities Research Council of Canada (756-98-0515).

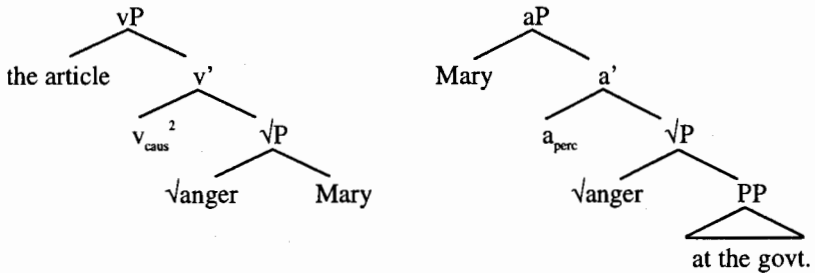
<sup>1</sup>PsyCaus predicates correspond to the *preoccupare* class of Belletti & Rizzi (1988). This term distinguishes them from the non-causative *piacere* class. The distinction is important here, so I avoid Pesetsky’s (1995) term ObjExp, which groups the two together.

1995). She proposes instead that the subject of a psych-construction is always generated as the highest argument, as in a normal transitive clause, and argues that differences between psych-predicates and transitives arise largely from differences in the aspectual functional heads associated with this highest argument. This proposal has the advantage that it avoids postulating non-local movement of a lower argument past a higher one to the subject position. As we will see, however, one generalization that remains to be captured under such an approach is Pesetsky's T/SM (Target/Subject Matter) restriction. The T/SM restriction is the generalization that a PsyCaus verb cannot have both a Causer argument and a Target (1c) or both a Causer and a Subject Matter argument (2c):

- |        |  |                |
|--------|--|----------------|
| (1) a. | Mary was angry <u>at the government</u> .  | TARGET         |
| b.     | <u>The article in <i>The Times</i></u> angered Mary.                             | CAUSER         |
| c.     | * <u>The article in <i>The Times</i></u> angered Mary <u>at the government</u> . |                |
| (2) a. | Bill was frightened <u>of another tornado</u> .                                  | SUBJECT MATTER |
| b.     | <u>The distant rumbling</u> frightened Bill.                                     | CAUSER         |
| c.     | * <u>The distant rumbling</u> frightened Bill <u>of another tornado</u> .        |                |

In this paper I contend that the T/SM restriction falls under a broader generalization about causativization. Specifically, I propose that this restriction arises from a morphological distinction between causatives that determine the syntactic category of a predicate, and causatives that are added to a predicate that already has a category. Categorical morphology is here equated with the "event head" of recent literature on lexical semantics (e.g., Harley 1995, Kratzer 1996). Marantz (1997) proposes that a verbal event head merges syntactically with a category-neutral lexical root to produce a phrasal unit; this unit corresponds to what is usually thought of as a "lexical verb." The event head is a functional head that often introduces an external argument, as with causative *v* in (3a). I also adopt Baker's (1997) view that an adjectival predicate can have an external argument, and suggest that this external argument is the specifier of an adjectival event head *a*, as in (3b). We can call the event heads in (3) *root-external*, since they are directly outside the roots; by contrast, a *category-external* event head occurs outside another event head. In English and Japanese, root-external causatives can be spelled out using morphology that is idiosyncratically specified by the root, while category-external causatives use unspecified (default) morphology, which is affixal in Japanese, but not in English. Following Miyagawa (1998), I assume that the default causative morphology in English is the independent phonological word *make*.

- (3) a. The article angered Mary. b. Mary was angry at the government.



I will argue that a predicate containing an Experiencer and a T/SM argument must contain an event head. A causative added to such a predicate will be category-external, allowing only default causative morphology to be used (in English and Japanese). Along with the ill-formed (a) examples in (4) and (5), then, we have the well-formed (b) examples.

- (4) a. \* The article in *The Times* angered Mary at the government.  
 b. The article in *The Times* made Mary angry at the government.  
 (5) a. \* The distant rumbling frightened Bill of another tornado.  
 b. The distant rumbling made Bill fear another tornado.

### 3 The Different Flavors of $v$

There are a number of syntactic differences between normal transitives (6a) and PsyCaus predicates (6b), to be discussed in Section 3.1. In accounting for these differences, Arad (1998, 1999) argues that the crucial distinction is in the way the subject is structurally introduced. Suppose that in both cases the subject is generated in the specifier of a light causative verb ( $v$ ). However, in (6a) this verb is eventive, while in (6b), it is stative.

- (6) a. Maria mangia la mela.  
 'Maria is eating the apple.'  
 b. Questo preoccupa Gianni.  
 'This worries Gianni.'

<sup>2</sup>The different flavours of  $v$  will be labelled as follows:  $v_{ag}$  (eventive, agentive  $v$ : transitives and unergatives),  $v_{caus}$  (stative causative  $v$ : PsyCaus verbs),  $v_{unacc}$  (unaccusative  $v$ : unaccusatives), and  $v_{perc}$  (stative perceptive  $v$ : SubjExp verbs). See below for more detail. I will also assume an adjectival counterpart to  $v_{perc}$ ,  $a_{perc}$ .

It has been argued in the recent literature that agentive transitive verbs are (at least) bipartite, containing a light causative verb and a lexical base. In some cases, for example, an adverb like *again* can modify either the causing eventuality or the resulting eventuality (von Stechow 1996). Sometimes the causative head is realized by a distinct morpheme (Miyagawa 1994). In English, main verbs are arguably raised to the position of the causative verb, giving the order *I gave John t a book*, instead of *\*I John gave a book*.<sup>3</sup> Marantz (1997) gives a further argument that the causative *v* is a separate syntactic head, based on a contrast between verbal and nominal uses of the same lexical root. Let us go through this argument in some detail, since it introduces some ideas that will be important later on.

The facts under consideration are below. Chomsky (1970) argues that verbs, such as *destroy* or *grow*, share a basic (root) component with their "derived" nominalizations, *destruction* or *growth*. Now consider the argument-taking properties of the roots  $\sqrt{\text{destr-}}$  and  $\sqrt{\text{grow}}$  in their verbal and nominal contexts. The verb *destroy* must be transitive (7a-b), while *grow* can be transitive or unaccusative (7c-d). The usual account of the alternation in (7c-d) is that *grow* is basically unaccusative, but can have a causative element added to it, which introduces an agentive argument.

- (7) a. The army destroyed the city.  
 b. \* The city destroyed.<sup>4</sup>  
 c. John grew tomatoes.  
 d. Tomatoes grew.

The noun *destruction* can take a causative possessor, as shown in (8a), but *growth* cannot (8c). Marantz proposes that a derived nominalization places a category-neutral lexical root such as  $\sqrt{\text{destr-}}$  or  $\sqrt{\text{grow}}$  in a nominal syntactic context (e.g., sister of D). He locates the crucial distinction between the roots  $\sqrt{\text{destr-}}$  and  $\sqrt{\text{grow}}$  in their intrinsic semantics;  $\sqrt{\text{grow}}$  denotes an internally-caused change of state, while  $\sqrt{\text{destr-}}$  is not internally caused. Marantz proposes that this difference in interpretation is responsible for differences in their syntactic distribution.

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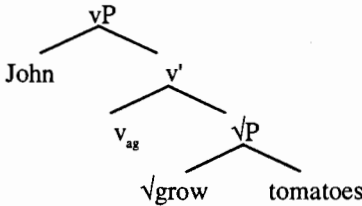
<sup>3</sup>This argument is based on a similar argument for raising to *v* in Collins (1997). Pesetsky (1989), Johnson (1991), and Koizumi (1993) provide more extensive evidence for verb raising in English.

<sup>4</sup>The string (7b) is possible under a 'middle' interpretation, which I assume involves a causative *v* head, like (7a). See Embick (1997) for discussion.

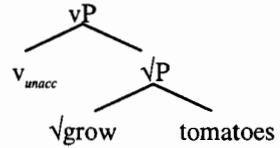
- (8) a. the army's destruction of the city
- b. the city's destruction
- c. \* John's growth of tomatoes
- d. tomatoes' growth

In addition to the differences that arise in the nominalization context,  $\sqrt{grow}$  can either take an agentive subject in the verbal context (9a), or not (9b). Marantz argues that the agent is introduced by the causative verb  $v$ .  $\sqrt{Grow}$  cannot take a causative possessor in the derived-nominal context (9c), since in this context there is no  $v$  to introduce one. Of course, the derived nominal without a possessor is fine (9d).

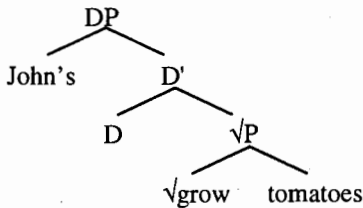
- (9) a. John grows tomatoes.



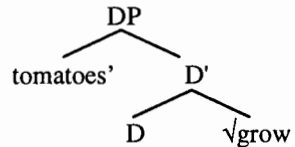
- b. Tomatoes grow.



- c. \* John's growth of tomatoes



- d. tomatoes' growth

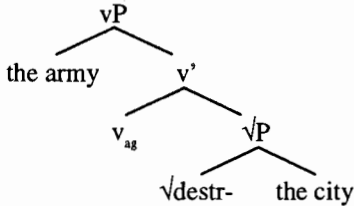


By contrast,  $\sqrt{destr-}$  can take a causative possessor in the nominal context. Marantz suggests that this option is available because the causative interpretation is recoverable from the semantics of the externally-caused root (10c). The robustly causative connotations of  $\sqrt{destr-}$  are also responsible for the fact that it must occur with agentive  $v$  in the verbal context (10a-b).<sup>5</sup>

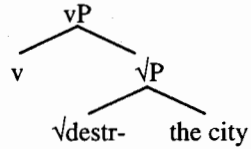
<sup>5</sup>As Noyer & Harley (1997) observe, other verbs that allow the causative possessor are not as strongly causative, and thus need not occur with agentive  $v$  in the verbal

However, the causative possessor can be absent from the nominal context, since  $v_{ag}$  is absent from this context (10d).

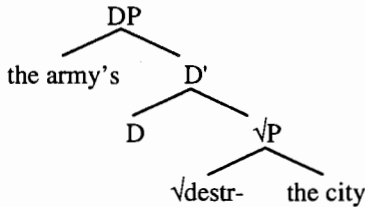
(10) a. The army destroyed the city.



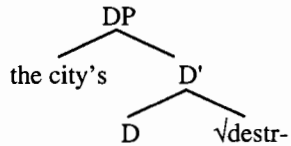
b. \* The city destroyed.



c. the army's destruction of the city



d. the city's destruction



Consider the implications of the verbal and nominal facts taken together. The nominal counterpart of a causative verb like *destroy* can have a causative possessor, but the nominal counterpart of *grow* cannot, even though  $\sqrt{grow}$  can occur in a causative context. If the causative element could be added to  $\sqrt{grow}$  in the lexicon, the newly-minted causative should be able to appear in a nominal context, allowing an agentive possessor just like the nominalized causative *destruction*. However, if the causative is a  $v$  head added in the syntax, then the full range of facts can be explained, as above.

In summary, there is considerable evidence that agentive transitives contain a light causative verb and a lexical base, which I will assume here is a category-neutral root. Pykkänen (1998) provides a wealth of evidence from Finnish that *PsyCaus* verbs also have a two-part structure. For example, the adverb *melkein* 'almost' can modify either the causing eventuality or the resulting eventuality. Thus, (11a) can either mean that *Matti* did something or had some property that almost caused a state of disgust in *Maija* (i.e., the

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context. For example, *The army's explosion of the bridge* is possible, but also *The bridge exploded*.



mental state almost held), or that *Matti* almost did something or had some property that would have caused a state of disgust in *Maija* (i.e., the causing event almost occurred). Moreover, a PsyCaus verb in Finnish has causative morphology; compare the causative in (9a) with the noncausative subject-experiencer verb in (11b), where reportedly *melkein* introduces no ambiguity. The causative morphology in (11a) is also used with derived agentive verbs (11c).

- (11) a. *Matti melkein inho-tti* *Maija-a.*  
 M.-NOM almost find.disgusting-CAUS.PAST M.-PAR  
 'Matti almost disgusted Maija.'
- b. *Maija melkein inhoa-a* *Matti-a.*  
 M.-NOM almost find.disgusting-3SG M.-PAR  
 'Maija almost found Matti disgusting.'
- c. *Pekka hajo-tti* *lasi-n.*  
 P.-NOM break-CAUS.PAST glass-ACC  
 'Pekka broke the glass.'

The semantic and morphological facts of Finnish support a bipartite structure for PsyCaus predicates. To these facts we can also add the counterpart of Marantz's argument from nominalizations: Chomsky (1970) points out that certain psych-predicates resemble predicates like *grow*, in that they can occur with a causative subject in the verbal context (12a), but cannot take a causative possessor in the nominal context (13a).<sup>6</sup>

- (12) a. John angered the children.  
 b. The children were angry.
- (13) a. \* John's anger of the children  
 b. the children's anger

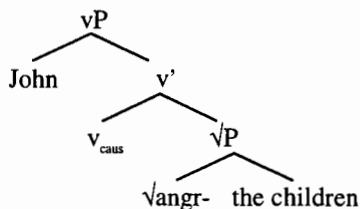
If we adopt Marantz's approach for these facts as well, we may conclude that a causative interpretation cannot be recovered from the root  $\sqrt{\text{anger}}$ , but a causer can be added to this root syntactically, by means of a light verb. Thus we have evidence that a light causative verb is present in both agentive tran-

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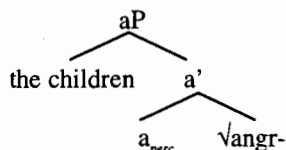
<sup>6</sup>It is worth pointing out that the English causative in (12a) can be either stative or eventive. The reading of most interest for the purposes of this discussion is the stative one, where John may or may not have been doing anything to anger the children—for example, if just the sight of him was enough to make them angry. Statives in Finnish are discussed below.

sitives and psych-predicates. The structure of (12b), shown in (14b), is not exactly parallel to that of the unaccusative  $\sqrt{\text{grow}}$  in (9b); we will return to this point later.

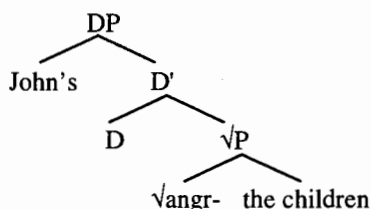
(14)a. John angered the children.



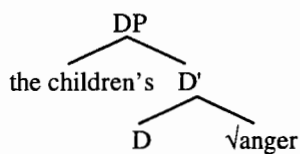
b. The children were angry.



c. \* John's anger of the children



d. the children's anger



In order to account for various syntactic differences between agentive transitives and psych-predicates, Arad (1998, 1999) argues that they involve different types of causative verbs, as noted above. Pylkkänen (1998) provides evidence from Finnish that psych-predicates involve a stative causative verb, rather than the eventive causative used in agentive transitives. The reader is referred to Pylkkänen's paper for details, but a brief review follows. The object of a PsyCaus verb in Finnish has partitive case, indicating atelicity.<sup>7</sup> PsyCaus verbs also demonstrate other stative characteristics—for example, they receive a habitual interpretation in the present tense, and resist the progressive. An agentive transitive verb can occur in the progressive, though its ob-

<sup>7</sup>There is also a class of causative psych-verbs that allows an ACC object (i); this case-marking pattern corresponds to a non-stative interpretation. Arad gives extensive evidence from Italian that some psych-roots can combine with either the eventive or the stative causative *v*.

(i) Uutiset viha-stu-tti-vat Mikko-a/Mikko-n.  
 news.NOM anger-INCH-CAUS.PAST-3PL M.-PAR/ACC  
 'The news made Mikko become angry.'

ject then takes on partitive case (15a). A prototypical stative verb in Finnish cannot occur in the progressive (15b), nor can a PsyCaus verb (15c).

- (15) a. Mikko on maalaa-ma-ssa talo-a.  
 M.-NOM is paint-INF-INESS house-PAR  
 'Mikko is painting a house.'
- b. \* Pekka on osaa-ma-ssa ranska-a.  
 P.-NOM is know-INF-INESS French-PAR  
 'Pekka is knowing French.'
- c. \* Kaisa on sääli-ttä-mä-ssä Matti-a.  
 K.-NOM is pity-CAUS-INF-INESS M.-PAR  
 'Kaisa is causing pity in Matti.'

These facts provide evidence that psych-roots combine with a stative light causative verb, which has different syntactic properties from the eventive light causative verb used in agentive transitives. Arad (1999) argues that this difference in causative verb types is partially responsible for the classic "psych-effects" as well.<sup>8</sup> As we will see, Arad's generalization has certain key empirical advantages over other accounts of psych-effects in the literature.

### 3.1 Psych-Effects

Belletti & Rizzi (1988; B&R) identify a collection of differences between PsyCaus predicates, which have an Experiencer object, and predicates with an Experiencer subject (SubjExp predicates), which have the syntax of regular transitives. One such difference is the familiar "backward binding" phenomenon (Akatsuka 1976, Giorgi 1984, Pesetsky 1987). Unexpectedly, the object of a PsyCaus verb, such as *worry*, can bind an anaphor embedded in the subject (16a, 16c). The same is not true for other transitives, as shown by the contrasting examples in (16b, 16d). Similar facts obtain in Italian, as B&R demonstrate.

- (16) a. These rumors about himself worry John more than anything else.  
 b. \* These rumors about himself describe John better than anything else.

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<sup>8</sup>More accurately, she proposes that these effects are associated with a stative causative verb assigning accusative case in Italian. There is also a class of psychological predicates (B&R's *piacere* class) with DAT and NOM arguments.

- c. Each other's supporters worried Freud and Jung.
- d. \* Each other's supporters telephoned Freud and Jung.

Two other restrictions on PsyCaus verbs can be seen in (17) and (18). Transitive verbs can occur in a construction with a reflexive clitic (17a), and can also take an arbitrary *pro* subject (18a). Clauses with a "derived" subject (passives and unaccusatives) are incompatible with both, as illustrated in (17b) and (18b). PsyCaus verbs (the *preoccupare* 'worry' class) pattern with passives and unaccusatives in this respect, as shown in the (c) examples.

- (17) a. Gianni si è fotografato.  
'Gianni photographed himself.'
- b. \* Gianni si è stato affidato.  
'Gianni was entrusted to himself.'
- c. \* Gianni si preoccupa.  
'Gianni worries himself.'
- (18) a. *pro* ti stanno chiamando.  
'Somebody is calling you.'
- b. \* *pro* sono arrivati a casa mia.  
'Somebody arrived at my place.'
- c. \* Evidentemente, in questo paese per anni *pro* hanno preoccupato il governo.  
'Evidently, in this country people worried the government for years.'

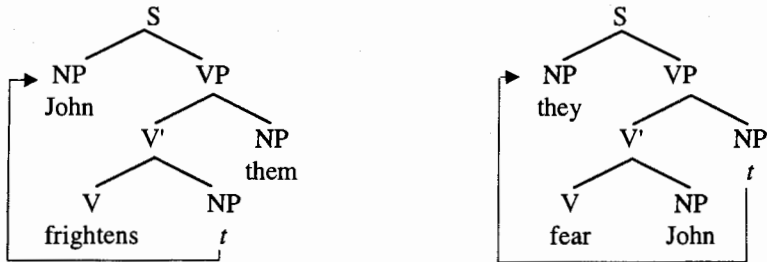
Psych-predicates have another distinctive property, which can be described in several ways. One way of putting it is as follows (Pylkkänen 1998). A causativized unaccusative increases in "valency," permitting an additional argument (19), while a causativized psych-predicate does not increase in valency (20). (20a) is a SubjExp predicate. In its causative counterpart (20b), the Experiencer is the object, but the other argument, *at John*, can no longer be expressed. It has been argued (B&R, Pylkkänen 1998) that this contrast arises because the added argument in (19b) adds a new semantic role, while in (20b) it has the same semantic role as one of the existing arguments (here, *at John*). The impossibility of (20b) then follows from the traditional assumption that a single semantic role cannot be expressed by two ar-

guments of the same verb.<sup>9</sup> Pesetsky (1995) takes a different approach to this restriction, to which we return below.

- (19) a. Tomatoes grew.  
 b. John CAUS+grew tomatoes.  
 (20) a. The children were angry at John.  
 b. Mary CAUS+angered the children (\*at John).

B&R's account of the psych-effects is as follows. By their view, normal transitives (including SubjExp verbs) have an underlying external argument, while PsyCaus verbs have an unaccusative structure with a derived subject. Under this view, the similarities between PsyCaus structures, passives, and unaccusatives follow from the presence of a derived subject, and the backward binding effects are attributed to the base position of the derived subject. B&R propose that the subject of a PsyCaus verb originates below the Experiencer object (21a). Thus, they claim, the Experiencer can bind an anaphor embedded within the derived subject before it raises to the subject position.

- (21) a. John frightens them.      b. They fear John.



The base order of the arguments is determined by their theta-roles. B&R take the position that the subject of a PsyCaus predicate is a Theme, while the object is an Experiencer. These are the same thematic roles they associate with SubjExp predicates, which pattern with transitives throughout. B&R argue that a Theme is always generated below an Experiencer argument of the same verb. When the Experiencer has inherent Case, the Theme raises to

<sup>9</sup>Note that the PP "argument" of a SubjExp predicate can be omitted, like an adjunct. I follow Pesetsky in assuming that optional PP arguments of SubjExp predicates (like *be angry*) have essentially the same syntactic status as obligatory DP objects of SubjExp predicates (like *fear*). Thanks to Heidi Harley for raising this point.

the subject position, and a PsyCaus predicate results (21a). Otherwise, both arguments have structural Case, and the Experiencer is an external argument, yielding a SubjExp predicate (21b). As noted above, this approach provides a semantic account of (20b); two arguments are said to bear the Theme role, so the structure is ill-formed.

Nevertheless, a number of problems with this account of psych-predicates have been pointed out in the literature. For one thing, a Case-based explanation of the differences between SubjExp and PsyCaus predicates does not explain the causative interpretation of the latter, or the causative morphology seen in Finnish. For another, movement of the lower Theme past the higher Experiencer to the subject position seems to violate relativized minimality (Rizzi 1990) or “attract closest” (Chomsky 1995).<sup>10</sup> There are also several key ways in which PsyCaus predicates fail to pattern with passives and unaccusatives. For instance, the Experiencer object of a PsyCaus predicate in Italian has accusative morphological case, just as in a transitive. Moreover, the aspectual auxiliary used with a PsyCaus verb is *avere* ‘have,’ as with a transitive verb, while the auxiliary used with unaccusatives is *essere* ‘be.’ Pesetsky (1995) proposes an account that undertakes to explain both the differences and the similarities between transitives and PsyCaus predicates. The next subsection briefly summarizes the part of this account that is consistent with Arad’s ‘flavors of *v*’ approach, adopted here. The remainder of the section concerns the remainder of Pesetsky’s account, to which this paper proposes an alternative.

### 3.2 Towards Locality-Compliance

Pesetsky (1995) takes the first steps towards the view that the derivation of PsyCaus predicates respects locality. He argues that PsyCaus predicates actually do have an external argument, namely the Causer. This argument has a different semantic role from the object of a SubjExp verb, which Pesetsky calls the Target or Subject Matter. The differences in interpretation can be seen in (22) and (23). In (22a), *the article* is the Target of *Bill’s* anger; for example, he might be angry because it panned his new book. However, (22a) could not be used to describe a situation in which Bill found the article itself irreproachable, but its contents caused him to be angry at the government. (22b), on the other hand, could be used to describe such a situation: “The

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<sup>10</sup>A lower argument can A-move past a higher one under certain circumstances (McGinnis 1998a), but such movement has consequences for binding that seem not to arise with PsyCaus verbs, as we will see below.

article does *cause* Bill to be angry, and possibly angry at someone or something, but he is not necessarily angry at the article itself" (Pesetsky 1995: 56).

- (22) a. Bill was very angry at the article in *The Times*.  
 b. The article in *The Times* angered/enraged Bill.

Similarly, in (23a), *the television set* is the Subject Matter of John's worry—for example, he might be worried because it is in a precarious position. This sentence could not be used to describe a neurotic situation in which John experienced an ill-defined anxiety about his life in general whenever he saw or thought about the television set. Such a reading is possible in (23b), where "the television set causes John to experience worry, but the Subject Matter of his thoughts while experiencing worry could have nothing to do with the television set" (Pesetsky 1995: 57).

- (23) a. John worried about the television set.  
 b. The television set worried John.

If PsyCaus predicates have a Causer external argument, then their differences from normal transitives cannot follow from the absence of such an argument. Indeed, Pesetsky shows that one psych-effect, found in PsyCaus passives, can be attributed to the stative/eventive distinction between PsyCaus predicates and normal transitives. B&R note that PsyCaus verbs allow a passive use. Since verbal passivization would be incompatible with the unaccusative analysis, they propose that this passive is adjectival. Unlike eventive verbal passives (24a), and like clearly adjectival passives (24b), passives of PsyCaus verbs cannot occur in the progressive (24c) (Grimshaw 1991). However, Pesetsky points out that stative passives in general disallow the progressive. This generalization includes passives of SubjExp verbs, which have an external argument (24d).

- (24) a. The city is being destroyed by the soldiers.  
 b. \* The book was being very abridged.  
 c. \* Mary was being depressed by the situation.  
 d. \* This performance is being liked by Bill.

Pesetsky shows that backward binding also fails to support the unaccusative analysis, since this effect arises even when the subject originates above the object. As we saw above, unlike eventive transitives (25a), PsyCaus verbs (25b) allow backward binding. However, the same effects obtain if a causa-

tive verb like *make* is used with a SubjExp complement (25c-d). Here the subject clearly originates in a higher position than the Experiencer argument, yet backward binding is possible.<sup>11</sup>

- (25) a. \* Each other's supporters telephoned *Freud and Jung*.  
 b. Each other's supporters worried *Freud and Jung*.  
 c. Each other's supporters made [*Freud and Jung* angry].  
 d. Each other's supporters made [*Freud and Jung* seem [*t* to be angry]].

The unavailability of the reflexive clitic derivation also fails to support the derived subject analysis. B&R propose that (26) is ill-formed because it involves movement of *Gianni* from below *si* to above *si*.

- (26) \* *Gianni si preoccupa t*.  
 'Gianni worries himself.'

This derivation is said to be ungrammatical because of a chain formation algorithm that prevents an anaphor from occurring in an intervening position in the chain between an argument and its trace—see (27), where left-to-right order represents c-command (Rizzi 1986).

- (27) \* [NP<sub>i</sub>...anaphor<sub>i</sub>...t<sub>i</sub>]

As Pesetsky notes, this condition cannot apply as stated, since there is considerable evidence that the well-formed derivation of a transitive clause with *si* does involve the configuration in (27), with the surface subject raising from the object position, as in a passive (Marantz 1984, Kayne 1986). In (28), the reflexive clitic is actually the external argument, but it fails to become the syntactic subject, at least in part because it lacks Case (McGinnis 1998a).

- (28) a. *Gianni si guarda t*.  
 'Gianni watches himself.'  
 b. *Gianni si teme t*.  
 'Gianni fears himself.'

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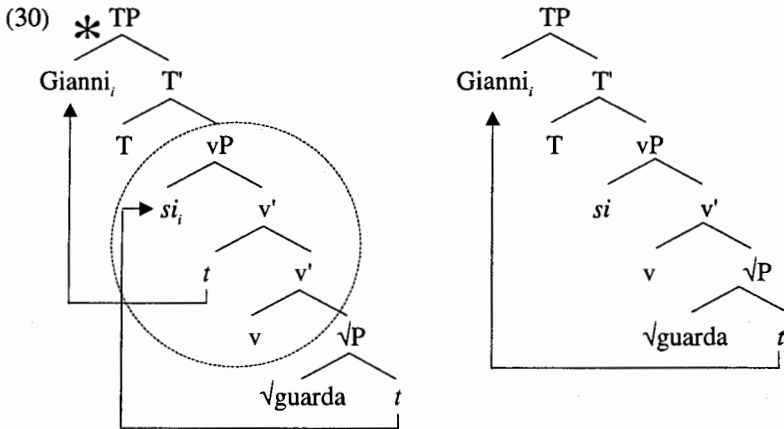
<sup>11</sup>Pesetsky demonstrates that another psych-effect, the impossibility of an arbitrary *pro* subject, arises from semantic restrictions that cross-cut the unaccusative/transitive distinction.



In providing an account of the passive-like derivation of (24b), Marantz (1984) raises the question of why this account should be necessary: why is it impossible to generate *si* as an accusative object clitic, and *Gianni* as the external argument? The derivation in (28b) is actually forced by a condition very like Rizzi's chain formation algorithm (McGinnis 1998a, 1998b; cf. Snyder 1992). This condition is stated in (29).

(29) *Lethal Ambiguity*: An anaphoric dependency cannot be established between two specifiers of the same head.

Under the account of Case-checking in Chomsky (1995), the object of a transitive clause checks Case on *v*. If the object is a clitic, it checks Case overtly, in a specifier of *vP* (30a). The external argument is base-generated in a specifier of *vP*. As a result, a reflexive clitic object would always violate Lethal Ambiguity, since the anaphor and its binder would occupy specifiers of the same head at one point in the derivation. Thus the only available derivation is the one in which the reflexive clitic is a Caseless external argument, allowing the passive-like derivation (30b).



Kayne suggests the descriptive generalization that the (Caseless) reflexive *si* is always an external argument. Given the view adopted here—that the Causer of a PsyCaus predicate is an external argument too—we must be more specific, and say that reflexive *si* can be generated only in the specifier of *certain* light verbs. One such verb is the eventive causative *v*, as in (28a). Another would be the stative, non-causative *v* used with SubjExp verbs, as in

(28b).<sup>12</sup> However, as we have seen, Caseless *si* cannot appear with the stative, causative  $\nu$  (26), or in passives and unaccusatives (as shown in (17)).

In summary, Pesetsky's arguments largely undercut the motivation for a locality-violating account of PsyCaus predicates. He shows that many of the psych-effects attributed to the unaccusative derivation properly belong to other generalizations. Because he treats the Causer subject of a PsyCaus predicate as semantically distinct from the T/SM object of a SubjExp predicate, it should in principle be possible to generate all Causers above Experiencers, and all T/SM arguments below Experiencers. This is essentially the approach of Arad (1998, 1999). However, Pesetsky notes that such an approach leaves an important generalization unexplained, namely the T/SM restriction. In what follows, I will review the T/SM restriction and Pesetsky's account of it, in preparation for the alternative account to be proposed here.

### 3.3 The T/SM Restriction

Under Pesetsky's account of PsyCaus and SubjExp predicates, the former involve a Causer and an Experiencer, while the latter involve an Experiencer, and possibly a Target or Subject Matter argument. Pesetsky's claim that the Causer and the T/SM theta-roles are distinct raises the question of why the two cannot co-occur, as shown in (1) and (2), repeated below. This co-occurrence restriction is what Pesetsky calls the T/SM restriction.

- (1) a. Mary was angry at the government.  
 b. The article in *The Times* angered Mary.  
 c. \* The article in *The Times* angered Mary at the government.
- (2) a. Bill was frightened of another tornado.  
 b. The distant rumbling frightened Bill.

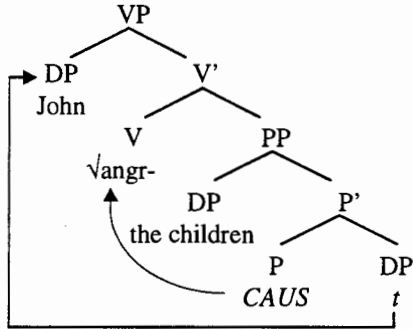
In accounting for the T/SM restriction, Pesetsky proposes that the Causer of a PsyCaus predicate is actually a *derived* external argument. The Causer originates below the Experiencer, like a T/SM argument, as the object of a

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<sup>12</sup>Arad (1997) notes that *si* is also possible with B&R's *piacere* class, which is usually treated as an ObjExp class because it has a dative Experiencer. However, Alec Marantz (class notes, 1999) suggests that the *piacere* class may have a SubjExp derivation, with a quirky dative Experiencer subject. If so, the possibility of *si* with these verbs can be attributed to the presence of the stative noncausative SubjExp  $\nu$ , as in (24c), except that here this  $\nu$  is also responsible for quirky dative case on the Experiencer.

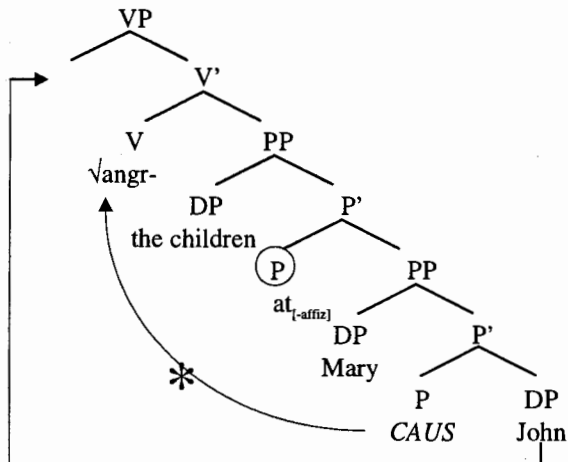
causative preposition *CAUS*. It then raises to a theta-position (also Causer) above the Experiencer. *CAUS* is affixal, and must attach to the verb syntactically (31).

(31) John angered the children.



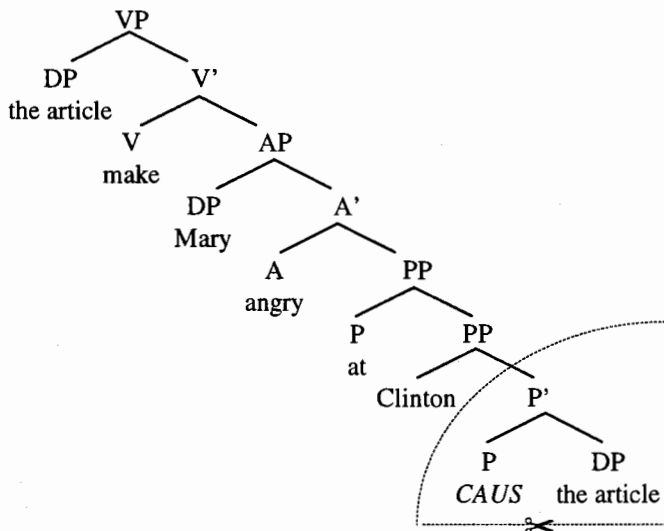
This proposal yields one possible account of the T/SM restriction. Suppose the T/SM argument receives its Case and theta-role from a preposition that intervenes between the main verb and the *CAUS* preposition, as shown in (28). If this preposition is not affixal, and cannot raise to V, it will block movement of *CAUS* to V. In accordance with locality, *CAUS* cannot skip over the preposition to V, so the derivation is ill-formed (32).

(32) \* John angered the children at Mary.



Pesetsky argues that the possibility of backward binding with *PsyCaus* predicates arises from movement of the Causer from a position c-commanded by the Experiencer to a position c-commanding it. However, as noted above, backward binding also occurs in periphrastic psychological causatives, when there is no such movement. In these cases, Pesetsky suggests, backward binding is licensed by semantic identity between the external argument and the object of *CAUS*. Here, however, the *CAUS*-PP, including the lower Causer, can be freely deleted, since they add nothing to the causative interpretation of *make* (33). Deletion of the *CAUS*-PP makes it possible to have a T/SM argument as well as a Causer argument in these cases (34).

(33) The article made Mary angry at Clinton.



- (34) a. The article in *The Times* made Mary angry at the government.  
 b. The distant rumbling made Bill frightened of another tornado.

As Pesetsky notes, this movement (or movement-like) theory of backward binding effects seems more principled than the descriptive generalization in (35).

(35) A Causer argument of a predicate  $\pi$  may behave as if c-commanded by an argumental DP governed by  $\pi$ . (Pesetsky 1995:49)

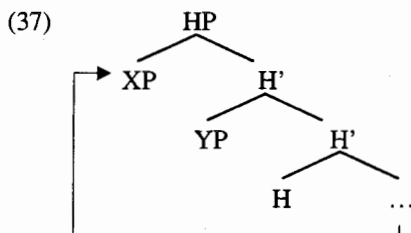
However, there is reason to doubt that the movement account of (35) can be maintained. Note that Pesetsky's account of the backward binding effects assumes that a PsyCaus predicate such as (31) contains no higher causative verb. The CAUS-PP alone is said to be responsible for the causative interpretation of such predicates, so it cannot be deleted in (32). However, as we saw in Section 2, there is evidence that PsyCaus predicates *do* contain a light causative verb. Thus the contrast between periphrastic causatives and PsyCaus predicates remains unexplained. Arguably, then, the movement account does not improve empirically on the descriptive generalization in (35).

Another problem posed by the movement account is that the Causer violates the locality condition on syntactic movement. Although the proposed derivation of (31) involves an unusual kind of movement, namely movement from one theta-position to another, we would still expect it to respect locality. That is, we would expect only the higher argument, the Experiencer, to be able to move to the higher Causer theta-position. Such a derivation might fail for Case reasons: the Experiencer would be unable to move to the higher Causer position because it has already checked (accusative) Case. This derivation would then be parallel to the ill-formed "superraising" derivation (36), in which neither of the arguments in the embedded clause can raise to the subject position of the matrix clause. Movement of the higher argument *it* is blocked because this argument has already checked Case. Movement of the lower argument is blocked because of locality, since the *it* is closer to the matrix subject position.

(36) \* [ \_\_\_\_ seems [(that) *it* was told *John* [that time was up]]].

Alternatively, we might suppose that the Experiencer can successfully move to the higher Causer position, but that this derivation converges as gibberish, given that the same argument has two theta-roles, and a single theta-role (Causer) is shared by two arguments.

Instead, the derivation in (31) has a lower argument skipping over the higher one to the subject position. Movement of a lower argument past a higher one is in principle compatible with locality, but only if the lower argument "leapfrogs" over the higher one. Let us assume, for concreteness, that an argument XP can leapfrog over a higher argument YP only if it first moves to a position where XP and YP occupy specifiers of the same head (Ura 1996), as shown in (37). The two specifiers are then "equidistant" for the purposes of locality. As noted above, however, an anaphoric dependency cannot obtain between specifiers of the same head.



In Japanese, for example, an object can undergo A-movement to a position where it c-commands the subject. From this position, it can bind into the subject (38a), but cannot bind the subject directly (38b). A similar situation arises if a direct object scrambles past an indirect object to a position above the subject. The scrambled direct object can bind an anaphor embedded in the indirect object (39a). However, since it must leapfrog over the indirect object in order to move to its final scrambled position, the direct object cannot bind the indirect object directly (39b). The observations in (38)-(39) are from Yatsushiro (1997 and p.c.)

- (38) a. **Hiroshi-o** [*karezisin-no* hahaoya]-ga [*t* nagutta].  
 H.-ACC self-GEN mother-NOM hit.PST  
 'His<sub>i</sub> mother hit **Hiroshi**<sub>i</sub>.'
- b. \* **Hiroshi-o** *karezisin-ga* [*t* nagutta].  
 H.-ACC self-NOM hit.PST  
 'Himself<sub>i</sub> hit **Hiroshi**<sub>i</sub>.'
- (39) a. **Osamu-o** Kazuko-ga [*t* [*karezisin-no* hahaoya-ni] [*t* miseta]].  
 O.-ACC K.-NOM self-GEN mother-DAT showed  
 'Kazuko showed **Osamu**<sub>i</sub> to his<sub>i</sub> mother.'
- b. \* **Osamu-o** Kazuko-ga (kagami-o tukatte) [*t* *karezisin-ni* [*t* miseta]].  
 O.-ACC K.-NOM mirror-ACC using self-DAT showed  
 'Kazuko showed **Osamu**<sub>i</sub> to himself<sub>i</sub> (using a mirror).'

However, the subject of a PsyCaus predicate can bind the object, suggesting that the two never occupy specifiers of the same head (40). These examples appear to be acceptable on both an eventive agentive reading and a stative PsyCaus reading. Thus, if the Causer subject were to originate below the Experiencer, it could only move to the subject position by skipping over the intervening argument. Such a derivation would violate locality: the Expe-

riencer should block movement of the Causer to the external argument position.

- (40) a. John frightens himself.  
 b. Taroo-ga zibunzisin-o odorok-asi-ta.  
 T.-NOM self-ACC surprise-CAUS-PAST  
 'Taroo surprised himself.'

In their discussion of reflexive clitics and PsyCaus verbs, B&R note that binding is much improved with non-clitic anaphors. They propose that such anaphors can receive a "focal" interpretation, and that focused anaphors are, in effect, immune to the effects of Lethal Ambiguity (29) (or, equivalently here, Rizzi's chain formation algorithm). However, this account does not explain why the (b) examples of (38)-(39) are ill-formed.<sup>13</sup>

Although there may be some way to make the movement account of PsyCaus predicates consistent with the above observations, I take these observations as reasonable grounds for seeking an alternative. The 'flavors of little *v*' approach adopted here captures many of the same facts as Pesetsky's account, though so far it offers no explanation of the T/SM restriction. The remainder of this paper is devoted to an account of the T/SM restriction that does not appeal to movement of the Causer from a position below the Experiencer.

#### 4 Root-External and Category-External Causatives

As mentioned in the previous section, psychological causatives with *make* (41) and PsyCaus verbs (42) differ with regard to the T/SM restriction:

- (41) a. \* The article in *The Times* angered Mary at the government.  
 b. \* The distant rumbling frightened Bill of another tornado.  
 (42) a. The article in *The Times* made Mary angry at the government.  
 b. The distant rumbling made Bill frightened of another tornado.

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<sup>13</sup>This said, there are apparently some cases in which the Experiencer cannot be bound by the Causer. For example, consider (i)-(ii) from Finnish (Liina Pykkänen, p.c.). At the moment I have no explanation for such cases.

(i)?? Pekka inho-tta-a itseään. (ii)?? Pekka sure-tta-a itseään.  
 Pekka disgust-CAUS-3SG self.PART Pekka be.sad-CAUS-3SG self.PART  
 'Pekka disgusts himself.' 'Pekka makes himself sad.'

I will argue here that this contrast arises from the distinction between root-external and category-external causatives. I assume that a verb consists of (at least) a category-neutral root plus a root-external (category-determining) event head,  $v$ . The proposal here will be that the examples in (41) involve just a root-external causative  $v$ , while those in (42) involve a root-external  $v$  plus a category-external causative  $v$ . Root-external causatives have sometimes been called “monoclausal,” and category-external causatives “biclausal” (Harley 1995).<sup>14</sup>

These two types of causatives have different semantic and morphological properties (Miyagawa 1980, 1989, 1994, 1998, etc.; Marantz 1997). First of all, the interpretation of root-external causatives is usually described as involving a more “manipulative” notion of causation than that of category-external causatives. Moreover, idioms can include a single causative  $v$ , but cannot cross the  $v$  boundary (Marantz 1997). Thus there are idioms based on a root-external causative, but no category-external causative idioms, in which both causative  $v$  heads are necessary to form the idiom. (43a) is a root-external causative idiom, with only a single  $v$  head; the noncausative counterpart has no idiomatic interpretation (43b) (Miyagawa 1980).

- (43) a. Taroo-ga zisyoku-o niow-ase-ta.  
 T.-NOM resignation-ACC smell-CAUS-PAST  
 ‘Taro hinted that he might resign.’  
 (*lit.* ‘Taro caused resignation to smell.’)
- b. Zisyoku-ga nio-u.  
 resignation-NOM smell-PRES  
 ‘Resignation smells; \*Resignation is hinted.’

Looking at French and English, Ruwet (1991) points out that a causative can only be idiomatic if the lower verb is non-agentive. Thus, for example, *make ends meet* is a possible idiom, because *meet* does not have an agentive meaning. By hypothesis, this is a root-external causative, with only a single event head. A category-external causative, like *make X eat cake*, can apparently never have an idiomatic reading that is absent when the higher causative is removed.

In some cases, the two types of causatives can be distinguished morphologically. In English and Japanese, for example, the morphology used for

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<sup>14</sup>Miyagawa (1998) suggests that biclausal causatives actually involve two Tense heads as well as two  $v$  heads. I leave this issue for further investigation.



root-external causative  $v$  is idiosyncratic, varying as a function of the choice of lexical root, while such variation is not observed in category-external causatives. For example, consider the Japanese verbs in (44) (taken from Jacobsen 1992). These verbs illustrate a causative/inchoative alternation, in which the event head  $v$  is associated with overt morphology (Harley 1995, Nishiyama 1998). On the left are unaccusative verbs, whose event head is noncausative, and does not introduce an external argument. On the right are transitive verbs, whose causative event head generally does introduce an external argument. The causative morphology here varies idiosyncratically with the lexical root.

- |         |                     |                         |                     |                      |
|---------|---------------------|-------------------------|---------------------|----------------------|
| (44) a. | ag-ar-u             | 'rise'                  | ag-e-ru             | 'raise'              |
| b.      | hazu-re-ru          | 'come off'              | hasu-s-u            | 'take off'           |
| c.      | kog-e-ru            | 'become scorched'       | kog-as-u            | 'scorch'             |
| d.      | nar- $\emptyset$ -u | 'ring <sub>intr</sub> ' | nar-as-u            | 'ring <sub>r</sub> ' |
| e.      | ak- $\emptyset$ -u  | 'open <sub>intr</sub> ' | ak-e-ru             | 'open <sub>r</sub> ' |
| f.      | kir-e-ru            | 'be cut'                | kir- $\emptyset$ -u | 'cut'                |

By contrast, for a category-external causative, the regular suffix  $-(s)ase$  is used.<sup>15</sup> Following Miyagawa (1998), I assume that  $-(s)ase$  spells out a causative event head ( $v$ ). (45) illustrates cases in which two causative  $v$  heads attach to the category-neutral root. In (45a), the root-external causative is realized as  $-(s)as$ ; in (45b), it is pronounced  $-(s)ase$ ; in (45c), it is phonologically empty. In each case, the category-external causative is morphologically realized as  $-(s)ase$ ; idiosyncratic causative morphology cannot be inserted outside causative  $v$ .

- (45) a. Taroo-ga Hanako-ni kodomo-tati-o ugok-as-ase-ta.  
 T.-NOM H.-DAT kids-ACC move-CAUS-CAUS-PAST  
 'Taro made Hanako cause the kids to move.'
- b. Hanako-ga Taroo-ni Ziroo-o Mitiko-ni aw-ase-sase-ru.  
 H.-NOM T.-DAT Z.-ACC M.-DAT meet-CAUS-CAUS-PRES  
 'Hanako will cause Taro to make Jiro meet Michiko.'
- c. Hanako-ga Taroo-ni piza-o tabe- $\emptyset$ -sase-ta.  
 H.-NOM T.-DAT pizza-ACC eat-CAUS-CAUS-PAST  
 'Hanako made Taro eat pizza.'

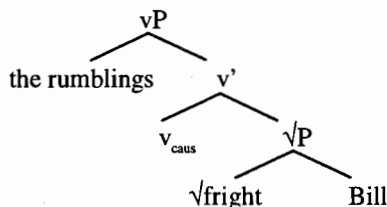
<sup>15</sup>Another causative,  $-(s)as$ , can also be used in such contexts. This causative has a slightly different interpretation from  $-(s)ase$ .

In the next section, I argue that not just causative  $v$ , but *any* category head, will prevent the insertion of idiosyncratic causative morphology in Japanese. Apparently, certain morphological items (or classes of items) are restricted to the local domain of the lexical root. Our account of the T/SM restriction will depend in part on this observation.

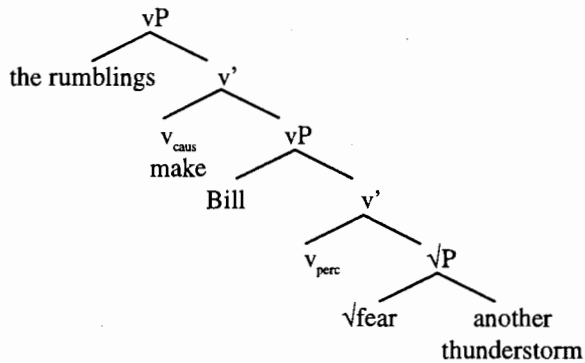
## 5 The Internal Structure of Psych-Predicates

Before tackling the T/SM restriction, let us begin with a clear notion of the syntax of a PsyCaus verb. Suppose the structure is as in (46a), with the root taking an argument (the Experiencer) and merging with the stative causative  $v$ . We can compare this with the structure for a category-external causative added to a psychological predicate, as shown in (46b). Here the root merges with noncausative stative  $v$ , yielding a SubjExp verb whose T/SM argument checks structural Case (here, covertly) on  $v$ . In English and Italian, this Case is realized by accusative case morphology, in Finnish by partitive case morphology. The SubjExp structure then merges with a causative stative  $v$  realized as *make*. Finally, consider a category-external psychological causative, in which the SubjExp component is an adjectival predicate rather than a verbal one (47). Here I will assume that the root combines with an adjectival stative event head  $a$ , again yielding a SubjExp predicate. The adjectival event head does not check structural Case, so if the predicate has a T/SM argument, this argument must be Case-marked by a preposition (here, *of*).

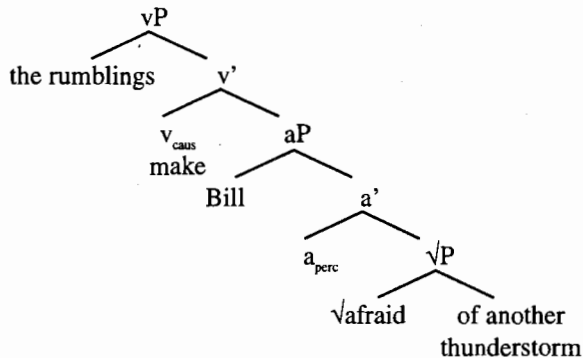
(46)a. The rumblings frightened Bill.



- b. The rumblings made Bill fear another thunderstorm.



- (47) The rumblings made Bill afraid of another thunderstorm.



Suppose that the T/SM argument can occur only in the presence of a stative, noncausative event head. Derived nominalizations provide evidence for this claim. In the English derived nominalization of a psych-root, the T/SM argument can only appear as a postnominal PP, not as a prenominal possessor (cf. Pesetsky 1995). For example, a Subject Matter PP is fine in (48a), but as a possessor it is out (48b).<sup>16</sup> (48c) has a reading where Bela Lugosi is the Experiencer of fear, but not one where he is just the Subject

<sup>16</sup>Thanks to Alec Marantz for suggesting this argument, as well as for pointing out that the ill-formedness of examples like (47b) could also be attributed to the fact that the T/SM argument is not an "affected" entity (see Anderson 1983).

Matter of fear experienced by someone else. Similarly, in (49a), a Target PP is fine, but the possessive DP cannot be interpreted as a Target. In (49b), a reading is possible in which *anger* characterizes the contents of the article, meaning something like “the article’s ferocity”, but not where the article is simply the Target of anger. In (49c), Bill can be the Experiencer of anger, but not just the Target of anger experienced by someone else.

- (48) a. Bill’s fear of thunderstorms / of Bela Lugosi  
 b. \* thunderstorms’ fear  
 c. Bela Lugosi’s fear
- (49) a. Hillary’s anger at the article / at Bill  
 b. ? the article’s anger  
 c. Bill’s anger

Marantz (1997) argues that the semantic role of the possessor of a derived nominalization must be semantically recoverable from the lexical root. As we saw, an argument of the root can be a possessor. The possessor in (50a) corresponds to the object of the transitive verb *destroy*, while the possessor in (50b) corresponds to the subject of unaccusative *grow*, or the object of transitive *grow*.

- (50) a. the city’s destruction  
 b. tomatoes’ growth

Suppose that arguments of the root are always semantically recoverable from the root (although other arguments may also be recoverable, such as the causative argument in *the army’s destruction of the city*). If so, then the T/SM argument is not an argument of the psych-root. Rather, it can only be semantically licensed by certain functional heads, including noncausative stative heads forming nouns, adjectives and verbs. This view is in keeping with Pylkkänen’s (1998) proposal that an event head can have the semantics of a light perception verb, which takes two arguments, the Experiencer and the Percept (here, the T/SM argument).<sup>17</sup> Let us suppose that this functional “perception” predicate can be verbal or adjectival, permitting two arguments in both verbal and adjectival SubjExp predicates. I assume that a T/SM ar-

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<sup>17</sup>Pylkkänen actually argues that it is the causative event head used with PsyCaus verbs that has the semantics of a light perception verb, not the event head used with SubjExp verbs.

gument in a derived nominalization is also licensed by a functional head, the nominalizing head (*n*).

Note that in the usual case, we have assumed that a head assigns a theta-role to its sister or its specifier. In the structures given above, however, the event head assigns its T/SM role downwards, to the sister of the root. I adopt this structure because the T/SM argument can apparently check structural Case on a verbal event head (e.g., in (46b)), just as in a regular transitive. Assuming structural Case-checking always involves a relation between an NP and a higher functional head, the event head is above the T/SM argument. Moreover, the verb-T/SM word order in English SubjExp predicates suggests that the T/SM argument is below the event head, since although a root may raise overtly to *v* in English, it generally does not raise to a higher functional head (such as T).<sup>18</sup>

Let us review the key claims. The T/SM argument is not an argument of the root. It must be licensed by particular event heads, which generally have the semantics of a light perception verb. Suppose, then, that a causative event head does not itself have the relevant semantics to license a T/SM argument. If so, then the only way to combine the causative meaning with a T/SM argument is to generate a category-external causative, with a lower perception event head in addition to the higher causative event head (see Section 5.1). However, the idiosyncratic causative morphology specified by the root is not used to spell out a category-external causative *v*. In English, the root can specify affixal (or null) morphology only for a root-external causative *v*; category-external causatives must be periphrastic, using the default causative morphology *make*.

### 5.1 Evidence for a SubjExp Event Head

Thus far we have mainly been concerned with PsyCaus predicates. What is the evidence that SubjExp predicates contain an event head? SubjExp predicates are more like eventive transitive predicates than like PsyCaus predicates, in that they fail to show the classic psych-effects. The similarity is somewhat puzzling, since eventive transitive and SubjExp predicates differ with respect to both causativity and eventivity. However, the two are not syntactically identical. Although—in some languages—SubjExp verbs have a

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<sup>18</sup>Another alternative would be to say that the T/SM argument is licensed, not by the category-determining event head, but by a separate functional head sandwiched between this head and the root. For example, Alexiadou (1999) suggests that an aspectual functional head (Asp) occurs in this position.

nominative subject and passivize, just like eventive transitives, in others (e.g., Georgian, Icelandic), SubjExp verbs have a “quirky” dative subject, and resist passivization. Arad (1999) proposes that the experiencer of a SubjExp verb is introduced by a third type of  $v$ , a stative noncausative  $v$  (see Marantz 1989 for a similar suggestion). I will adopt this proposal here, leaving open the question of why SubjExp predicates and transitives often pattern together, and against PsyCaus predicates.

Is it accurate to call the head that introduces the Experiencer of a SubjExp verb an *event* head? It was reported above (see example (11b)) that Finnish *melkein* ‘almost’ has only one scope with SubjExp verbs. This suggests that a SubjExp clause contains only one eventuality, namely the one denoted by the lexical root. On closer examination, however, adverb scope options appear to admit the possibility of a bi-eventive structure for SubjExp predicates. Consider the English examples in (51). (51a) could describe a situation in which *Mimi* was undecided about *Bob*, and was on the point of liking him, but then he did something ghastly that destroyed her opinion of him forever. Alternatively, it could describe a situation in which *Mimi* was quite decided about *Bob*, and what she experienced towards him was a feeling approaching affection. A similar ambiguity seems to arise in (51b), where the SubjExp predicate is adjectival.

- (51) a. Mimi almost liked Bob.  
 b. Mimi was almost angry with Bob.

This ambiguity supports the presence of an event head in SubjExp predicates. Let us suppose that the first reading involves modification of the “experience” eventuality denoted by the stative noncausative event  $v$ , while the second involves modification of the “state of mind” eventuality denoted by the root.<sup>19</sup>

However, even if SubjExp predicates include two syntactic heads, this does not necessarily mean that they contain an *event* head. Marantz (1989, 1993) argues that the higher indirect object of a double-object predicate is generated in the specifier of a light applicative verb. This verb is realized by overt morphology in various Bantu languages, among others. Nevertheless, assuming an applicative verb is present in English, it does not require the default causative morphology *make*. (52) shows double-object predicates with either a causative affix *-en* or no overt causative. Little or no overt ap-

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<sup>19</sup>Of course, this approach predicts that, on closer examination, both adverb scopes will turn out to be available in Finnish as well.

plicative morphology occurs in English; the applicative head is shown as italicized  $\emptyset$  below.

- (52) a. He [<sub>VP</sub> **thick**- $\emptyset$ -en-ed [<sub>APPLP</sub> me *t* [<sub>VP</sub> *t* some soup]]].  
 b. John [<sub>VP</sub> **bake**- $\emptyset$ - $\emptyset$ -ed [<sub>APPLP</sub> Bill *t* [<sub>VP</sub> *t* a cake]]].  
 c. Mary [<sub>VP</sub> **kick**- $\emptyset$ - $\emptyset$ -ed [<sub>APPLP</sub> Sue *t* [<sub>VP</sub> *t* the ball]]].

Thus, by our assumptions, there are light verbs (such as APPL) that are not event heads. However, there is evidence that, by contrast with APPL, the light verb introducing the Experiencer of a SubjExp predicate is an event head, introducing an "external" argument.

Georgian provides some evidence for a difference between APPL and the SubjExp event head  $v_{perc}$ . In Georgian, both the indirect object introduced by APPL and the Experiencer subject introduced by  $v_{perc}$  have dative morphological case (Harris 1981). Moreover, many SubjExp verbs have an affix that is morphologically identical to APPL (the "relative prefix" that adds an indirect object to a transitive or unaccusative clause). Nevertheless, the Experiencer subject behaves differently from the indirect object in several ways. For example, some speakers require the reflexive anaphor *tavis tav* to be bound by a subject. These speakers do not permit the indirect object to bind the anaphor (53a), but do permit the Experiencer to do so (53b). Moreover, although the dative Experiencer behaves like the syntactic subject, in a passive the indirect object does not become a dative subject.<sup>20</sup> Instead it appears with the postposition *-tvis*, while the direct object becomes the subject (53c).

- (53) a. nino paTara gela-stavis tav-s  $\emptyset$ -acveneb-s sarKeSi.  
 N.-NOM little G.-DAT self-DAT APPL-show-PRES mirror-in  
 'Nino<sub>i</sub> showed little Gela, herself/\*himself<sub>i</sub> in the mirror.'  
 b. temur-s tavis tav-i u-qvar-s.  
 T.-DAT self-NOM  $v$ -love-PRES  
 'Temur loves himself.'  
 c. vaSI-i micemulia masCavleblis-tvis.  
 apple-NOM give.PASS.PRES teacher-for  
 'An apple is given to the teacher.' (Harris 1981:103)

<sup>20</sup>In this it differs from a dative indirect object in Icelandic, which becomes the subject in a passive, just like a dative Experiencer (Zaenen, Maling & Thráinsson 1985).





determining event head, *a*, just as the external argument of a verb is introduced by a category-determining event head, *v*.

- (56) a. \* Ne sarebbero arrabbiate<sub>A</sub> molte (di vittime).  
           of-them would be angry many (of victims)  
       b. \* Ne sarebbero impaurite<sub>A</sub> molte (di vittime).  
           of-them would be afraid many (of victims) (Michela Ippolito, p.c.)

The reasoning here is as follows: given that SubjExp adjectives and verbs are complex predicates, and given that the Experiencer argument is an external argument, we can conclude that the functional head that introduces the Experiencer is an event head, just as in a regular transitive. If a causative is added to a predicate with this event head, it will of course be category-external. In English, such a causative must use the default morphology *make*; the null or affixal causative morphology of a PsyCaus verb cannot be used in forming a causative of a SubjExp predicate. This, I submit, is the right explanation of the T/SM restriction.

## 5.2 Further Predictions

If it is true that the T/SM restriction follows in part from the morphological properties of English causatives, we can derive a couple of predictions. First, we have suggested that null or affixal causative morphology in English is always root-external, and that adjectival predicates (often) have an external argument introduced by a category-forming event head, *a*. If so, then affixal causatives should usually not attach outside adjective-forming affixes. Secondly, we noted that both root-external and category-external causatives are affixal in Japanese. We expect the T/SM restriction to hold for root-external affixal causatives in Japanese, but not for category-external affixal causatives.

The first prediction holds up fairly well. The causative affixes *-ify* and *-en* are often said to attach to adjectives to form verbs, but these affixes do not attach to stems that already have an adjectival affix. For example, a search of Webster's online dictionary reveals that *-ify* often attaches to bound stems (57a), sometimes to stems that can appear in unaffixed form as adjectives (or nouns) (57b), but never to "derived" adjectives. Causative *-en* does

not appear to attach to bound stems, but it attaches only to stems lacking a suffix (58).<sup>22</sup>

- (57) a. beaut-, fort-, dign-, myst-, Russ-, spec-, transmogr- ...  
 b. dense, false, diverse, french, just, prett(y), pure, rare, simple, sol-  
 emn, solid, tack(y), ugl(y)
- (58) awake, broad, coarse, deaf, fresh, glad, hard, loose, mad, neat, quiet,  
 red, sad, thick, weak...

However, there are causative suffixes in English that attach outside adjective-forming suffixes, contrary to the most straightforward prediction. For example, English *-ize* attaches to derived adjectival forms of various kinds (59).<sup>23</sup> Nevertheless, unlike periphrastic *make*, which can also be added outside an adjectival predicate, *-ize* does not allow both a Causer and a T/SM argument (60c).

- (59) a. *-ic*: metr-ic, myth-ic, poet-ic...  
 b. *-(u)al*: centr-al, palat-al, trib-al, concept-ual, sex-ual, intellect-ual...  
 c. *-ar*: pol-ar, line-ar, singul-ar...  
 d. *-(ia)n*: America-n, India-n, Russ-ian, grec-ian, ital-ian...  
 e. *-ive*: collect-ive, subject-ive, relat-ive...
- (60) a. The citizens were terrified of the dictator.  
 b. The soldiers terrorized the citizens.  
 c. \* The soldiers terrorized the citizens of the dictator.

Although, like causative *make*, *-ize* can attach outside some category-determining morphology, it is subject to a special restriction. Note that, unlike *make*, *-ize* never attaches outside a causative head, such as the head that introduces the agent *Heidi* in (61). It can form a root-external causative (61a), but not a causative of a causative (61b).

- (61) a. The advice of the pet store made [Heidi gradually accli-  
 mate/acclimatize her cats to the weather in Arizona].

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<sup>22</sup>I assume that *humid* and *rigid* are in fact underived, despite the existence of the apparently related words *humor* and *rigor*. I also assume that the verbs *bedizen*, *betoken*, *cozen*, and *open* are not analyzed by English speakers as bound roots suffixed with *-en*.

<sup>23</sup>*-al* and *-ar* may well be phonologically conditioned allomorphs of the same morpheme (Morris Halle, p.c.).

- b. \* The advice of the pet store acclimatized [Heidi gradually (of) her cats to the weather in Arizona].

Observing that *-ize* can only attach to Latinate roots or affixes, Pesetsky (1995) proposes that *-ize* cannot attach to a causative because *CAUS* (here,  $v_{caus}$ ) in English is [-Latinate]. We can make the same proposal here for  $a_{perc}$ . The adjective-forming affixes in (59) are [+Latinate], but if  $a_{perc}$  is [-Latinate] in English, *-ize* will not attach to it; a category-external causative  $v$  will instead be spelled out with non-affixal causative morphology, like *make*.

Note also that although *-ize* and *make* are both category-external, they may not spell out exactly the same syntactic/semantic features. Lieber (1998) argues that *-ize* is not generic causative morphology, but rather spells out a distinct core meaning, which she calls ACT. Although adding a causative to a predicate containing  $a_{perc}$  produces a semantically and syntactically well-formed structure, it does not follow that adding ACT does.

In general, then, the evidence seems to support our first prediction, namely that causative affixes in English will not attach outside of adjective-forming affixes. Because *-ize* attaches outside adjective-forming affixes, we might expect it to be able to attach outside  $a_{perc}$ , like *make*. However, the fact that *-ize* cannot attach outside  $a_{perc}$ , can be attributed to morphological and perhaps semantic restrictions on its distribution. Thus the account given successfully predicts that *make*, and not affixal causatives, can be used to add a causative meaning to a predicate with a Causer and a T/SM argument in English.

We now turn to the second prediction, that Japanese root-external causatives will display the T/SM restriction, while category-external causatives will not. This prediction is also borne out. Miyagawa (1980) notes a semantic contrast between two causative counterparts of the SubjExp predicate *odoroku* 'be surprised'. The causative formed with *-(s)as*, in (62a), has the interpretation of a PsyCaus verb, with the Causer directly producing surprise in the Experiencer. The causative formed with *-(s)ase*, as in (62b), has a category-external causative interpretation, with the Causer indirectly producing surprise in the Experiencer. For example, in (62a) the actress's surprise is a genuine response to the director, while in (62b) it could simply be produced for effect, in response to a direction.

- (62) a. Eiga kantoku-ga zyoyuu-o odorok-asi-ta.  
 movie director-NOM actress-ACC surprise-CAUS-PAST  
 'The movie director surprised the actress.'

- b. Eiga kantoku-ga zyoyuu-o odorok-ase-ta.  
 movie director-NOM actress-ACC surprise-CAUS-PAST  
 'The movie director made the actress be surprised.'

In the noncausative SubjExp counterpart, a T/SM argument with dative *ni* can be introduced (63a). However, this argument can only be used with the category-external *-(s)ase* causative (63b), not with the root-external *-(s)as* causative (63c) (Kazuaki Maeda, p.c.). As predicted, the T/SM restriction holds in a root-external causative, but not in a category-external causative.

- (63) a. Zyoyuu-ga sono koto-ni odoroi-ta.  
 actress-NOM that fact-DAT surprise-PAST  
 'The actress was surprised at that fact.'
- b. Eiga kantoku-ga zyoyuu-o sono koto-ni odorok-ase-ta.  
 movie director-NOMactress-ACC that fact-DAT surprise-CAUS-PAST  
 'The movie director made the actress surprised at that fact.'
- c. \* Eiga kantoku-ga zyoyuu-o sono koto-ni odorok-asi-ta.  
 movie director-NOMactress-ACC that fact-DAT surprise-CAUS-PAST  
 'The movie director surprised the actress at that fact.'

(63c) is apparently well-formed semantically, given that both types of causative allow an additional "causer" argument to be introduced by the particle *de*:

- (64) a. Eiga kantoku-ga zyoyuu-o sono koto-de odorok-ase-ta.  
 movie director-NOMactress-ACC that fact-b/c surprise-CAUS-PAST  
 'The movie director made the actress surprised because of that fact.'
- b. Eiga kantoku-ga zyoyuu-o sono koto-de odorok-asi-ta.  
 movie director-NOMactress-ACC that fact-b/c surprise-CAUS-PAST  
 'The movie director surprised the actress because of that fact.'

The behaviour of Japanese causatives supports our second prediction: the T/SM restriction holds only in a root-external causative, even if the category-external causative is also affixal.

## 6 Conclusions

I have argued here that the T/SM restriction arises from two causes. First, the Target or Subject Matter argument is licensed, not of the root, but by the noncausative stative event head occurring in SubjExp predicates, which de-

termines the category of the predicate, and conveys the semantics of perception ( $v_{perc}$  or  $a_{perc}$ ). Thus, a T/SM argument can arise only in the presence of such a head. Secondly, adding a Causer to a predicate with a category-determining head generally blocks the use of null or affixal causative morphology in English, so only a periphrastic causative can be used when both the Causer and T/SM arguments are present. PsyCaus verbs are root-external causatives, involving only one event head (the causative  $v$ ), so English allows null or affixal causative morphology here. In Japanese, however, a category-external causative can also use affixal morphology. There the T/SM restriction arises only with root-external affixal causatives, and not with category-external affixal causatives.

The approach sketched here makes it possible to preserve the view that A-movement respects locality; as such, it is worth pursuing further.

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