

# Experiencer-Centered Event Construal of Psychological Causation

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## 1. INTRODUCTION

Psych-verbs have been the topic of various linguistic studies. In English two types of psych-verbs are distinguished: one takes an Experiencer in subject position as in (1a) and the other in object position, as in (1b).

- (1) a. John feared thunder.  
b. Thunder frightened John.

The Experiencer-object (EO) verbs exhibit a number of peculiar properties. For example, they allow backward binding as in (2), which is not possible with the Experiencer-subject (ES) verbs as in (3a) or non-psych-verbs as in (3b).

- (2) a. Pictures of himself<sub>i</sub> worry John<sub>i</sub>.  
b. Each other<sub>i</sub>'s remarks annoyed John and Mary<sub>i</sub>.  
(3) a. \*Each other<sub>i</sub>'s friends fear John and Mary<sub>i</sub>.  
b. \*Pictures of himself<sub>i</sub> hit John<sub>i</sub>.

A number of syntactic analyses have been proposed, among which Belletti and Rizzi (1988) and Grimshaw (1990) are best known. They propose a solution by taking unaccusative approaches to psych-verbs. Their analyses, however, have been challenged. Pesetsky (1990), for example, argues that EO verbs are causatives and proposes a semantic solution.

The purpose of this paper is to propose a semantic analysis with a special focus on how each participant is involved in the event expressed and the entire clause construal, not just the lexical content of particular verbs.

I will argue that peculiar binding observed with EO-verbs is attributable to the Experiencer-centered event construal and the two-way causal relation, not to the unaccusative structure posited specially for psych-verbs.

In the section that follows, I will give a brief overview of previous analyses and point out the problems. In section 3, an alternative analysis based on psychological causative meaning is proposed. Supporting evidence is provided through an examination of binding phenomena in section

3.3. Section 4 presents concluding remarks.

## 2. Previous Analyses

### 2.1. Belletti & Rizzi (1988)

Belletti and Rizzi (1988) approach psych-verbs within the framework of Binding Theory. They ascribe peculiar binding like (2) to the unaccusative structure of (4) specially posited for psych (EO) verbs, where the Experiencer c-commands the Theme in a VP internal direct object position at D-structure.

- (4) Theme<sub>i</sub> [<sub>D</sub> VP [<sub>v</sub>' V t<sub>i</sub>] Experiencer]

However, their analysis ad hoc for psych-verbs faces a serious problem, because backward binding is possible with various types of non-psych-verbs, some of which extend beyond the domain of psych-verb constructions as in (5) (see Bouchard 1995, Pesetsky 1995, Iwata 1995 among others).

- (5) a. Each other<sub>i</sub>'s remarks made John and Mary<sub>i</sub> angry.  
b. Pictures of himself<sub>i</sub> give John<sub>i</sub> the creeps.  
(Pesetsky 1995: 43-4)

In addition, there is some syntactic evidence that goes against the unaccusative analysis (cf. Nakajima 1993).

First, psych-verbs do not undergo *as*-relativization, as in (6).

- (6) a. The earth is round, as we know.  
b. \*Mary said that John failed, as shows us that he is incompetent.  
c. \*The earth is round, as surprised Mary.

According to Stowell (1987), the CP gap in the *as* construction must be lexically governed at D-structure. This explains why (6b) and (6c) are ruled out. This in turn proves that the surface subject of psych-verb is not lexically governed at D-structure. This is contrary to Belletti and Rizzi's unaccusative analysis, which assumes that the surface subject is the D-structure object (a Theme) that must be lexically governed at D-structure.

Secondly, there is a difference between unaccusative verbs and psych verbs

- (7) a. There occurs to me that Mike is an idiot.  
b. \*There surprised me that Mike is an idiot.

Furthermore, their purely structural account set specially for psych-verbs cannot give a systematic account for the same peculiarities exhibited by various types of non-psych-verbs as in (5).

## 2.2. Grimshaw (1990)

Following Belletti & Rizzi, Grimshaw also assumes that EO verbs have no syntactic subjects, taking Experiencer and Theme arguments. Unlike Belletti & Rizzi, however, she incorporates into her analysis the semantic notion of prominence relation (or “a(rgument)-command”), with the recognition that a purely configurational account is not sufficient. The prominence relation is defined over the structure of argument structure—a more prominent argument asymmetrically a-commands a less prominent argument in the same predicate. With this prominence relation, she explains the contrast in (8), stating that only (8b) is acceptable, because the Experiencer as a more prominent argument can be the antecedent.

- (8) a. \*Each other’s students fear the professors. (Exp (Theme))  
b. Each other’s students frighten the professors. (Exp-acc (Theme))  
c. \*Students of each other hit the politicians (during the riot). ((Agent (Exp)))

The prominence theory, however, still has some difficulty in accounting for a contrast such as in (9), because in all of (9a)-(9c) the Experiencer is the most prominent argument.

- (9) a. Pictures of herself surprised Ruth.  
b. \*Pictures of herself surprised Ruth, because of its color.  
c. \*The picture of herself embarrassed Ruth, who was at sleep.

The prominence relation alone does not account for why (9b) and (9c) are ruled out.

## 2.3. Pesetsky (1987, 1990)

Rejecting the aforementioned analyses, Pesetsky (1987, 1990) proposes a bi-clausal analysis for EO-verbs, by assuming the presence of the zero-morpheme Cause in the underlying structure. By pointing out the difference in meaning between (10a) and (10b), he argues that applying

the Theme to all non-Experiencer arguments is incorrect.

- (10) a. Bill was angry at the article in the *Times*.  
b. The article in the *Times* angered Bill greatly.

According to Pesetsky, in (10a) Bill must have evaluated the article and formed a bad opinion of some aspect of it, while in (10b) it is appropriate even if Bill thinks the article itself splendid. Something other than the article itself could anger Bill. Pesetsky, then, proposes to divide the Theme in three different Theta roles: Cause, Target of Emotion, and Subject Matter of Emotion. He terms *the article in the Times* in (10a) as the Target of emotion and that in (10b) as the Cause of emotion. These theta roles form the following theta-hierarchy.

- (11) Cause > Experiencer > Target/Subject matter

Now the highest argument is mapped onto the highest D-structure position of a clause whereby the subject of EO verbs is claimed to be always a Cause.

Pesetsky’s decomposition device may solve the linking problem but does not account for why peculiar binding is observed with EO-verbs. Furthermore, contrary to his claim that the surface subject must always be a Cause, there are cases where the subject can be better analyzed as a Target of emotion. Consider the examples in (12) from Pesetsky himself (1987).

- (12) a. These pictures annoy me (to look at).  
b. These stories please me (to listen to).  
c. \*Bill killed me to have to look at.  
d. \*Those dogs bit me to give water to.

In his earlier account, the acceptability of (12a) and (12b) in contrast to (12c) and (12d) was explained as a consequence of Tough Movement (infinitival clauses *to look at* and *to listen* are later deleted). This means that the subject in (12a) and (12b) is a derived one and can be analyzed as a Target of emotion.

What is more, the subject of EO verbs generally allows different interpretations, which can simultaneously be a Target of emotion, as the example in (13b) from McCawley (1976), due to Lee (1971), indicates.

- (13) a. The hammer broke the window.  
b. A letter from Sue overjoyed Dale.

The psychological causative of (13b) allows a reading that something about Sue’s letter overjoyed Dale. It can be the content of Sue’s letter or the very fact that Sue had written to Dale. The physical causative of (13a), on the other hand, lacks such a reading. It does not mean that something about the hammer broke the window. Clearly, in one

reading of (13b) the subject can be analyzed as a Target of emotion. Although I agree with Pesetsky that the subject of EO verb must be distinct from Theme, I address the question whether his decomposition can really capture such specific nature of the subject of EO verbs.

I shall rather analyze the subject of EO verbs as having a broad meaning that includes the Target/Subject matter of emotion and is left unspecified. This accords with McCawley's observation. Following Lee, she calls this "a partial specification of the true subject". This "partial nature of the subject" has an important consequence, which I shall discuss later in analyzing the interpretations of picture nouns in section 3.4.

### 3. An Alternative Analysis

Since Pesetsky (1987, 1990), various causative analyses have been proposed. For example, Iwata (1995a) and Hatori (1997) propose a lexical causative analysis of EO verbs, claiming that psych-verbs as ordinary transitive verbs.

It is true that various types of non-psych-verbs behave just like psych-verbs when they are used in the psychological sense (cf. Voorst 1992, Hatori 1997). For example, they occur with such adverbs as *deeply* and *profoundly*, exhibit backward binding and derive *ing* psych-adjectives, as pointed out by Hatori (1997).

- (14) a. His kindness touched me profoundly.  
 b. Picture of himself<sub>i</sub> moved/touched John<sub>i</sub> deeply.  
 c. The film is a very moving account of life in the refugee camps of Beirut.

However, these previous analyses left unaccounted for an important question, namely, why peculiar behavior is observed when these verbs are used in the psychological sense, as in (14b), but not in physical sense, as in (15b).

- (15) a. The car touched Mary and John.  
 b. \*Each other<sub>i</sub>'s car touched Mary and John<sub>i</sub>.

Nor can they account for such a contrast as in (16).

- (16) a. These pictures annoy me (to look at). (= (12a))  
 b. \*Bill killed me to have (to look at). (= (12c))

Obviously, the contrast between (14a) and (15b) cannot be attributed to the verb alone, because one and the same verb is used. Rather, it must be attributed to the psychological causative meaning expressed by the whole sentence.

The alternative analysis to be proposed is based on the psychological causative meaning expressed by all types of EO-verb constructions, with a special focus on how

participants are involved in the event and how the event is construed.

The present analysis does not intend to offer a special mechanism to solve the linking problem but to show that peculiar phenomena in question can be explained in a more general way within the causative analysis. I will show that the notions of Experiencer-centered event construal and two-way causal relation provide an explanatory basis for the peculiar behavior of EO-verbs.

#### 3.1. Psychological vs. Physical Causation

To account for peculiar phenomena observed, I will first point out some important difference between the psychological causative and the physical causative.

One crucial factor that distinguishes the emotive event from the physical event is that perception is crucially involved in the former. The event of perceiving is presupposed although it is not linguistically expressed in (17a), which is virtually synonymous with (17b). The event of perceiving as an initiating event is an essential prerequisite, as the contrast between (17b) and (17c) indicates (the examples are from Lakoff (1995)).

- (17) a. The view knocked me over.  
 b. The view that I could see knocked me over.  
 c. \*The view that I couldn't see knocked me over.

In (17a) of the emotive causative event, the object-Experiencer is at the same time is a perceiver (or a perceptual receiver in the sense of Lakoff), in addition to the emotionally affected entity, while the subject entity is, at the same time, an object of perception. It is also the entity (a stimulus) to which the experiencer reacts. This means that each participant of emotive causative event plays a dual role and interacts with the other. This makes a sharp contrast with the ordinary (physical) causative event in (18).

- (18) a. John knocked me over.  
 b. John that I couldn't see knocked me over

In the typical causative event of (18a), the subject *John* is identified as a volitional entity that is in full control of and responsible for the occurrence of the event, acting one-way on the object that is identified as a simply affected entity.

This observation accords with Pesetsky's in (16). In (16a) with a psych-verb, the Experiencer object has a subject-like function and the subject NP has an object-like property but not in (16b) with a non-psych ordinary transitive verb. The two participants of emotive causative event

interact mutually. In this sense, the causal relation between the two participants of emotive causation is more complex than a physical causation that is a one-way causal relation.

### 3.2. A Two-way Causal Relation

I have argued briefly that perception is crucially involved in the emotive event. The involvement of perception is further confirmed by the fact that psych-verbs can take a factive clause as their subject or complement. Regardless of whether they contain particular expressions such as *see* or *hear*, perceptive action is presupposed.

- (19) a. I am surprised (to see/hear) that you have given up smoking.  
 b. (Seeing/hearing) that you have given up smoking surprised me.

The same is observed with non-psych-verbs that are used psychologically.

- (20) a. That you remembered my birthday touched me deeply.  
 b. \*That John moved the car touched the door.

Note again that (19a) clearly indicates the experiencer is a perceiver as well.

While the object of EO verbs is restricted to a sentient being, the subject of EO-verbs seems quite free of choice. It can be either animate or inanimate. It can be expressed not only by a full lexical NP but pleonastic *it*.

McCawley (1976) points out an interesting contrast in (21).

- (21) a. It angered John that/when Mary cried.  
 b. It convinced me that/\*when Mary cried.  
 c. It proved nothing that/?when Mary cried.

Unlike verbs such as *convince*, psych-verbs permit not only the *that* clause but the *when* clause. She points out that the *when* clause in (21a) is not simply a time adverb. It does not give the time at which it angered John but rather specifies both what it is that angers John (namely, Mary's crying) and when it angers him. But such readings are absent in (21b) and (21c).

Interestingly, *when* clause in (22a) has a similar effect. (22a) is nearly synonymous with (22b) with the *to* infinitive phrase.

- (22) a. John was surprised when he heard the news.  
 b. John was surprised to hear the news.

Similarly, the sentences in (23), where the *when* clause is replaced by the *to* infinitive phrase have the same result.

- (23) a. It angered John to hear/see Mary cry  
 b. \*It convinced me to hear/see Mary cry.  
 c. ?It proved nothing to hear/see Mary cry.

Notice that the experiencer is not simply a perceiver but reacts to what s/he perceived and the object of perception is at the same time something that triggers the occurrence of emotional feeling in the experiencer.

This can be confirmed by the contrast between (23a) and (24).

- (24) a. It occurs to me that/\*when the airplane crashed  
 b. It came to me that/\*when the airplane crashed

Sentences in (24), where the experiencer is represented simply as the recipient of perception and no reaction to the perception is relevant, do not accept the *when* clause. The contrast between (23a) and (24) is significant, suggesting that the subject of EO verb is not simply a derived one.

### 3.3. Construals of Causality

The partial nature of the subject is another important factor that distinguishes the emotive causative from the physical causative, as indicated in (25).

- (25) a. The hammer broke the window.  
 b. A letter from Sue overjoyed Dale.

With physical causative events such as (25a), the *hammer* is straightforwardly and objectively understood as a breaker of the window. *A letter from Sue* of the emotive causative event, on the other hand, has a broad meaning and left unspecified. It is related to the event from the view point of Dale. This I shall call the Experiencer-centered construal of causality, in contrast to the Agent-centered construal of causality exemplified by (25a).

The Experiencer-centered construal of causality manifests itself in the contrast in (26) (the examples are from McCawley (1973))

- (26) a. \*The color of the lump amused the blind man.  
 b. The shape of the lump amused the blind man.

In the above, what triggers the occurrence of emotional feeling is determined from the viewpoint of the blind man. This point is made clear in the following contrast.

- (27) a. The lump amused the blind man, \*(because of its color).  
 b. The lump amused the blind man, (because of its shape).

As pointed out earlier, the subject of EO-verbs, the *lump* in this case, is partially specified. When it is specified by the added information (*because of its shape*) it is done from the

viewpoint of the blind man. In other words, the cause of emotive causation is dependent on the experiencer. This imposes the experiencer-centered construal of causality.

Let us now turn to another important question. As is generally known, EO-verb constructions yield agentive readings as in (28), where adverbs such as *deliberately* or adjuncts such as *by kicking* are added.

- (28) a. John deliberately embarrassed Mary.  
b. John surprised Mary by kicking.

EO-verbs with agentive readings behave just like ordinary transitive verbs and do not exhibit peculiar binding.

- (29) \*Each other's bosses deliberately embarrassed the censors.

In (28) John is understood as a volitional actor acting on Mary, although what exactly John did is not expressed in (28b).

Notice that in (28) there is no such a reading as something about John embarrassed/surprised Mary. Instead, John's action as a cause is straightforwardly related to the embarrassing /surprising event.

Hence, it is (30a), not (30b) that is appropriate to ask for the responses of (28).

- (30) a. What did John do? John deliberately embarrassed Mary.  
b. What happened? \*John deliberately embarrassed Mary

*John* in (30) is understood as an actor, which imposes Agent-centered construal of causality.

One may claim that the peculiar behavior observed above is solely due to the non-agentive nature of EO verbs. However, this idea must be rejected, because some ordinary transitive verbs may also take non-agentive subject yielding the non-agentive reading, as in (31a), but backward binding is not possible as in (31b).

- (31) a. The car touched Mary and John.  
b. \*Each other's car touched Mary and John.

Rather, what is important is how the event is construed.

### 3.4. Backward Binding

We have seen above that the Experiencer-object as a perceiver as well as an affected entity is centered in the emotive event and mutual interaction of two participants is characteristic of psychological causation. I shall now show how these factors are correlated to the peculiar binding phenomenon in question. Let us deal with the following contrast, which is problematic to Grimshaw.

- (32) a. Pictures of herself surprised Ruth.  
b. \*Pictures of herself surprised Ruth, because of its color.  
c. \*The picture of herself embarrassed Ruth, who was at sleep.

The contrast can now be explained as follows. The reflexive *herself* in (32a) is the object of Ruth's thought. It can also be the stimulus to which Ruth reacted, which in turn triggers the occurrence of an emotional feeling in Ruth. The reflexive *herself* in (32b) and (32c), on the other hand, is not the object of Ruth's thought that triggers the reaction of Ruth. Thus, Ruth does not stand as its antecedent. Notice also that the object of perception and Ruth are two-way related in (32a), but not (32b) and (32c).

My notion of Experiencer-centeredness is somewhat similar to Grimshaw's analysis of Experiencer as most prominent but differs in an important way. Experiencer-centeredness is defined in terms of how the entity is involved in the event while Grimshaw's prominence theory is defined over thematic argument structure. The difference between the two analyses is exemplified by the following contrast, which gives an advantage to my analysis over her prominence theory. The examples are from Iwata (1995b), due originally to Bouchard (1991).

- (33) a. That biography about himself, frightened the president, because of its revealing details.  
b. \*That biography about himself, frightened the president, because of its bright color.

Based on Bouchard's observation, Iwata argues that representational/ individual distinction in the interpretations of picture NP is responsible for the contrast above. The individual interpretation refers to the object itself whereas the representational one refers to the element represented in the picture NP. The latter is logophoric, representing what is in the thought of the entity where the antecedent must be the "subject of consciousness". Thus, the president in (33a), being the subject of consciousness, can be the antecedent but not in (33b).

The notion of "Experiencer as a perceiver" in my analysis corresponds to the "subject of consciousness" which Iwata argues cannot be derived from the prominence relations of argument structure. Obviously, the prominence relation cannot account for the unacceptability in (33b).

The "subject of consciousness" alone, however, is still not sufficient to account for the contrast in (34).

- (34) a. Pictures of herself made Ruth happy.

- b. \*Pictures of herself made Ruth famous.

Again the present analysis based on how each participant is involved in the event can explain the contrast. The reflexive *herself* in (34a) is the object of Ruth's perception which in turn stimulates her to be happy. Thus, there is a specific two-way relation between the object of perception and Ruth. Such a relation does not hold in (34b), because what is in the thought of Ruth does not serve to make her famous.

As observed, the two-way causal relation serves to specify the broad interpretation of the subject NP. It is confirmed by the contrast between (35a) and (35b).

- (35) a. The book about himself angered Bill, (\*because of its color).

- b. The book angered Bill, because of its color.

Similarly, the mutual interaction between the two participants holds in (36b) but not in (36a).

- (36) a. \*Pictures of himself moved/touched John quickly.  
b. Pictures of himself moved/touched John deeply.

#### 4. Conclusion

The present paper has proposed a causative analysis of EO-verbs and shown that the peculiar binding phenomena is attributable to the experiencer-centered event construal and the two-way causal relation between the two participants, not to syntactic structure hypothesized by Belletti and Rizzi. I had also shown that the present analysis has an important advantage over previous studies. It can not only deal with psych and non-psych EO verbs in the uniformed way but also can account for peculiar binding in a more

general way.

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