

# External Argument and English Psychological Verbs

*Taegoo Chung*

Korea University  
1, 5-Ga, Anam-Dong,  
Sungbuk-Ku, Seoul, Korea 136-701  
tchung@kuccnx.korea.ac.kr

The purpose of this paper is to show that the so-called Experiencer-Object (EO) psychological verbs in English have external argument contra Belletti and Rizzi 1988, Grimshaw 1990 and that the structure proposed by Belletti and Rizzi 1988 is not correct. Bouchard 1995, Iwata 1995, and Chung 1998 have already pointed out that the psychological verbs have external argument. This study provides new evidence for the claim; verbal passives and adjectival passives of the psychological verbs. It is shown that the two types of passives involve external argument of the base verbs. This evidence is critical since Belletti and Rizzi 1988 and Grimshaw 1990 argue that the EO verbs form only adjectival passives. But this study shows that even the adjectival passive formation involves deletion (suppression) of external argument.

## 1 Introduction

Peculiar properties of the Experiencer-object (EO) verbs have been observed by several linguists (Belletti and Rizzi 1988, Grimshaw 1990, Pesetsky 1995, among others). The following sentence illustrates some of the properties:

- (1) Pictures of each other depress the politicians.

In (1) Theme appears as subject *Pictures of each other* and Experiencer appears as object *the politicians*. The thematic role, Theme, in the subject position, is thematically lower than that, Experiencer, in the object position.<sup>1</sup> Thus, the syntactic structure in (1) does not reflect the thematic structure directly. Furthermore, the backward reflexive *each other* is not bound by its antecedent *the politicians*, violating Binding Theory, but the sentence is grammatical.

To account for the peculiar properties of the EO verb construction, Belletti and Rizzi 1988 presents the D-structure in (3) for the EO verb construction in (2):

- (2) This worries John.

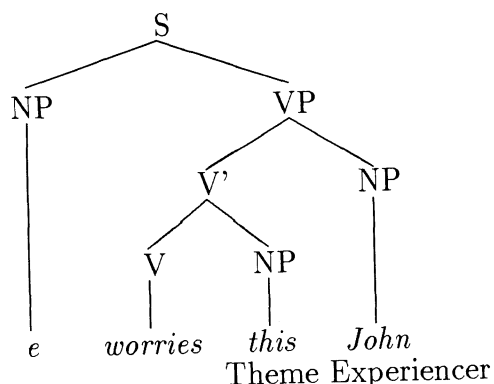
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<sup>1</sup> One version of the Thematic Hierarchy is given below:

Agent > Experiencer > Goal/Source/Location > Theme

(Grimshaw 1990:24)

(3)



In the structure in (3), Experiencer *John* is higher than Theme *this*, and this enables us to account for the backward reflexive since the Experiencer position c-commands the Theme position.

For the structure in (3), Belletti and Rizzi 1988 have to assume that the verb is unaccusative; it does not have external argument. This assumption is critical for them because the movement of Theme argument to subject position is motivated by the absence of external argument; the verb without external argument cannot assign Case to its complement NP, following Burzio's Generalization.

Grimshaw 1990 also claims that the EO verbs do not have external argument. According to her, external argument is the most prominent argument in both tiers, thematic and aspectual. But the EO verbs do not have any argument which is most prominent in the two tiers.

On the other hand, Chung 1998 presents evidence that the EO verbs do have external argument. Chung shows that many of the EO verbs take the *-er* nominal suffix which only attaches to the verb with external argument. The verbs with external argument in (4a) can take *-er* whereas the unaccusative verbs without external argument in (4b) cannot. The data in (5) show that many EO verbs take the *-er* suffix:

- (4) a. teacher(teach), actor(act), maker(make), baker(bake), driver(drive), striker(strike)  
b. \*appearer(appear), \*collapser(collapse), \*dier(die), \*disappearer(disappear)

(Hovav and Levin 1992)

- (5) amuser, annoyer, appeaser, astonisher, attractor, comforter, delighter, disappointer, discourager, disenchanter, disgracer, distracter, distruster, disturber, enchanter, encourager, entertainer, exciter, frightener, hurter, impresser, insulter, irritator, offender, pleaser, provoker, puzzler, reliever, satisfier, scarer

(Chung 1998)

The data in (5) clearly show that the EO verbs have external argument contra Belletti and Rizzi's 1988 and Grimshaw's 1990 claim.

On the other hand, Pesetsky 1995, Bouchard 1995, Iwata 1995 suggest that the EO verbs do have external argument. Pesetsky's claim is based on the zero morpheme, but his argument

cannot account for the *-er* nominals in (5) (See Chung 1998 for the detailed discussion).<sup>2</sup> Bouchard 1995 just assumes that the EO verbs have external argument without presenting evidence for the external argument of the EO verbs. Iwata 1995 presents some pieces of evidence (i.e., middle formation, *-er* nominals, *-able* adjectives) that the EO verbs are simple transitive verbs: That is, the verbs have external and direct internal argument. But Iwata's data are very limited and Iwata does not account for the problem of Pesetsky 1995.

The present study is concerned about the further evidence that the EO verbs have external argument. The evidence is passives derived from the EO verbs. Most of the EO verbs may form either verbal or adjectival passives and both types of passives are evidence for the external argument of the EO verbs.

In Section 2 I will examine the verbal passives from the EO verbs and Section 3 deals with the adjectival passives from the EO verbs, in Section 4 I will examine adjectival passives from unaccusative verbs, and Section 5 is a concluding part.

## 2 Verbal Passives

Wasow 1977 observed that there are two types of passives, verbal and adjectival. The two types are illustrated below:

- (6) a. There was expected t to be a strike this Sunday.
- b. John's remark was unexpected.

Sentence (6a) is a verbal passive and (6b) is an adjectival passive. (6a) involves movement of *There* but (6b) does not involve any movement. The form *unexpected* in (6b) is adjective and its adjectival status is well-documented (Siegal 1973, Hust 1977, Wasow 1977, and Bresnan 1982).

The EO verbs in which we are interested in this study may form passives, as shown in (7):

- (7) Mary was frightened by the situation.                      (Grimshaw 1990:113, (8))

Belletti and Rizzi 1988 and Grimshaw 1990 claim that the passive in (7) is not a verbal passive but an adjectival passive since only the verb with external argument may form a verbal passive. They assume that the EO verb *frighten* does not have external argument and thus it cannot form a verbal passive which suppresses the external argument. They claim that the passive in (7) is an adjectival passive.

But Pesetsky 1995, Bouchard 1995 argue that the EO verbs can form either verbal and adjectival passives. The first evidence for the claim is the distribution of the adverbs *much* and

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<sup>2</sup> Pesetsky 1995 is basically based on Myers' Generalization which states that a base verb affixed by a zero morpheme does not allow further derivational affixation. The EO verbs are causative and thus they are affixed by the zero morpheme CAUSE. But the causative verbs affixed by the zero morpheme allows the further derivational affixation in the *-er* nominals of the EO verbs. Pesetsky 1995 admits this exceptional property of the suffix *-er* as well as the suffix *-able*.

*extremely*. The adverb *much* can modify adjective only, but it cannot modify verbs, as shown in (8). This adverb (and *extremely*) may appear in the passives of the EO verbs, as shown in (9), whereas these adverbs may not appear in the verbal passives in (10). But these adverbs cannot appear in the passives of the EO verbs in (11):<sup>3</sup>

(8) a. \*We much discussed this idea in the '70s.

b. This idea was (\*much) considered important in the '70s.

(Pesetsky 1995:29, (67))

(9) a. I'm very much aware of the lack of food supplies.

b. She's much better today.

c. the much-criticized publicity campaign.

(Oxford Advanced Learner's Dictionary 1995)

(10) a. Bill was (much) frightened by my remark.

b. Sue was (extremely) annoyed by Bill's behavior.

(Pesetsky 1995:32)

(11) a. In those days, Bill was often being (\*much) frightened by one thing or another when I would come home from work.

b. In those days, Sue was often (\*extremely) annoyed by Bill's behavior.

(Pesetsky 1995:32)

While *much* cannot be a preverbal modifier as in (8), it can be a preadjectival modifier as in (9). The fact that *much* can appear in the passives in (10) indicates that the past participle forms, *frightened* and *annoyed*, are adjectives. And the fact that the adverbs *much* and *extremely* cannot appear in the passives of the EO verbs as in (11) indicates that the passives are verbal. Unlike Belletti and Rizzi's 1988 and Grimshaw's 1990 claim that the passives of the EO verbs are only adjectival, they can be either adjectival or verbal.

Bouchard 1995 presents another evidence that the passives of the EO verbs can be verbal. He points out that only adjectival passives, not verbal passives, are supposed to allow idiosyncratic prepositions. In (12), the EO verbs may take prepositions other than *by*, which indicates that the passives are adjectival. But the same EO verbs in (13) cannot take the same prepositions:

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<sup>3</sup> We need to be careful about the usage of the word *much* which modifies either verbs and adjectives. *Much* modifying a verb (phrase) often appears with the adverb *very* as in (a). This phrase may appear in front of the verb as in (b) where there is a pause between this phrase and the verb.

(a) John hates his teacher very much.

(b) John very much hates his teacher.

When the word *much* modifies an adjective, it can appear only in front of the adjective and there is no pause between *much* and the following adjective, as in (9).

- (12) a. The child was so *scared at* the strange noise.  
 b. He was so *enraged at* the article about him that he sued the newspaper.  
 c. I was so *annoyed with* him for turning up late that I couldn't speak to him for half an hour.  
 d. I remember when I was a child being very *impressed with* how many toys she had.
- (13) a. Sue was continually being *scared by/\*at* sudden noises.  
 b. Bill was often being *enraged by/\*at* totally innocent remarks.  
 c. Sue was continually being *annoyed by/\*with* mysterious sounds from the cellar.  
 d. John was always being deeply *impressed by/\*with* things that left the rest of us cold.  
 (Bouchard 1995:309)

The contrast in (12) and (13) suggests that the passives in (13) are verbal, not adjectival.

Belletti and Rizzi 1988 and Grimshaw 1990 cannot allow the EO verb to form verbal passives since they claim that the EO verbs do not have external argument and the verbal passives are possible only for the verbs with external argument. The evidence that the EO verbs may form verbal passives indicates that the verbs have external argument.

### 3 Adjectival Passives

Belletti and Rizzi 1988 and Grimshaw 1990 argue that the passives of the EO verbs are adjectival, not verbal. In this section, I will show that even the adjectival passives of the EO verbs presuppose the existence of external argument.

#### 3.1 Adjectival Passives of the EO Verbs

Since the forms of the verbal and adjectival passives are the same, the *ed*-suffixed forms, it is not easy to distinguish the two forms. But there are some criteria for the adjectival passives. The following are some of the tests for adjectives (Siegel 1973, Wasow 1977, Grimshaw 1990, Pesetsky 1995, and Bouchard 1995 among others):

- (14) i) *Un-* prefixation  
 ii) Complements of certain verbs (*seem, look, etc.*)  
 iii) Modification by the degree adverb *very*  
 iv) Prenominal modifier position  
 v) Coordination with adjectives

The criteria in (14) are those for finding the category, adjective. Here I will examine only the *un-* prefixation in (14i).<sup>4</sup>

<sup>4</sup> The other criteria are examined in Chung 1998 and some problems are discussed there. The following illustrate some examples of the criteria. All of them are based on the distribution of adjectives.

There are two types of the prefix *un-*: the negative *un-* and the reversative *un-*. While the reversative *un-* attaches to verbs only as shown in (15), the negative prefix *un-* attaches to adjectives only as shown in (16) and (17) (See Siegal 1973, Hust 1977, etc.):

(15) undress, unbutton, uncover, unfold, unlock, undo, unseat, unleash

(16) a. The picture was unimpressive to us.

b. \*The picture unimpressed us.

(17) unhappy, unkind, unconditional, unconscious

We can find this negative prefix *un-* attached to the passive forms of the EO verbs, as shown in (18):

(18) a. John was very unamused.

b. The old man was unconfused at that time.

c. The girls were unexcited at the scene.

The *un-* passive forms (*unamused*, *unconfused*, *unexcited*) derived from the EO verbs in (18) are adjectives converted from verbs.

I find that most of the EO verbs can be *un-* adjectival passive forms derived from the past participial forms. The following are some of the *un-* passive forms found in the Random House Dictionary:<sup>5</sup>

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i) Complements of certain verbs

a. John looked eager to win

b. John remained *elated*

c. John seemed *annoyed* at us.

d. John sounded *convinced* to run (Wasow 1977:339, (39))

ii) Modification by the degree adverb *very*

a. The girl was very happy.

b. The lady was very annoyed.

(iii) Prenominal modifier position

a. the *broken* box sat on the table

b. the *filled* box sat on the table (Wasow 1977:338, (38))

c. the *annoyed* man

(iv) Coordination with adjectives

He is *depraved* and uncouth.

<sup>5</sup> *The Random House Dictionary of the English Language*, 1987, Second Edition, Unabridged. Random House: New

(19) unafflicted, unagonized, unalarmed, unamazed, unamused, unannoyed, unappeased  
unattracted, unbothered, uncheered, uncomforted, unconfused, undepressed,  
undisappointed, undiscouraged, undisgusted, undisturbed, unencouraged, unexcited,  
unfrightened, unhorrified, unoffended, unpleased, unsurprised, unworried

Although the data in (19) do not exhaust all of the adjective forms of the EO verbs, it is found that most of the EO verbs are registered as adjective in the dictionary.

### 3.2 Adjectival Passives and External Argument

In this section I will look into external argument in the adjectival passives of the EO verbs. As shown in the verbal passive formation, it will be shown that the adjectival passive formation presupposes the existence of the external argument.

Note that Belletti and Rizzi 1988 and Grimshaw 1990 argue the EO verbs form adjectival passives only. One example is shown in (20):

(20) Mary was frightened by the situation. (Grimshaw 1990:113, (8))

Grimshaw 1990 provides several pieces of evidence that the sentence in (20) is an adjectival passive.<sup>6</sup> Grimshaw claims that the EO verbs cannot form the verbal passive which involves suppression of external argument because the EO verbs do not have external argument. Here it will be shown that the adjectival passive in (20) involves deletion (suppression) of external argument.<sup>7</sup>

Before looking into the adjectival passives formation of the EO verbs, let us consider the general properties of adjectival passive formation (APF), which are shown below:

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York.

<sup>6</sup> In fact, as Bouchard 1995 points out, Grimshaw's 1990 evidence is that the sentence is an adjectival passive, but not that the sentence is not a verbal passive.

<sup>7</sup> It is an open question whether in adjectival passive formation, the external argument of the base verb is suppressed or deleted. The adjectival passive, unlike the verbal passive, seems to delete the external argument since the argument is not active syntactically, as shown below:

a. The old house was broken by John [PRO to build a new house].

b \*The patient was very entertained by the nurse [PRO to make him feel better].

In the verbal passive in (a) the suppressed argument can be the controller of PRO, the subject of the purpose clause. However, in the adjectival passive in (b) the implicit argument cannot be the controller of PRO in the purpose clause. Here I will leave this question as an open question. But I will use the term 'deletion' without any theoretical reason.

(21) Properties of APF

- a. Affixation of the passive morpheme *-ed*
- b. Change of category: [+V, -N] -> [+V, +N]
- c. Suppression of the external role of the base verb
- d. Externalization of an internal role of the base verb
- e. Absorption of Case
- f. Elimination of the [NP, VP] position (Levin and Rappaport 1986:624)

One of the properties of APF is deletion (suppression) of external argument, (21c). Levin and Rappaport 1986 claim that APF needs only category conversion in (22) and the property of deletion of external argument is subsumed in the category conversion:

(22) APF: V[Part] --> [ V[Part] ]A

In (21) the past participle, V[Part], which is derived from the base verb by affixing the suffix *-ed*, is converted to adjective. According to Levin and Rappaport, the property, deletion (suppression) of external argument, follows from the fact that the adjectival passive participle is created from the verbal passive participle, which involves suppression of external argument, and the property, externalization of an argument, is a consequence of the category change; a general property of adjectives is that they require external argument. Thus, properties other than the category conversion do not need to be stipulated in APF, according to Levin and Rappaport.

Our concern here is whether or not the base verbs of adjectival passives have external argument and my claim is that the base verbs have external argument. The passive of an EO verb in (20) is a problem for Belletti and Rizzi 1988 and Grimshaw 1990 who both claim that the EO verbs do not have external argument; (Verbal) passivization involves suppression of external argument. Thus, they argue that the passive in (20) is an adjectival passive. But I will show that this argument does not save them but the passive is a counter-evidence to them; That is, it shows that the EO verbs have external argument.

Category conversion in (22) implies externalization of an internal argument since an adjective needs an external argument according to Levin and Rappaport. Thus, if an EO verb has an external argument, then APF should delete (suppress) the external argument; Otherwise the derived adjective would have two external arguments.

Let us take a look at how the argument structures are changed in APF. The argument structures of the verbs in (23) are represented in (24):

- (23) a. Stuff the feathers into the pillow.
- b. Stuff the pillow (with the feathers). (Levin and Rappaport 1986:641)
- (24) a. *stuff*<sub>1</sub>: agent <*material*, location>
- b. *stuff*<sub>2</sub>: agent <(material), location> (Levin and Rappaport 1986:643)

The examples in (23) show that the verb *stuff* has two types of argument structure in (24). In (24) external argument is outside the bracket and direct arguments are italicized and the argument in parenthesis is optional. The adjectival passives in (25) are derived from the verb



*stuff*:

- (25) a. the carefully stuffed pillows  
b. The feathers remained stuffed in the pillows.  
c. \*The feathers remained stuffed. (Levin and Rappaport 1986:644)

(25a) is derived from (24b); External argument, agent, is deleted (suppressed) and location argument *pillows* is externalized and the optional argument, material, is not realized. (25b) is derived from (24a); External argument is deleted (suppressed), and the material argument *the feathers* is externalized and the location argument *in the pillows* appears internally. (25c) cannot be derived from either (24a) or (24b); If it is derived from (24a), then the location argument is not realized, violating the Projection Principle (or Theta Criterion), and if it is derived from (24b), the obligatory location argument is not realized, again violating the Projection Principle. In this analysis, we can see that obligatory arguments should appear in the derived adjectival passives; Otherwise it will violate the Projection Principle.

Now suppose that the EO verbs do not have external argument, following Belletti and Rizzi 1988 and Grimshaw 1990. Then, the EO verbs would not delete (suppress) any argument in APF and the two internal arguments should show up in the derived adjectival passive construction; One argument will be externalized and the other will remain internally in adjectival passives, observing the Projection Principle or Theta-Criterion. All of the EO verbs under consideration are two-place predicates and the two arguments are obligatory, not optional. Now let us examine the typical EO verb, *frighten*:

- (26) The building frightened the tourists. (Grimshaw 1990:25)  
(27) frighten: (Theme/Cause, Experiencer)

The two arguments in (27) are obligatory; Omission of either argument will result in ungrammaticality. Suppose that the argument structure in (27) do not have external argument. The two arguments should appear in the derived adjectival passive construction since they both are obligatory; Otherwise the adjectival passive will be ungrammatical, violating the Projection Principle. Consider the following adjectival passives derived from (27):

- (28) a. The tourists were unfrightened (by the building).  
b. The tourists remained unfrightened.  
c. the unfrightened tourists

In (28), we can see that Theme/Cause (*the building* in (26)) is deleted (suppressed) and the other Experiencer argument (*the tourists*) is externalized. If the verb *frighten* in (27) does not have external argument and the two arguments are all internal arguments, then the two arguments both should appear in the derived constructions in (28): Otherwise they will violate the Projection Principle, resulting in ungrammaticality. In (28) we can see that one argument of the verb disappears, but the adjectival passive constructions in (28) are all grammatical. This means that the two arguments both cannot be internal arguments; One of them should be external argument to be deleted (suppressed). The adjectival passives of other EO verbs below show the same fact:

- (29) John's remarks did not annoy the teacher.
- (30) a. The teacher was unannoyed.  
 b. The teacher remained unannoyed.  
 c. the unannoyed teacher

The pattern in (30) is the same as that in (28). We have to admit that the EO verb *annoy* has external argument and the external argument is deleted (suppressed) in the derived adjectival passive forms in (30). Now we can say that all of the EO verbs have external argument and it is deleted (suppressed) in the derived adjectival passive formation.

#### 4 Adjectival Passives of Unaccusative Verbs

We have seen that APF involves deletion (suppression) of external argument. Related to this property, one interesting phenomenon is that the adjectival passives can be derived from the so-called unaccusative verbs which do not have external argument (See Bresnan 1982, Dryer 1985, Levin and Rappaport 1986, Pesetsky 1995, and Bouchard 1995). Consider the following adjectival passive forms:

- (31) a. elapsed time [time that has elapsed]  
 b. a fallen leaf [a leaf that has fallen]  
 c. a widely travelled man [a man who has travelled widely]  
 d. a risen Christ [a Christ that has risen (from the dead)] (Bresnan 1982:30)

Bresnan 1982 and Levin and Rappaport 1986 claim that the data such as in (31) indicate that adjectival passives can be derived from the unaccusative verbs in general. But Dryer 1985, Pesetsky 1995, and Bouchard 1995 point out that the adjectival passives derived from the unaccusatives are not general or rather sporadic. Pesetsky 1995 points out that many unaccusative verbs cannot form adjectival passives, as shown in (32):

- (32) a. \*an (already) occurred event  
 b. \*(recently) left travelers  
 c. \*(newly) come packages  
 d. \*(recently) grown interest  
 e. \*a (recently) surfaced problem  
 f. \*(recently) descended balloon (Pesetsky 1995:23)

Pesetsky 1995 suggests that the forms in (32) is the general case and that unaccusatives generally resist adjectival passive formation. Bouchard 1995 agrees with Pesetsky 1995 and points out that the adjectival passive forms from the unaccusatives cannot be used as sentential predicates, though they may be used as NP-internal adjectives, as in (31).

Here I will not pursue the question whether APF presupposes external argument or not in

general. Even if we allow adjectival passive formation from unaccusatives, it does not affect the argument of the present study. Suppose that we allow that APF deletes (suppresses) external argument of the base verb only when it has and category conversion is required in general. But we cannot but acknowledge that the EO verbs have external argument because one argument disappears in the adjectival passives. If someone argues that an internal argument may be deleted in APF, then he cannot explain why the single internal argument of the unaccusative verbs in (31) is not deleted in APF.

## 5 Concluding Remarks

In this study I have shown that the so-called Experiencer-Object verbs have external argument, contra Belletti and Rizzi 1988 and Grimshaw 1990. This claim goes along with Bouchard 1995, Iwata 1995, and Chung 1998. This study has examined the passives derived from the EO verbs and has shown that APF involves deletion (suppression) of external argument of the base verb. This is interesting because Belletti and Rizzi 1988 and Grimshaw 1990 argue that the verbal passivization from the EO verbs is impossible and that the passive forms derived from the verbs are adjectival, not verbal. But this study shows that two types of passives can be derived from the EO verbs and both types of passives presuppose the presence of external argument.

This study leaves some implications. First, the structural approach to the backward reflexives in the EO verbs as in (1) should be reconsidered since the verbs are shown to have external argument. Belletti and Rizzi 1988 posit the D-structure in (3) which directly reflects the thematic hierarchy and accounts for the backward reflexives. But their structural argument is based upon the assumption that the EO verbs are unaccusative, which is shown not to be true in this study. Second, the thematic roles in the thematic hierarchy is also to be reconsidered. For example, it is said that the verb *annoy* has the thematic structure (Theme, Experiencer) which violates the thematic hierarchy. Thus, Grimshaw 1990 argues that the verb has two tiers (Theme, Experiencer) and (Cause, ...). But we have seen that the argument Theme or Cause of the verb is external argument. This seems to support the argument (Rappaport and Levin 1988, Bouchard 1995) that the thematic labels such as Theme or Agent are no longer primitive terms

This study also casts some questions about APF, especially Levin and Rappaport's 1988 proposal. They argue that we need only the category conversion for APF. But we can find that this is not enough for APF. First, they assume that APF follows verbal passivization and thus they can explain common properties of adjectival passives with verbal passives. For example, the two types of passives have the same *ed*-suffixed forms and both suppress the external argument of the base verb. But as indicated in the footnote 7, APF seems to delete the external argument whereas verbal passives suppress it and thus the implicit argument is active syntactically. The second question is related to change of argument structure in APF. Levin and Rappaport 1986 simply assume that APF suppresses the external argument and then externalizes one internal argument. But it seems that this version of APF is too simple since the adjectival passive in (34) derived from (33) changes argument structure:

- (33) a. The remark annoyed the man.  
      b. annoy (Cause, Experiencer)
- (34) a. The man was annoyed at the remark.  
      b. annoyed (Experiencer, Target)

APF here deletes external argument Cause in (33b) and it creates Target in (34b).<sup>8</sup> I will not pursue this problem here but leave it as a future project.

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<sup>8</sup> Pesetsky 1995 argues that the two roles, Cause (33b) and Target in (34b), belong to the same type