

Lexical Passivization (2): An Approach Based on Argument Structure

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Abstract

In our previous paper, we outlined some cases in which traditional syntactic approaches fail to handle the passivization of some kinds of verbs: pseudopassives, double object verbs, Experiencer-object (EO) psych verbs, and symmetric verbs. In this paper, we propose an alternative way to explain passivization focusing mainly on argument structure of verbs rather than exclusively on the syntactic structure that a verb takes. We assume that passivization is an operation that takes place in the lexicon, that is, before syntax, and therefore we may enjoy a passivization principle that is insensitive to syntactic differences. By identifying passivization with the lexical approach that we propose, we may give a unified explanation to the problematic cases for the syntactic approaches.

Key Words : Passivization, Argument structure, The change-of-state property

1. Introduction

In our previous paper (Yoshida and Ushie 2011), we saw traditional and widely-accepted explanations of the passive in the generative grammar such as claimed in Chomsky (1981), Jaeggli (1986) and Baker, Johnson, and Roberts (1989), in which the direct object of a verb is, in common, base-generated as a sister of the verb and subsequently raises to the subject position for the Case reason. Those explanations elegantly describe the fact that the logical direct object of a verb appears in the subject position in the passive. However, they are made in the framework of the government and binding (GB) theory, and they are untenable anymore in the present framework of the generative grammar, the Minimalist Program.

In addition, there are also empirical problems concerning the traditional explanations of the passive depending on Case and structure; some verbs are resistant to passivization, even though they are thought to satisfy the syntactic requirements for passivization, in the sense that they are transitive verbs with the subject that should be suppressed and the direct object that should raise to the subject position for Case. In our previous paper, we argued that these instances crucially

undermine the exclusive relevance of syntax to the passive, and the semantic aspect of verbs should be taken into account to see whether a verb may be passivized or not.

As we mentioned, if the syntax is not exclusively appropriate for describing passivization, then how should we look at the passive? We made an observation that the semantic aspect of a verb is indispensable; besides, we may further observe that through passivization a diadic predicate changes into a monadic predicate. Briefly, in addition to the semantics of a verb, we are in need of referring to adicity at the same time. One way to satisfy the need is to look into argument structure. In this paper, we will develop a theory of the passive rooted in the argument structure of verbs.

Argument structure is a kind of lexical information carried by each predicate throughout syntactic computations, from the beginning to the end; therefore, it is basically possible to refer to the argument structure of a verb at any point during the derivation. In the Minimalism, the basic picture of syntactic derivation is as follows; numeration selects lexical items from the lexicon, and syntax accesses those items selected and introduces them into structure one by one. In this picture, the syntax must be located after the lexicon. Given that the syntax is not an appropriate locus for stating passivization as mentioned above, the next prospective locus would be in the lexicon, that is, before the syntax. In our view, in the lexicon, or at least before the syntax, there is a component with generative power, which creates new lexical items from those stored in the lexicon; the syntax, on the other hand, is primarily engaged in simply building structures.

2. Argument Selection Principle

We put aside passivization for the moment and begin the discussion by looking closely at argument selection first (by argument selection, we mean determining in which grammatical function which argument will be syntactically realized). In the case of diadic predicates, we have a fundamental question as to the argument selection: Why is one argument realized as the subject, and the other as the object? In other words, this question roughly amounts to asking why the Agent argument is typically realized as the subject and the Theme argument as the object, not the other way around. A brutal answer would be ‘so stipulated.’ Then what stipulates so? Dowty (1991) proposes an intriguing idea that explains a predicate’s argument selection.

What is crucial in Dowty (1991) is that thematic roles are not primitive concepts, but cluster concepts. In predicting argument selection, traditional thematic roles are insufficient; this is clearly shown by the cases of the converse argument selection exemplified by Experiencer-subject (ES) verbs (1a) and Experiencer-object (EO) verbs (1b):

- (1) a. They fear/hate/admire thunder.
b. Thunder frightens/disturbs them. (Grimshaw 1990:8)

In (1a) and (1b), the basically identical θ -roles, which are Experiencer and Theme respectively, are assigned to the arguments, but the directionality of assignment of these θ -roles differs between the two: in (1a), Experiencer is assigned to the subject and Theme to the object, and in (1b), vice

versa.

Instead of resorting to traditional thematic roles, he singles out semantic features that may affect argument selection, and claims that thematic roles are specific combinations of the semantic features (this is reminiscent of the words in Pesetsky (1995:135), “ θ -roles as molecular rather than atomic”). He further claims that traditional thematic roles are just the designations given to certain arbitrary combinations of the semantic features; therefore, designating them as Agent, Experiencer, or others does not make any sense essentially; in order to predict argument selection, two macro-roles, which are respectively the Proto-Agent role and Proto-Patient role (hereafter, P-Agent and P-Patient), are effectively enough. According to him, the following semantic properties contribute to the P-Agent role and P-Patient role, respectively:

- (2) Contributing properties for the Agent Proto-Role
 - a. volitional involvement in the event or state
 - b. sentience (and/or perception)
 - c. causing an event or change of state in another participant
 - d. movement (relative to the position of another participant)
 - (e. exists independently of the event named by the verb)

- (3) Contributing properties for the Patient Proto-Role
 - a. undergoes change of state
 - b. incremental theme
 - c. causally affected by another participant
 - d. stationary relative to movement of another participant
 - (e. does not exist independently of the event, or not at all)

We will omit the explanation of (2e) and (3e); although Dowty includes these properties for the sake of completeness, he admits himself that their contribution to argument selection is unclear, and therefore he puts them in parentheses. The lists presented above show that we can reasonably see the traditional Agent in most cases as the combination of volition, causation, sentience, and movement, while Experiencer as including only sentience; and Theme includes change, incremental theme, dependent-existence, and occasionally the causally-affected, while Patient always includes the causally-affected. As we mentioned earlier, this analysis makes it possible to see the traditional thematic roles as the clusters of more atomic semantic properties.

Based on these semantic properties, Dowty proposes the following principle accounting for argument selection:¹

(4) Argument Selection Principle

In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object.

This principle states that the most “prominent” argument in the sense that it has the greatest number of P-Agent properties will be the subject, and the least prominent argument having the smallest number of P-Patient property will be the object.

With the semantic properties and the argument selection principle, the problematic case of the converse argument selection of ES and EO verbs is explained in the following way: in ES verbs, the Experiencer argument plausibly has sentience/perception, while the Theme argument has none of P-Agent properties; thus, the argument selection principle correctly predicts that the Experiencer argument will be syntactically realized as the subject. More problematic is the case of EO verbs. In EO verbs, the Theme argument causes some emotional change in the Experiencer argument; therefore, the Theme argument should have causation, a P-Agent property. The Experiencer argument, on the other hand, should have sentience as seen above. Consequently, both arguments are “tie” in the number of P-Agent properties, namely, in subjecthood. However, Dowty, citing Croft (1986), notes that EO verbs are actually eventive: the Theme argument causes change-of-state in the Experiencer argument, so that the Experiencer should have change-of-state and the causally-affected, the P-Patient properties. Although the two arguments are equal in the number of P-Agent properties, only the Experiencer has the P-Patient properties. In this way, the argument selection principle correctly predicts the argument selection for EO verbs.

Proto-role properties and the argument selection principle proposed by Dowty gives an explanation to the converse argument selection between ES and EO verbs, as shown above. However, he claims that the argument selection principle is not a principle that exhaustively and absolutely determines verbs’ argument selection, noting examples of *receive* and *undergo*. According to him, *receive* and *undergo* were, historically, verbs that required their subject to be human, sentient, and Agentive satisfying the demands from the argument selection principle, but this requirement has been lost in contemporary English, and in the present times the instances apparently violating the argument selection principle are acceptable; put in other words, decisions made by the argument selection principle may be overridden by factors other than pure semantics such as historical drift.

Grimshaw (1990) partially disagrees with this claim made by Dowty that verbs’ argument selection contains some unpredictability in essence. She states, “...some of the restrictions are absolute and can be *never* overridden. Agents and causes are always subjects, for instance, no matter what their other properties may be.” (p.31) Based on this observation, she claims that there are two hierarchical dimensions, the aspectual dimension and the thematic dimension, responsible for argument selection (we do not enter into the discussion of the relevance of her proposal here). Pesetsky (1995:58) further claims that verbs’ argument selection is completely predictable; in his analysis, the Causer is put at the top of the thematic hierarchy and it is then mapped to the highest position in the D-Structure. Finally, Dowty (1991:574) himself states as follows: “...I also would not rule out the desirability of ‘weighting’ some entailments more than others for purposes of argument selection (as just mentioned with causation).” Taking these observations into consideration, we conclude that it is empirically correct that the Causer argument (that is, the argument involving the causation property as their proto-role properties) is always syntactically

realized as the subject.

If a causative event takes place, something must cause that event; therefore, there must be a Causer argument. In that event, there also must be something causally-affected by the Causer; therefore, there also must be an argument containing the causally-affected property, which is for the P-Patient role. Given that the Causer argument is always realized as the subject, the other argument containing the causally-affected is then always realized as the object. The problem with the proto-role properties in (2) and (3) is that these lists are treating each property equally; as we have been discussing, the Causer and the causally-affected are different from other properties in that their claim to realization as the subject is absolute, not just ‘strong’. Since the argument selection principle looks at the ‘number’ of properties included, putting such too powerful properties among them does not make sense. This is because these two properties do not need to be compared in number; their presence immediately determines argument selection in *deus ex machina* fashion. In short, it is not reasonable to put the two properties among other properties. In this sense, Grimshaw’s two-dimensional approach seems to the point.

We leave open how this observation about Causer arguments is woven into a natural theory; its technical implementation is beyond the scope of this paper. For the moment, suffice it to give the following stipulative revisions to proto-role properties and the argument selection principle respectively: first, to remove the Causer and the causally-affected property from the inventory for the proto-roles; second, to add to the argument selection principle a proviso ensuring the Causer argument’s realization as the subject and the causally-affected argument’s realization as the object. Further, for convenience, let us make a revision of the principle so that it takes into consideration the numbers of both of P-Agent and the P-Patient properties. This is because if the numbers of P-Agent properties are equal between two arguments, we need to look at the number of P-Patient properties, and vice versa. In short, except prominent cases, we have to look at both of P-Agent and P-Patient properties. The new version of the argument selection principle, which we dub the Revised Argument Selection Principle, RASP, looks like below:

(5) The Revised Argument Selection Principle (RASP)

In predicates with grammatical subject and object, with the proviso that the Causer argument will be lexicalized as the subject and the causally-affected argument will be lexicalized as the object, the argument having the greatest number of Proto-Agent properties and the smallest number of Proto-Patient properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient properties and the smallest number of Proto-Agent properties will be lexicalized as the direct object.

So far, we have been discussing argument selection, which does not seem to be directly related to the main concern of this paper, the passive. The reason lies behind the way we view passivization: we assume that what determines verbs’ argument selection of the active also determines the argument selection of the passive alternative. Specifically, just as RASP determines, for the active, which argument is realized as the subject and which argument is

realized as the object, it is also responsible for determining, for the passive, which argument is realized as the subject. Traditionally, in the active, argument structures have been directly linked to the grammatical functions and then to Deep Structure, while in the passive they have been done so via the transformation in the syntax. This proposal unifies the two distinct ways that the argument selections of the active and the passive are stated, and it is, in this sense, more simplex analysis. In the present theory, the semantic relatedness between the active and the passive alternative is assumed to result from the passive form derived from the corresponding active in the lexicon to satisfy a characteristic demand for the passive. In the next section, we will closely look at how the characteristic demand drives passivization in the lexicon.

3. The Verbal Passivization Principle

3.1 Preliminary

Now, we are ready to turn to our main concern, the passive. We will first look at the verbal passivization, leaving the adjectival passivization to section 6. The two major characteristics found in the passive are, though reminiscent of the observation in Chomsky (1981), (i) the direct object of the active is promoted to the subject, and (ii) the subject of the active is suppressed (here, by suppression we mean that an argument's syntactic realization is barred). In terms of proto-role properties, these two characteristics may be translated as follows: (i) the argument having the greatest number of P-Patient properties and the greatest number of P-Agent properties (i.e., the direct object of the active) is syntactically realized as the subject, and (ii) the argument having the greatest number of P-Agent properties and the smallest number of P-Patient properties (i.e., the subject of the active) is suppressed. Let us tentatively assume that the principle responsible for deriving passive participles is as follows (we dub it the verbal passivization principle), leaving open the technical question of how an argument is suppressed:

(6) The verbal passivization principle (the version 1 of 2)

In predicates with grammatical subject and object, the argument having the greatest number of Proto-Patient properties and the smallest number of Proto-Agent properties will be lexicalized as the subject; the argument having the greatest number of Proto-Agent properties and the smallest number of Proto-Patient properties will be suppressed.

What we should note here is the resemblance in the definitions between RASP and the verbal passivization principle; this reflects the fact that they both name the subject of a predicate. Note, further, that the active and the passive are in complementary distribution. Given that the active is processed in RASP and the passive is processed in the verbal passivization principle, we may assume that the two principles—RASP and the verbal passivization principle—themselves are complementary in the single argument selection component in the lexicon. This amounts to saying that whether a verb's voice is the active or the passive hinges on whether the verb is input to RASP or the verbal passivization principle. In the next section, we will look at how the verbal

passivization principle in the lexicon functions in various cases.

3.2 A Central Case

We first take a prototypical case, an Agent-Patient pair. Consider *kill* in *The cat killed the rat*, for instance. For expository reason, we represent the argument structure informally as follows:

- (7) kill x P-Agent: volition y P-Agent: sentience
P-Patient: \emptyset P-Patient: change-of-state

In this representation of the argument structure, x and y are the arguments of *kill*, on the right of each argument, proto-role properties included are indicated, and emptiness is represented as \emptyset . We assume that there is no linear or hierarchical order between the x argument and the y argument, but we will conventionally put the argument that will be linked to the subject on the left and the one that will be linked to the object on the right.

Let us say that this predicate is input to the verbal passivization principle. The argument having the greatest number of P-Patient properties and the smallest number of P-Agent properties is the y argument, so that this argument is determined to be the subject by the verbal passivization principle. On the other hand, the argument having the greatest number of P-Agent properties and the smallest number of P-Patient properties is the x argument, so that this argument is determined to be suppressed by the verbal passivization principle.

3.3 Problematic Cases

Now let us look at the cases which we claimed are problematic for the syntactic approaches in our previous paper. We saw that the examples in (8) are ordinary transitive verbs and therefore seem to satisfy the syntactic requirements to be passivized, but they are resistant to passivization as can be seen in (9):

- (8) a. John read *Hamlet* last night. (Kuno and Takami 2005:32)
b. John entered the lecture hall on time. (*ibid.*, 41)
c. Professor Smith quit the University of Hawaii in 1960. (*ibid.*, 43)
- (9) a. ??/**Hamlet* was read by John last night. (*ibid.*, 32)
b. *The lecture hall was entered by John on time. (*ibid.*, 41)
c. *The University of Hawaii was quit by Professor Smith in 1960. (*ibid.*, 43)

Surprisingly, the passivized forms of the same verbs are acceptable if they are put in the contexts such as (10):

- (10) a. *Hamlet* was read even by John. (*ibid.*, 32)
b. The reactor chamber was entered by a team of scientists for the first time on Friday. (*ibid.*, 41)

(2005:347) states, “It can be said that not only in English, the main purpose of using the passive in all languages is to topicalize the Patient.” (transcribed by the authors). We agree with his observation. Therefore, we assume that the motive for the passive is to make a topic the argument that is affected in an event by making the argument the subject. This is the demand specific to the passive. In this sense, the change-of-state argument is the subject from the beginning of the syntactic derivation, and hence their LF representation should differ from its active counterpart; no economic problem should arise.

In terms of proto-role properties, we assume that the argument affected in an event is the argument having the change-of-state property, and in short the subject of the passive must have this property. Thus, we should add to the verbal passivization principle a revision that directly reflects the assumption, so that we have the verbal passivization principle such as (14):

(14) The verbal passivization principle (the version 2 of 2)

In predicates with grammatical subject and object, the argument having the change-of-state property will be lexicalized as the subject; the argument having the greatest number of Proto-Agent properties and the smallest number of Proto-Patient properties will be suppressed.

Here are interesting examples confirming that the subject of the passive must have the change-of-state property. Look at the examples in (15):

- (15) a. This proof is understood by Karen.
b. Your accusations were found ludicrous by Donald.
c. I think this performance was really liked by Bill.
d. The sea-urchin sushi was truly hated by Sue.
e. An outbreak of the flu is feared by Harry. (Pesetsky 1995:31)

Acceptability of these sentences seems surprising at first sight; as for (15a), for instance, it is, under a normal situation, unimaginable that the state of *this proof* is changed by the action in which *Karen*, who we do not know of, understands it, so this sentence seemingly violates the requirement that the subject in the passive should have change-of-state. Pesetsky (1995:34) judges these examples as acceptable, and he states that they are “stilted.” If the sentences in (15) are acceptable, the verbal passivization principle tells us that the subjects of each sentence have the change-of-state property; in other words, by implying the change-of-state on the subjects extraordinarily, we are forming the exaggerated expressions: for example, (15a) means that *this proof* is such that *Karen* understands it; and this is why Pesetsky feels that these expressions are stilted.

This restriction on the subject of the passive, of course, is not restricted to the peripheral cases discussed above. Look at the sentences in the active in (16):

- (16) a. John saw Harry.
b. John loves Mary.

When this argument structure is input to the verbal passivization principle, a problem should arise. The *x* argument has the smallest number of P-Patient properties, but it does not have the greatest number of P-Agent properties. The *y* argument, on the other hand, has the greatest number of P-Agent properties, but it does not have the smallest number of P-Patient properties. Hence, neither argument is the prominent argument satisfying the requirements to be suppressed by the verbal passivization principle. The verbal passivization principle fails to identify the prominent argument, and at the same time it also fails to indentify the argument that should be the subject; this is why Causative EO verbs fail to be passivized.

However, this is not the whole story. Pesetsky (1995) observes that, among Causative EO verbs, some verbs are more like stative than eventive. He comments that the *depress* class Causative EO verbs (among others is *worry*), which express emotions that grow imperceptibly, “are often most comfortable as statives, even in the active.” (p.29). As evidence, he notes that *depress* sounds uncomfortable in the progressive aspect and in the punctual use of the simple past tense, as in (25):

- (25) a. ??Odd noises were continually depressing Sue.
 b. ??Bill was sitting around happy as a lark, when an unexpected groan from the next room suddenly depressed him. (Pesetsky 1995:29)

Further, he claims that the stativity is preserved even in the passive and therefore the passive still sounds bad with the progressive aspect and the punctual use of the simple past tense:

- (26) a. ??Sue was continually being depressed by noises.
 b. ??Bill was sitting around happy as a lark, when suddenly he was depressed by an unexpected groan from the next room. (*ibid.*)

The point that he makes is that the reason why *depress* is resistant to the verbal passivization is not because it is a Causative EO verb but because it is stative. In this respect, Grimshaw’s analysis is incorrect; we should rather see the unacceptability of (25a) as parallel with (27), which shows that stative verbs are incompatible with the progressive aspect both in the active and in the passive: (27b) shows that a stative Experiencer Subject verb *fear* may be passivized but (27c-d) show that neither the active nor the passive accepts the progressive aspect:

- (27) a. Mary feared the situation. (Grimshaw 1990:114)
 b. The situation was feared by Mary. (*ibid.*)
 c. *Everyone was fearing the situation. (*ibid.*, 115)
 d. *The situation was being feared by everyone. (*ibid.*, 115)

Further, Pesetsky claims, contrary to the proposal made by Grimshaw (1991), that some Causative EO verbs may be passivized. Those are the verbs belonging to the *scare* class: among others are *terrify*, *alarm*, *startle*, *dismay*, *shock*, and *surprise*. Unlike the *depress* class verbs, they express emotions that typically come suddenly and consciously; besides, they are eventive, being compatible with the progressive aspect and the punctual use of the simple past; and their passive

in (29) is also no problem, as is expected:

- (28) a. Odd noises are continually scaring Sue.
b. Bill was sitting around calm as could be, when an unexpected groan from the next room suddenly scared him. (Pesetsky 1995:30)
- (29) a. Sue was continually being scared by odd noises.
b. Bill was sitting around calm as could be, when he was suddenly scared by an unexpected groan from the next room. (*ibid.*)

To sum up, the *depress* class verbs are stative, while the *scare* class verbs are eventive. However, what do “event” and “state” mean at all? The distinction would lead to whether there is some ‘change’ included or not. When a situation includes some change in it, it would be described as ‘event’; on the other hand, when a situation does not include any change in it, it would be described as state. What we should not miss here is that the *depress* class verbs are not totally stative, but they are still Causative; even in the *depress* class verbs, something does cause something, and therefore some change must be included. Thus, the reason why Pesetsky feels that those verbs are more like stative is not that change is not included but that change is weak or faint.

The gist of our proposal is that change-of-state is a gradable concept: of course, we may say that change-of-state is included or not, but we may also say that change-of-state is strong or weak. Hence, to put it more precisely, the change-of-state of the *depress* class verbs is weak and that of the *scare* class verbs is strong; we further assume that the change-of-state of the *scare* class is so strong that the progressive aspect and the simple past tense may pick up the process of the change-of-state, but that of the *depress* class is so weak that they fail to pick up the process. Taking in these considerations, we may specify the argument structures of causative *depress* and *scare* more as in (30) and (31):

- (30) *depress* x P-Agent: φ y P-Agent: sentience
 P-Patient: φ P-Patient: change-of-state_{weak}
- (31) *scare* x P-Agent: φ y P-Agent: sentience
 P-Patient: φ P-Patient: change-of-state_{strong}

Given these argument structures, we may reanalyze the passivization of Causative EO verbs. In the case of the *depress* class, the verbal passivization principle fails to find the prominent argument; and at the same time it also fails to find the argument having change-of-state, because the strength of the change-of-state is so weak and not outstanding. As a consequence, the *depress* class fails to undergo the verbal passivization. This is the same conclusion drawn above. On the other hand, the case of the *scare* class leads to a different result. Like the *depress* class, the verbal passivization principle fails to find the prominent argument; however, unlike the *depress* class, the change-of-state is so strong and outstanding that the principle may find it and identify the argument with it as the one that should be determined as the subject. This determination, at the same time, also allows the principle to identify the other argument as the one that should be

suppressed. In this way, the *scare* class verbs are allowed to be passivized verbally. Finally we conjecture that because this passivization is rescued by the special efforts as we saw, the judgment varies among the authors.

3.5 Summary

At the beginning of this section, we proposed the putative verbal passivization principle simply based on the widely accepted observations that in the passive the object of the active is realized as the subject and the object of the active is suppressed. We saw that this principle works well for central cases (i.e., Agent-Patient pairs) such as *kill*. However, this plain verbal passivization principle fails to predict the unexpected unacceptability of the *read* cases. We then turned to the intuition behind the passive, which is that the passive is a construction for topicalizing the change-of-state argument by promoting it to the subject; and we tried to weave this intuition into the verbal passivization principle. Consequently, we succeeded in giving a natural explanation to the problematic *read* cases.

In looking at passivization of the non-prototypical pairs like *understand* and *see*, that is, the Experiencer-Theme pairs, we found that change-of-state may be implied extendedly on a non-prominent argument that usually does not involve it. However, the cases of the symmetrical verbs such as *resemble* told us that this extended implication of change-of-state is restricted to the cases where an argument is prominent enough in the sense that it has the greatest number of P-Agent properties and the smallest number of P-Patient properties. In symmetric verbs, the equality in the number of proto-role properties between the two arguments makes the verbal passivization principle unable to identify the prominent argument; and thereby the extended implication collapses at the same time. The case of symmetric verbs suggests that predicates having two equivalent arguments are resistant to passivization generally.

Finally, we discussed the problematic case of Causative EO verbs that we raised in our previous paper: Causative EO verbs, unlike Agentive EO verbs, are resistant to the verbal passivization. The verbal passivization principle predicts that Causative EO verbs may not be passivized because there is no prominent argument. This prediction concurs with the observations made by Grimshaw (1990). However, Pesetsky (1995), contra Grimshaw, suggests that some Causative EO verbs do accept the verbal passivization though others not. We attributed the difference to the strength of change-of-state of each Causative verb and insisted that Causative EO verbs with the strong change-of-state may be passivized verbally but those with the weak change-of-state may not. Importantly, this intuitively natural assumption that the degree of change-of-state varies from verb to verb is difficult to be implemented in the context of syntax. What we can handle in syntax is largely limited to the question of whether a thing exists or not, specifically, whether a projection exists or not in a structure; in other words, in syntax, whether a property is strong or weak should not make any difference. In a word, Causative EO verbs undermine plausibility of the syntactic approaches to the passive, and give superiority to the lexical approach.

4. Pseudopassives

In our previous paper, we talked about pseudopassives. Pseudopassive is a kind of the passive in which the object of a preposition following a verb, not the direct object of a verb, is promoted to the subject position. The traditional syntactic approaches to passivization ascribe the reason for the passive movement to the fact that past participles have lost their ability to assign Case; therefore, pseudopassive is a counterexample to the syntactic approaches, because, sticking to the assumption that the object moves for Case in the passive, we have to assume that the object of a preposition that is not affected morphologically in the passive has lost its ability to assign Case.

In generative grammar, some researchers (e.g., Hornstein and Weinberg 1981, Fujita 1996, Fujita and Matsumoto 2005) assume that in pseudopassives pairs of a verb and a preposition are reanalyzed as a single syntactic unit. Specifically, they are allowed to fuse into a single amalgam, and afterwards passivization deprives the amalgam of the Case assigning ability. Baltin and Postal (1996), however, note that even the preposition in pseudopassives behaves as a discrete preposition to several syntactic operations; hence their observations undermine the assumption that the syntactic reanalysis fuses a pair of a verb and a preposition into a single syntactic unit.

Pseudopassives may be further classified into the following two categories: (i) pairs of a verb and a preposition that behave as prepositional verbs and have idiomatic reading, and (ii) pairs of a verb and a pure preposition that retains its original meaning. In the examples below, (32a,b) show the pairs of idiomatic prepositional verbs and (32c,d) show the pairs of a verb and a pure preposition:

- (32) a. Her classmates laughed at her. (Kuno and Takami 2005:77)
b. The police dealt with the suspect roughly. (*ibid.*)
c. John swam in this river. (*ibid.*)
d. The dog walked under the bridge. (*ibid.*, 78)

These two types of the pseudopassive *prima facie* vary in acceptability when passivized, as in (33):

- (33) a. She was laughed at by her classmates. (*ibid.*, 77)
b. The suspect was dealt with roughly by the police. (*ibid.*)
c. *This river was swum in by John. (*ibid.*, 78)
d. *The bridge was walked under by the dog. (*ibid.*)

The examples in (33), at first sight, seem to show that idiomatic prepositional verbs (33a,b) may undergo passivization, while verbs accompanying a pure preposition (33c,d) may not undergo passivization.

Some researchers agree that prepositional verbs are like true transitive verbs in transitivity: for example, in (32b), the object *the suspect* was affected somehow by being dealt with by *the police*. On the other hand, in (32c), we do not assume that *this river* was affected by *John's*

swimming in it. If prepositional verbs have cohesion and some idiomatic reading, it is plausible to assume that they are listed in the lexicon as they are. In this respect, prepositional verbs should be no different from ordinary transitive verbs; therefore, it is natural to assume that prepositional verbs may enter the verbal passivization principle in the same way as other transitive verbs do; and under the principle, the passivization should be licensed as long as there exists a prominent argument and the extended implication of change-of-state on the other argument seems natural in the context; in brief, prepositional verbs should be passivized with no difficulty.

Then, do pairs of a verb and a preposition not accept passivization at all, because we do not find any cohesion between the verb and the preposition and find only literal reading? In fact, they do undergo passivization; the passive counterparts of the pairs of a verb and a genuine preposition in (34) are acceptable in (35):

- (34) a. You should not swim in this river.
 b. Generations of lovers have walked under this bridge.
- (35) a. This river should not be swum in.
 b. This bridge has been walked under by generations of lovers. (*ibid.*)

Given acceptability of (35a,b) and unacceptability of (33c,d), we may assume that pairs of a verb and a genuine preposition obey some stricter restriction. Kuno and Takami (2005) claim that characterization is the key to the question. In the unacceptable (33c,d), characterization does not take place: in (33c), *this river* obtains no character even if just a man, *John*, swam in that river, and also in (33d), *the bridge* obtains no character even if a dog walked through under that bridge. Unlike the case of prepositional verbs, the genuine preposition following a verb is used for denoting locations, instruments, time, and so on; and it is not so frequent that locations, instruments, or time are characterized by actions named by verbs. Consequently, it appears that pairs of a verb and a genuine preposition are resistant to passivization.

The claim made by Kuno and Takami (2005) that the subject must be characterized in pseudopassives nicely describes part of the pseudopassive of a verb and a genuine preposition, but it does not cover the whole range of pseudopassives. It fails to explain the following examples:

- (36) a. Susan is being run after by numerous admirers. (Davison 1980:45)
 b. I don't want to be stepped on. (*ibid.*, 53)
 c. This porch was walked on. (*ibid.*, 54)

We can hardly say that the subjects of each sentence in (36) are characterized by the actions named by the pairs of the verb and the preposition. Davison (1980) claims that the subject of pseudopassives formed of a verb and a genuine preposition (the type (ii) pseudopassives) be affected negatively. Certainly the negative affectedness describes the implication on the subjects in (36) well, but it does not seem to hold for the subjects in (35): the subjects in (35) do not seem to be negatively affected by the actions, and rather it seems that we should describe them as being characterized by the actions as Kuno and Takami do. Moreover, Riddle and Sheituch (1983:538)

see it as a problem that there is no satisfactory definition of affectedness in describing licit subjects of pseudopassives, noting that affectedness includes “all sorts of physical, psychological and metaphorical effects.” To summarize, even if we take either the characterization approach or the affectedness approach, we cannot describe the entire range of pseudopassives uniformly.

As Riddle and Sheituch note, affectedness might be too vague a notion; what does affectedness mean anyway? Things including mankind can be affected physically if they lose something, obtain something, or receive physical damage, while living things can be affected psychologically if they get depressed or excited. Whether one is affected physically or psychologically, what is common in both kinds of affectedness is that an object, though perhaps faint, undergoes some change-of-state by being affected. In addition, Kuno and Takami (2005:51) admit that characterization is a kind of change-of-state in the sense that the referent of the subject undergoes the characterization, and we also noted in 3.3 that characterization is the weak change-of-state.

In the end, the vague concept, affectedness, converges on change-of-state; further, seemingly discrete concepts, affectedness and characterization, also fall under a concept, change-of-state. Thus we come to the conclusion that in a pseudopassive, whether it is formed of a prepositional verb or a pair of a verb and a genuine preposition, the subject must undergo change-of-state in the action; and when a pair of a verb and a genuine preposition is put into the verbal passivization principle, the principle in the usual manner determines the prominent argument to be suppressed and the change-of-state argument to be the subject. If this line of reasoning is correct, whether the change-of-state is recognized as characterization or affectedness is a matter of other than semantics, for example, pragmatics.

What is remarkable is that we finally come to the same conclusion as the one that we came to in describing the passive of transitive verbs. We leave it open why pairs of a verb and a genuine preposition are allowed to undergo application of the verbal passivization principle. However, pairs of a verb and a preposition that may be passivized are more similar to transitive verbs than just pairs of a verb and a preposition, in that passivable pairs denote the relation between two arguments rather than a verb and a preposition mark the subject and the object separately. Acceptability of pseudopassives of a verb and a preposition shows us that not the category but the function borne by a predicate is crucial in passivization. The syntactic approaches to the passive, which are closely connected to the syntactic categories (i.e., whether a verb is transitive or intransitive), are weak in this respect. Moreover, the syntactic approaches have to resort to a rather dubious apparatus, reanalysis, to explain pseudopassives. On the other hand, the lexical approach insensitive to the syntactic categories is blindly applicable when appropriate, and is able to describe the passive including the pseudopassive in the unified way. It seems to us that the lexical approach succeeds in identifying the point of passivization that the syntactic approaches miss, in the more intuitive way.

5. Ditransitive Verbs

5.1 Double Object Construction

In our previous paper, we saw that the passive of double object verbs is problematic for the syntactic approaches to the passive; insofar as the syntactic approaches resort to Case to explain the passive movement, it remains unclear why only the indirect (Dative) object, not the direct (Accusative) object, moves to the subject position. Indeed, there are intriguing syntactic questions concerning the double object construction: Why do there exist three-place predicates, how does the Case checking of the two objects take place, and why does the indirect object come right after the verb and the direct object come subsequently? However, these syntactic questions are beyond the scope of this paper, so we do not touch upon them. We just presuppose that there are verbs with three obligatory arguments for whatever reason. The gist of this section is not to solve the conundrums that the mysterious appearance of the double object construction gives us, but to look at what the verbal passivization principle tells us about the passive of ditransitive verbs.

Given the active (37a), the passive in which the indirect object moves to the subject position and the direct object stays in situ (37b) is generally more acceptable than vice versa (37c):

- (37) a. John gave Mary the book.
b. Mary was given the book.
c. *The book was given Mary.

In fact, the indirect object and the direct object in the double object construction are not equal in their status. It is widely known that the indirect object, unlike the direct object, is affected holistically:

- (38) a. Max taught French to the students.
b. Max taught the students French. (Larson 1988:376)

Larson (1988), citing Oehrle (1976), states that only in the double object sentence (38b), not in (38a), it is implied that *the students* have actually learned French; and he ascribes this implication to the affectedness that *the students* receive.

As noted above, we take the affectedness as an instance of change-of-state. Therefore, Larson's claim that the indirect object in the double object construction is affected means that, in terms of the present theory, change-of-state is implied on the indirect object in the construction. The conclusion that the indirect object carries change-of-state is confirmed by the following examples:

- (39) a. The pitcher threw a ball to the fence.
b. I sent the letter to Boston.

- (40) a. *The pitcher threw the fence a ball.
b. *I sent Boston the letter. (Kuno and Takami 2005:108)

The sentences in (39) are the dative constructions and are of course acceptable, but the ones in (40) that should correspond to the dative alternatives in (39) are unacceptable. Kuno and Takami (2005) note that in (40a) *the fence* is not affected holistically by a ball being thrown to it; likewise, *Boston* in (40b) is not affected holistically by the letter being sent there; since the indirect objects *the fence* and *Boston* are not affected holistically, (40a,b) are unacceptable. We do not enter into the detailed discussion of holistic affectedness for space reasons; suffice it to assume that holistic affectedness is roughly equivalent to the strong change-of-state in terms of our theory.

Next consider the direct object; Does it have change-of-state? In (38), it is hard to say that *French* undergoes change-of-state by being taught to the students, but it seems that the direct object *the book* in (37a) experiences some change-of-state,² specifically, the change of ownership. Let us look at the following example:

(41) Mary showed her mother the photograph. (*ibid.*, 111)

Kuno and Takami (2005) comment that, in (41), *her mother* is implied to have seen the photograph certainly and recognized it. On the other hand, *the photograph* in (41), we perhaps may say, undergoes change-of-state, because *the photograph* may be characterized as the one that has been seen by her mother; however, the degree of the change-of-state of *the photograph* is evidently slight compared to *her mother*. Hence, taking these observations into account, it is plausible to assume that change-of-state is not implied on the direct object, or is weaker than that implied on the indirect object, if any.

All things considered, a predicate π that takes the double object construction should have the following argument structure, where in terms of traditional θ -roles the x argument corresponds to the Agent argument, the y argument to the Goal argument, and the z argument to the Theme argument, although the change-of-state on the direct object may vary a little in its strength depending on the items chosen:

(42) π x P-Agent: volition y P-Agent: sentience³ z P-Agent: \emptyset
 P-Patient: \emptyset P-Patient: change-of-state_{strong} P-Patient: \emptyset /change-of-state_{weak}

Given this argument structure, the verbal passivization principle identifies the x argument as the most prominent argument having the greatest number of P-Agent properties and the smallest number of P-Patient properties and determines it to be suppressed. At the same time, the principle tries to identify the change-of-state argument, but here can be two scenarios: if the z argument does not have change-of-state, the y argument is the only argument that contains change-of-state and the principle determines it to be the subject. However, what would happen if the z argument, though weak, has change-of-state?

Recall the case of the passivization of Causative EO psych verbs, where the strength of change-of-state was the key notion in explaining the difference in the behaviors to the verbal passivization: the *depress* class psych verbs fail to be passivized verbally, whereas the *scare* class psych verbs accept the verbal passivization. We assumed that this difference results from the fact that the change-of-state of the *depress* class verbs is weak and obscure to the principle, but that of

the *scare* class verbs is strong and outstanding enough to be easily found by the principle. We then concluded that the verbal passivization principle can only find the strong change-of-state for itself.

Given the poor eyesight, what is transparent to the principle in looking for change-of-state in the argument structure (42) is only the strong change-of-state on the *y* argument, even though the *z* argument has change-of-state; the change-of-state on the *z* argument is too faint to be seen and is disregarded by the principle. Consequently, the principle determines the *y* argument with the strong change-of-state, that is, the would-be indirect object, to be the subject.

5.2 Dative Construction

It has been assumed that the double object construction is closely related to the dative construction; many linguists have proposed that the double object construction is derived syntactically from the dative construction or vice versa. Behind the assumption that they are syntactically related lies the resemblance in meaning between the two constructions. However, fine-grained semantics sheds light on the critical disparity in meaning hiding behind the apparent resemblance.

Verbs taking the dative construction have three obligatory arguments, but one of the arguments is, unlike the double object construction, realized syntactically in a prepositional phrase. In the passive of those verbs, only the direct object immediately following the verb appears as the subject as in (43b), and the object in the prepositional phrase may not appear as the subject as shown in (43c):

- (43) a. John gave a book to Mary.
b. A book was given to Mary by John.
c. *Mary was given a book to by John.

At first sight, unacceptability of (43c) seems to follow evidently because *Mary* is, in the syntactic sense, extracted from behind the preposition *to*, not from behind the past participle *given*; however, given acceptability of the pseudopassive and the passive of double object verbs, the unacceptability of (43c) calls into question such an easy way of analysis, because pseudopassives show that the object of a preposition is extractable and the passive of double object verbs shows that a noun phrase may stay right after the past participle.

In the Dative construction, we may in fact find disparity in meaning between the two non-subject arguments like the one observed in the double object construction. Dowty (1991) makes an analysis on the following examples:

- (44) a. Mary completely loaded the hay onto the truck. (Dowty 1991:589)
b. Mary completely sprayed the wall with this can of paint. (*ibid.*, 590)

Load and *spray* are the verbs that take two non-subject arguments as shown in (44). According to Dowty (1991), in (44a), it is implied that all the hay was put onto the truck but it is not implied

6. Adjectival Passive

6.1 Causative Verbs

Grimshaw (1990) claims that causative EO psych verbs are invariably resistant to the verbal passivization, and they accept only the adjectival passivization. However, Pesetsky (1995) claims that, among causative EO verbs, the *scare* class may be passivized verbally unlike the *depress* class, and this seems to be correct. Because there exists a marginal class that accepts adjectival passivization but not verbal passivization, it follows that, for the adjectival passivization, we have to assume a process that is different from that of the verbal passivization principle.

The adjectival passive is exclusively stative, sharing the properties with ordinary adjectives. This is confirmed in a number of respects: adjectival passives are, for example, resistant to the progressive aspect as in (47a), accept the *un*-prefixation as in (47b), may appear right next to the verbs such as *seem* as in (47c), and may be modified by such adverbs as *much* and *very* as in (47d,e):

- (47) a. *Mary was being depressed about the situation. (Grimshaw 1990:114)
b. The letter was still unanswered. (Ando 2005:345)
c. They seemed very worried. (*ibid.*)
d. The idea was much discussed in the '70s. (Pesetsky 1995:29)
e. This edition is very abridged. (*ibid.*)

That adjectival passives are exclusively stative means that they never have eventive interpretation. A question arises at this point, however: What then does the adjectival passive mean, if the base-verb denotes an event, especially a causative event? More specifically, if the verbs denoting causative events more or less should refer to an object's change-of-state, what do they express when passivized adjectivally?

Causative EO verbs describe causative events: *depress*, for example, describes a causative event in which someone/something makes someone who is not depressed become depressed. What then does its adjectival passive as in *the depressed man* mean? Note that *the depressed man* does not mean the man who is undergoing an event that makes him depressed, but mean the man who is in the state of depression. What is to the point here is that the adjectival passive of verbs denoting a causative event describes the state resulting from the event, in other words, the state after change-of-state. This is not restricted only to causative EO verbs, but holds for other kinds of causative verbs. *A well-built house* and *a broken box* respectively express a house that is in the good condition because of having been built well, and a box that is in the state of malfunction because of having been broken. In both of the two examples, the adjectival passives denote the state resulting from the causative events.

Given that adjectival passives refer only to the resulting state, in what way does the other argument that does not involve change-of-state behave to the adjectival passivization? For the purpose of argument, let us say that *by* phrases may revive suppressed arguments. Then, we may observe that even in the adjectival passive, suppressed arguments may occur in the guise of a *by*

phrase as below:

- (48) Fred is/seems unworried/unconcerned/unperturbed/preoccupied by the situation.
(Grimshaw 1990:114)

However, there is actually some restriction on the occurrence of *by* phrase in the adjectival passive. In (49) and (50), *murdered* and *untamed* are adjectival passives, but neither of them allows the occurrence of *by* phrase:

- (49) a. this murdered man
b. *This man is murdered by a thief.
- (50) a. The lion is/seems/remains untamed.
b. *The lion is/seems/remains untamed by the trainer. (Grimshaw 1990:127)

What is the difference between the adjectival passive that allows *by* phrase and the one that does not? In this respect, Grimshaw makes an interesting analysis, giving the following examples showing that *by* phrases in the adjectival passive tend to be generic:

- (51) a. The island was uninhibited by humans/*by the woman.
b. The jacket was untouched by human hands/*by Paul.
c. These facts remain unexplained by current theories/*by your theory.
(Grimshaw 1990:128)

Taking up (51b) as the clearest case, she claims that when *by Paul* is chosen of the two, the base-verb should be Agentive with *Paul* its subject and *Paul* should be the external argument of the verb; in the adjectival passive, the external argument must be eliminated, not suppressed. In (51b), because *Paul* has already been eliminated completely, it fails to be revived in the *by* phrase.

Although we do not touch Grimshaw's argument, what is crucial here is that whether a *by* phrase is allowable in the adjectival passive is dependent on the agentivity implied on the argument in *by* phrase: in (48), *the situation* is not Agent and the *by* phrase is allowable, whereas in (49b) and (50b), *a thief* and *the trainer* are Agent and the *by* phrase is not allowable. Though it is descriptively correct that agentivity is crucial to acceptability of *by* phrase in adjectival passive, why are Agentive arguments not allowed in adjectival passive? Recall that we saw above that the adjectival passive of Causative verbs denotes the state resulting from the event. Agentive arguments, on the other hand, signal the presence of an event, because Agentive arguments always make something happen. Moreover, agentive arguments have to do with the onset of an event rather than the resulting state, because Agentive arguments are an initiator of an event. These two facts that Agentive arguments are directly connected to event interpretation and that they are initiators of the events evidently collide with the meaning denoted by the adjectival passive—the resulting state; thus, Agentive *by* phrases are not allowed to appear in the adjectival passive.

To the extent that, in terms of proto-role properties, an Agentive argument may be taken as

an argument involving volition, we may describe the adjectival passivization as follows:

- (52) In adjectival passive, the resulting state is only implied on the argument having change-of-state, and the argument having volition is not allowed to appear in *by* phrase.

Interestingly, Agentive arguments that are not allowed to appear may be referred to, but in a different guise; they appear not in *by* phrase, but in idiosyncratic prepositional phrases:

- (53) a. He is absorbed in his business.
b. I am not acquainted with him.
c. The ground was covered with snow. (Ando 2005:345)

This is partially explicable; once *by* phrase may refer to a suppressed Agentive argument, the appearance of them might cause conflict with the stative interpretation of adjectival passive. The grammar then resorts to prepositions other than *by* to avoid signaling eventivity.

6.2 Unaccusatives

The adjectival passive of unaccusative verbs does not seem to accept syntactic analyses, because they are monadic predicates, which are usually out of the consideration of the syntactic passivization; nonetheless, unaccusative verbs may be passivized adjectivally. Pesetsky (1995:116) observes that some unaccusative verbs accept the adjectival passivization as in (54), whereas others do not, as in (55):

- (54) a. elapsed time
b. departed travelers
c. capsized boat
- (55) a. *an (already) occurred event
b. *(recently) left travelers
c. *(newly) come packages

About the acceptable adjectival passives, Pesetsky comments that time elapsing, travelers departing, and boat capsizing may be described by one argument; namely, they may be described as the events in which the actions denoted by the verbs happen to the sole arguments. In this description, the verbs are truly unaccusative and may not allow passivization. Besides this description, these events may be also described as the events in which some natural force causes those events: he describes them as follows; “something intrinsic to time causes it to elapse; some force intrinsic to the travelers provokes their departure; and some property of the boat causes it to capsize.” (p.117) By this description, he claims that some unaccusative verbs, in fact, may have a Causer argument, which causes an event but is never syntactically realized; he names this unexpressed argument A-Causer (after Ambient Causer).

In an acceptable adjectival passive of an unaccusative verb such as (54), if his argument is correct, the unaccusative verb is actually a predicate with two arguments, of which one is the

A-Causer argument, and the other is the argument that undergoes the change-of-state caused by A-Causer. Given this argument structure, after the process of adjectival passivization, the resulting state is implied only on the proper argument of the unaccusative verb that has undergone change-of-state; on the other hand, as for the A-Causer argument, it intrinsically fails to be realized in English for independent reasons (see Pesetsky 1995); after all, an adjectival passive of an unaccusative verb that only refers to the resulting state of change is derived.

To sum up, the difference between the acceptable (54) and the unacceptable (55) is that an A-Causer is assumable in (54) but not in (55); hence, to see whether an unaccusative verb may be passivized or not, we must look inside the argument structure of verbs and consider whether an A-Causer is assumable or not. The adjectival passive of an unaccusative verb shows us that just looking at the implications given to the arguments besides the syntactic information such as the number of obligatory arguments might not be able to solve the intricate nature of the adjectival passive; and it requires us to consider the whole meaning given by verbs more deeply.

6.3 Summary

In this section, we described the adjectival passivization by referring to verbs' argument structure. However, this is just a description of part of the entire adjectival passive: this description does not cover the adjectival passivization of verbs that denote state in the active. For example, *follow*, *cap*, *rim*, and *surround* express state in the active. When these verbs are passivized adjectivally (actually the verbal passivization is not allowed to these verbs because none of proto-role properties are included), both of their two arguments must be expressed in sentences: one argument is realized as the subject and the other in the *by* phrase:

- (56) a. This event was followed/preceded *(by another).
b. The mountain was capped *(by snow).
c. The volcano was rimmed *(by craters).
d. The house was surrounded *(by mature trees). (Grimshaw 1990:124)

Concerning these verbs, our description of the adjectival passive does not tell us which argument should be the subject and which argument should be demoted to the *by* phrase.

In fact, even about the active of these stative verbs, the argument selection principle does not tell us the argument realization: for example, either of the two arguments of *follow* does not contain any proto-role properties; therefore, the argument selection principle may not predict its argument realization. It is unclear for now that we should take this fact as showing that the argument realization of stative verbs is determined by demand coming from other than semantics, or as the defect of the principle. Given that adjectival passive is derived lexically, we are inclined to take the latter view, because the argument selection principle must make a prediction to lexical matters such as adjectival passive. Probably, the argument selection principle or proto-role properties or both require more elaboration.

7. Conclusion

In this paper, based on the criticism on the exclusive syntactic approaches to the passive that we discussed in our previous paper, we proposed an alternative lexical approach to the passive. In section 2, we first considered how the argument selection is determined, and outlined the proto-role properties and the argument selection principle proposed in Dowty (1991). Moreover, taking into account the observations made by Grimshaw (1990) and Pesetsky (1995) that Causative arguments are always syntactically realized as the subject, we made some revisions to Dowty's original claim. In section 3, we first looked at the fact that the subject of the passive must undergo some change-of-state; and reflecting this observation and the intuition that the passive is a construction that makes a topic the argument that undergoes change-of-state in an event, we proposed the verbal passivization principle. By looking at the case of the passivization of Experiencer–Theme pairs, in addition to central cases, we saw that change-of-state may be implied on an argument extendedly. The passivization of Causative EO verbs, furthermore, tells us that change-of-state is, rather than it exists or not, a gradable concept that may be described as strong or weak, and its strength has impact on passivization. In section 4, with the lexical approach that we proposed, we succeeded in elucidating without ad hoc apparatus the nature of pseudopassives, which undermine the validity of the syntactic approaches to passivization in that they have to resort to reanalysis, a fuzzy apparatus, to explain them. In section 5, we saw that the lexical approach may give a natural explanation to passivization of ditransitive verbs, which we also claimed in our previous paper was problematic for the syntactic approaches, by closely looking at the disparity in meaning between the two non-subject arguments. In section 6, we saw that the adjectival passive is describable not fully but partially by the proto-role properties assumed by Dowty (1991). However, we concluded that the proto-role properties referred to in this paper is defective in that they fail to cover the entire range of the adjectival passive, and therefore more elaboration is required for them.

The lexical approach that we proposed in this paper succeeds in giving a unified explanation to the passive of some kinds of verbs that the syntactic approaches have explained with different apparatus: the passive of Causative EO verbs has been explained by assuming a specific structure, pseudopassives have been explained by reanalysis, and the passive of double object verbs has been explained by assuming inherent Case to the direct object. Since verbs may be passivized regardless of such syntactic differences, the syntactic insensitivity would be required to some extent. The lexical approach is insensitive to the syntactic differences, because passive is identified in the lexicon before structures are built in syntax. The lexical approach tells us that what is crucial in passivization is whether a predicate denotes the relation between two or three arguments, and the syntactic differences between Causative EO psych verbs, pairs of an intransitive verb and a preposition, or double object verbs are of secondary importance. It sheds fresh light on the nature of the passive that the syntactic approaches have missed, and we believe that more elaboration on semantic properties will lead to better understanding of how language works in our mind.

Notes

1. Dowty (1991) actually proposes two more corollaries in addition to the principle, but we omit them because they are irrelevant to the discussion.
2. It might be that this change-of-state is the source of the so-called direct passive such as below, where the direct object of the active, not the indirect object, appears in the subject position.

(i) The book was given Mary by John. (Ando 2005:345)

Ando (2005) notes that there are many American English speakers who do not accept this direct passive.

3. The *y* argument is assumed to contain sentience, because the indirect object of the double object construction must be human.

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