

A Morphological Strategy -An Analysis of Passives, Middles and Passive Nominals -*

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In this paper, following Tenny (1994), I claim that the affectedness condition, which is claimed to be responsible for the derivation of the middle construction and Theme NP-Preposing in passive nominals (cf. Anderson (1979)), is subsumed under the aspectuality of verbs. I suggest that these constructions can be syntactically accounted for given that the aspectuality of verbs is incorporated in syntactic structure. Along the line of Pesetsky (1990), I will argue that a zero morpheme plays a crucial role in the derivation of middles and passive nominals, presenting a theory of zero morphemes in terms of the aspectuality of verbs.

***Affectedness, *Aspectuality of predicates, *Zero Morphology,**

Introduction

Tenny (1989, 1994) and Fellbaum (1987) claim that affectedness is subsumed under the aspectuality of verbs and that delimitedness plays a crucial role in middles and passive nominals, challenging Anderson's claim that they are explained by the affectedness condition. Developing the line they suggested, Egerland (1998) proposes that passive nominals and middles involve an Aspectual phrase (henceforth, AspP) whose head is specified with [+ delimited] (henceforth, [+ del]), assuming that the aspectuality of verbs is incorporated in syntactic structure. He argues that a Theme NP can be preposed only when the Theme NP is a delimited argument. Paying attention to morphological and aspectual differences between verbal passives, middles and passive nominals, I revise Egerland's analysis. Instead of assuming the Aspectual phrase, I propose that the [+ del] feature resides in the zero morpheme, which is in the head of a light verb or noun. In the passive construction, the morphologically overt morpheme, *-en*, is in the head of *vP*, which is responsible for the absorption of the accusative Case. As for the middle construction, the morphologically null morpheme *-EN* resides in the head of the light verb (cf. Pesetsky (1990)). This captures the

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parallelism between passives and middles. I claim the phonologically null *-EN* has the [+ del] feature which constrains middle verbs. That is, the nature of the morpheme in the head of the light verb, *v*, is responsible for the aspectuality of verbs. I assume that nominals also have a shell construction, considering the parallelism between passive nominals and middles. In passive nominals, the phonologically null *-EN* is in the head of *nP* which is specified as the [+ del] feature. The present analysis captures the differences among verbal passives, middles and passive nominals in a unified way. The morpheme which resides in the head of *vP* or *nP* plays a crucial role to differentiate these constructions.

This paper is organized as follows. Section 1 provides the evidence that affectedness is insufficient to account for Theme NP-Preposing in passive nominals and the formation of middles. I will briefly look at Fellbaum's (1987) analysis that affectedness is subsumed under the aspectuality of predicates. In Section 2 I will look at Egerland's (1998) analysis that the aspectual restriction on these constructions is predictable from the syntactic structure, assuming the functional category, AspP, whose head is specified as [+ del]. Section 3 presents previous analyses of passives, middles and passive nominals from the morphological point of view, referring to Hasegawa (1988) and Pesetsky (1990)). I will propose the syntactic structure of passives, middles and passive nominals along the line of the Minimalist Program in Section 4. I would like to claim that the morpheme in the head of *vP* or *nP* plays a crucial role in differentiating these constructions. Section 5 concludes this paper.

1. Semantic Account: Aspectual Restriction on Passive Nominals and Middles

This section presents empirical data, provided by Fellbaum (1987) and Tenny (1989, 1994), which show that middles and passive nominals are related to the aspectuality of predicates.

1.1 Passive Nominals

Anderson (1979) claims that the applicability of Theme NP-Preposing is semantically constrained, observing the following contrast:

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- (1) a. the city's destruction by the barbarians
 b. the play's performance by the company
- (2) a. * Bill's avoidance by John
 b. * Mary's discussion by John (Anderson (1979: 43))

In (1a), *the barbarians* affect *the city*, which comes to be destroyed. In nominals that describe an affected event, Theme NP-Preposing is possible. On the other hand, in (2a), *Bill* is the patient of *avoidance* but the person referred to by *Bill* is not directly affected by the event described. In these cases, the Theme NP cannot be preposed. Thus, Anderson claims that a Theme argument which is affected by some outside factor and causes a change of state or position can be preposed to the initial position and becomes a subject. There are, however, counter examples against her claim, as indicated by Fellbaum (1987):

- (3) a. the movement's execution
 b. the sermon's delivery
- (4) a. * the mistake's erasure
 b. * the butter's spread (Fellbaum (1987: 79-80))

In (3) Theme NPs are preposed without being affected. In (4), Theme NP-Preposing is impossible, though Theme NPs are affected. The above examples indicate that affectedness is not sufficient to account for Theme NP-Preposing in passive nominals.

Fellbaum claims that the applicability of Theme NP-Preposing is conditioned by the aspectual property of the deverbal nominal, rather than by the affectedness condition. She argues that Theme NP-Preposing is possible only if deverbal nominals are derived from verbs which denote a telic event.

- (5) a. The city was destroyed { *for / in } three days.
 b. The mystery is solved { *for / in } minutes.
- (6) a. The destruction of the city occurred { *for / in } three days.
 b. The solution of the mystery took place { *for / in } minutes.

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(5) shows that these verbs have the telic interpretation, since they can accompany a telic adverbial, such as *in three days*. The noun derived from these verbs can also occur with a telic time adverbial, like (6). Theme NP-Preposing is applicable in these nominals:

- (7) a. The city's destruction occurred { *for / in } three days.
- b. The mystery's solution took place { *for / in } two voting rounds.

Let us next consider the nominals which do not permit Theme NP-Preposing, like (2), in terms of the aspectuality of their base verbs:

- (8) a. * great relief's expression
- b. * the president's criticism

These nominals, *expression* and *criticism*, are derived from the verbs that do not have the telic interpretation. The atelic nature of the base verb is seen in (9), where a telic time adverbial is not allowed:

- (9) a. Great relief was expressed { for / ??in } the entire evening.
- b. The president was criticized {for / *in } several years.

The deverbal nominals do not have a telic reading, either, as seen in (10). This means that deverbal nominals inherit the aspectuality of their base verbs.

- (10) a. The expression of the great relief took place { for / ??in } the entire evening.
- b. The criticism of the president occurred { for / *in } several years.

In these nominals, Theme NP-Preposing is not applicable, as shown in (8).

Fellbaum (1987) concludes that the applicability of Theme NP-Preposing is dependent on the aspectual property of deverbal nominals, rather than the affectedness condition. A Theme NP can be preposed if the head noun is derived from the verb

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with the telic interpretation, while it cannot, if the head noun is derived from the verb with the atelic interpretation.

1.2 Middles

Tenny (1989) points out that middles also have the same restriction as passive nominals:

- (11) a. This door opens easily (by pulling on the handle).
b. This door opens easily in a minute / ?for a minute.
- (12) a. *The traffic jam avoids easily.
b. avoid the traffic jam *in a minute / for a minute. (Tenny (1989: 16-17))

In (11), the verb with the telic interpretation can form the middle construction, while the verb with the atelic interpretation cannot, as shown in (12).

The following examples also show that middle verbs must have the telic interpretation.

- (13) a. *This nail hammers easily.
b. This kind of metal hammered smooth easily. (Nakamura (1997: 131))

The contrast above indicates that the formation of middles is possible only if the main verb, *hammer*, which is inherently an activity verb, is changed to a telic predicate with the resultative phrase, *smooth*. Having observing these examples, we can conclude that verbs that are able to appear in the middle construction are restricted to those with the telic interpretation.

In sum, the middle formation is sensitive to the aspectuality of predicates. If a verb has the telic interpretation, it can form the middle construction.

1.3 Passives

The above subsections have provided the data concerning the aspectual restriction on passive nominals and middles which have a dethematized subject, like passives, but

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not have any overt passive morpheme, *-en*. In this subsection, I will discuss sentential passives in terms of the aspectuality of predicates.

Let us consider the following passive sentences in terms of aspectuality:

- (14) a. Bill was avoided by John.
 b. The cat was pursued by Sally.
 c. The city was destroyed by the Mongols.
 d. The play was performed by the company. (Egerland (1998: 19))

The verbs in (14a-b), *avoid* and *pursue*, are atelic, while the verbs in (14c-d), *destroy* and *perform*, are telic. Both types of verbs can be freely passivized. This means that passives can be freely formed irrespective of the aspectuality of predicates.

1.4 Summary

In this section, I have examined Theme NP-Preposing in passive nominals, middles, and passives from the aspectual point of view. We have seen that Theme NP-Preposing in passive nominals and middles are aspectually constrained, while passives are not. In Section 4, I will show that this difference is captured by the syntactic structure that incorporates the relevant property of aspectuality.

2. Syntactic Account: Egerland (1998)

Egerland (1998) argues that affectedness is syntactically captured given an Aspectual phrase (=AspP). He assumes, on the basis of Borer (1994), that delimited predicates project an aspectual node specified as [+ del]. He further assumes that there is a delimitedness feature which triggers DP-movement of the internal argument to the Spec of AspP when there is an internal argument which delimits the event expressed by the predicate. Thus, the delimitedness of predicates is licensed in the projection of Asp.

Egerland assumes that the preposed Theme NP construction, such as *city's destruction*, has the following structure:

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- (15) [DP $city_i$'s [AspP t_i Asp [NP [destruction t_i]]]]
[+ del]

In (15), *city*, which delimits the event described in (15), moves from the complement position of the deverbal nominal to the Spec of DP through the Spec of AspP in order to check off the genitive Case feature contained in *city*. In the Spec of AspP the [+ del] feature in the Theme NP is checked off. Egerland assumes that AspP is projected, only if predicates have the telic interpretation. Therefore, AspP is projected in order to check off the [+ del] feature in Theme NP which delimits the event described, when the passive nominal has the telic interpretation, whereas it is not projected when the passive nominal has the atelic interpretation. This means that if the passive nominals have the telic interpretation, the relevant projection is projected and then it enables Theme NP to move to the Spec of DP. Preposability of Theme NP in passive nominals is constrained by the proper Spec-Head agreement in the AspP.

Egerland assumes that the structure of middles also contains AspP and the nominative object moves to the Spec of TP through the Spec of AspP:

- (16) [TP DP_i T [AspP t_i Asp [VP V t_i]]]
[+ del]

The derivation is licit if the [+ del] feature is properly checked off in the projection of AspP. Therefore, given the functional category, AspP, the aspectual restriction of middles is syntactically captured in the same way as the nominal cases such as (15).

Egerland's account seems to be on the right track since the syntactic structure proposed by his analysis can express the aspectuality of predicates.

In Section 4, basically following his claim, I will propose the syntactic structure of three constructions without assuming AspP.

3. Morphological Account

In this section, I will pay attention to the morphological properties of passives, middles and passive nominals, referring to Hasegawa (1988) and Pesetsky (1990).

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3.1 Overt Morphology *-en* : Hasegawa (1988)

Hasegawa (1988) characterizes the passive construction as (17):

- (17) a. The passive predicate selects a VP as its complement.
- b. The passive predicate requires the Verb-Incorporation, verb raising, an instance of Head to Head movement. (Hasegawa (1988: 101))

She claims that the passive morpheme, *-en*, takes a VP as its complement and the V in the lower VP head-moves to the head of the higher VP:

- (18) a. Mary was killed by John.
 - b. [VP *e* [[kill-*en*] [VP John [t_v Mary]]]]
- 

Once the verb in (18b), *kill*, is raised to the head of the higher V, it cannot assign Case to *Mary*. In order to receive Case, *Mary* is raised to the Spec of IP through the Spec of the higher VP. *By* is inserted to the Spec of the higher VP in order for *John* to be assigned Case¹.

Hasegawa further assumes that a passive predicate in English is specified with the categorial feature [+ N]². This means that *-en* needs to be assigned Case. It receives Case from the verb raised from the lower verb by head-movement. If the verb raising does not apply or the raised predicate does not assign Case to *-en*, the structure is ruled out because *-en* lacks Case.

It is reasonable to assume that a passive morpheme is related to the absorption of accusative Case when the verb raises to the higher projection and it attaches to the passive morpheme in that the passive morpheme, *-en*, plays a crucial role in deriving passive sentences and characterizes passive sentences. I will propose syntactic structure of passives in Section 4 along the line of the Minimalist Program, developing Hasegawa's analysis.

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3.2 Phonologically Null -EN: Pesetsky (1990)

Pesetsky (1990) suggests that the affectedness condition holds of a proper subset of zero-derived forms and argues that middles and passive nominals are derived by a zero-morpheme.

Pesetsky argues that middles and passives commonly involve NP-movement; however, in the middle construction, NP-movement is not apparently triggered by a morphologically overt element, unlike the passive construction. According to Pesetsky, the absence of visible morphology does not entail the absence of morphology. Since morphologically null affixes exist, it is entirely possible that null affixes are responsible for the derivation of middles from active verbs to middles. Pesetsky claims that the element that triggers NP-movement in the middle construction is the morphologically null morpheme, *-MIDDLE*, providing the following representation for the middle construction.

(19) Bureacruts_i bribe-*MIDDLE* t_i easily

The same applies passive nominals. They are derived by movement, and this movement is, like middles, not motivated by the overt morphology, either. Pesetsky claims that the passive nominal has the morphologically null affix, *-PASS* and this null affix motivates the movement of DP_{theme}, as shown in (20):

(20) city_i's destruction-*PASS* t_i

This means that the morphologically null affixes play a crucial role in deriving passive nominals and middles³.

In this paper, I will adopt his proposal and develop the analysis of these constructions on it.

4. Proposal: A Morphological Strategy

In this section, I attempt to integrate the aforementioned proposals and suggestions by Egerland (1998), Fellbaum (1987), Hasegawa (1988), Pesetsky (1990) and Tenny (1994) into the Minimalist Program. I would like to claim that the morpheme which

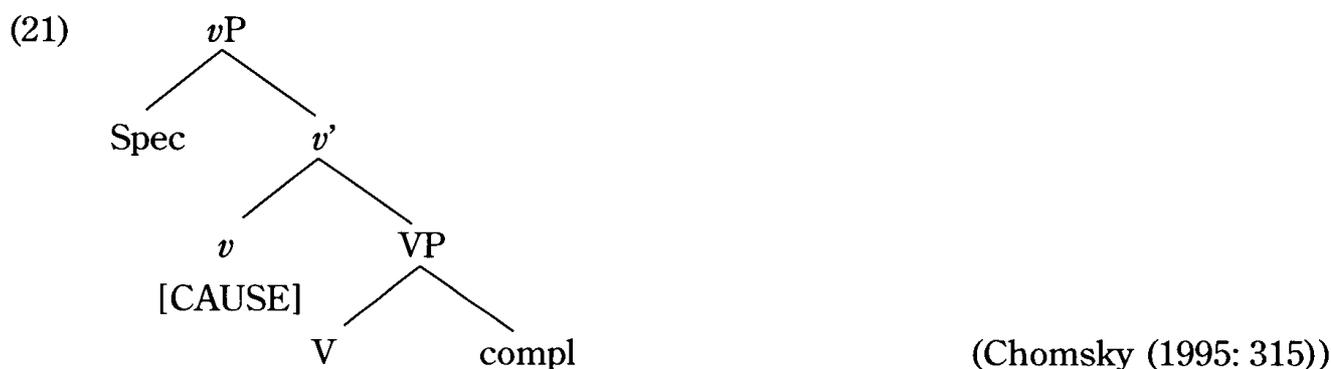
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resides in the head of *v*P or *n*P plays a crucial role in deriving these constructions.

4.1 Overt Morphology and Sentential Passives

This subsection presents the syntactic structure of passives along the line of the Minimalist framework.

In the recent Minimalist framework, VP is considered to have the following Larsonian Shell structure:

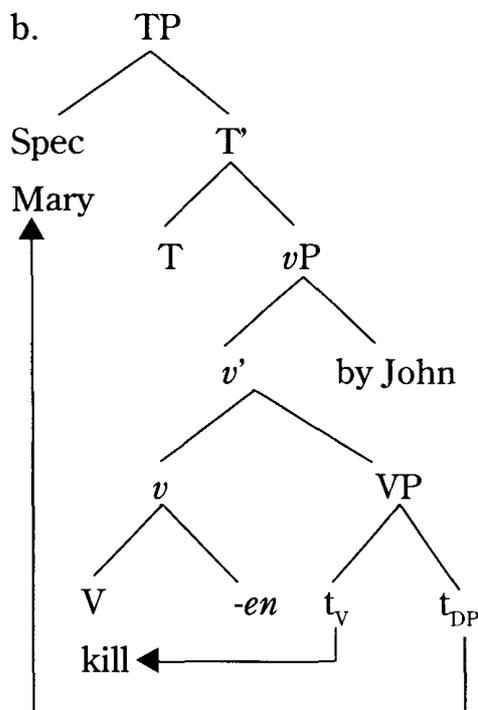


Chomsky (1995) claims that if the external argument occupies the Spec of *v*P, the *v*-V configuration can be taken to express the causative or agentive role of the external argument. The Agent role is understood as the interpretation assigned to the *v*-VP configuration; thus, the nature of the head of the *v*P, namely CAUSE, assigns an Agent role to the argument that occupies the Spec of *v*P in the case of transitive verbs. I follow Chomsky's claim and propose that the nature of the head of a light verb is responsible for construction types. In the passive construction, the passive morpheme that characterizes the passive construction plays a significant role in deriving passive sentences.

I propose that the passive morpheme, *-en*, resides in the head of a light verb, on the basis of Hasegawa (1988). I assume that the passive construction is generated in the following manner:

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(22) a. Mary was killed by John.



First, the transitive verb, *kill*, merges with *Mary*, and then they form VP. VP merges with the light verb realized as the overt morpheme, *-en*. The overt morpheme, *-en*, can not stand alone; thus, it must affixize to the phonologically overt head. Ikawa (1996), developing Lasnik (1981), claims that the overt movement is motivated by the morphological affix, as mentioned below:

(23) A morphologically realized affix must be supported before Spell-out.

(Ikawa (1996 : 20))

The passive morpheme *-en* must be overtly supported by an appropriate head, following (23). Therefore, V, *kill*, head-moves to the head of the light verb occupied by *-en*. I assume that the passive morpheme, *-en*, has the accusative Case feature. This means that *-en* has the same property as nouns, following Hasegawa (1988). When the [V-*en*] amalgam is formed, the accusative Case feature in the transitive verb is checked off. At the same time, the external theta-role in V is copied to *-en*. This coping mechanism will be discussed in 4.4.3. The [V-*en*] amalgam optionally requires the

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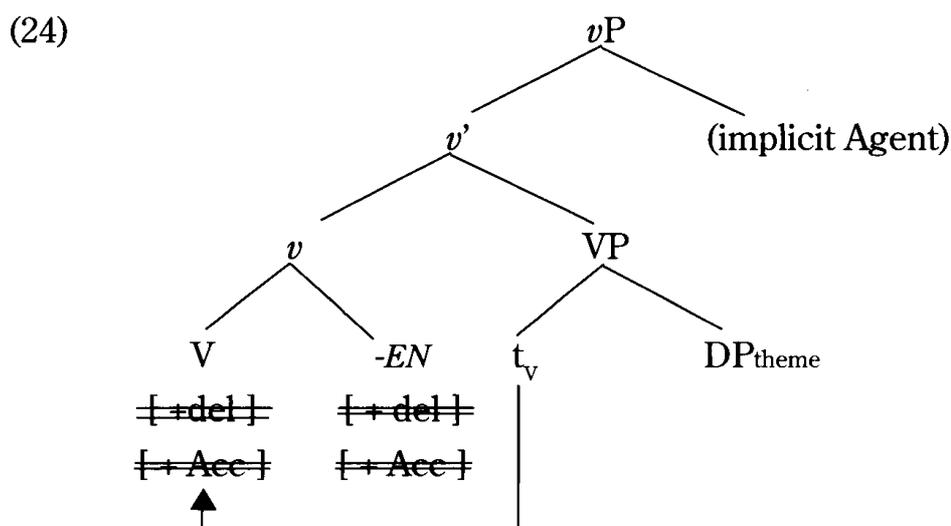
by-phrase in the Spec of *v*P. The *by*-phrase, if it is overtly realized, is merged with *v*', forming *v*P. Then T is merged with *v*P. DP, which is a complement of V, is moved to the Spec of TP in order to check off the EPP feature in T.

In sum, it is probable that the passive construction is simply captured in the Minimalist framework, given that the passive morpheme, *-en*, is in the head of a light verb.

4.2 Middles

In Section 2, we have seen that the formation of middles is sensitive to the aspectual property of predicates. Egerland (1998) gives a syntactic analysis of the middle construction and claims that the functional category, AspP, is responsible for this constraint. In this section, I will propose the derivation of middles in view of the semantic restriction and the morphological nature of middles.

I claim that if the [+ del] feature is reducible to the feature of the null morpheme in light verb, AspP can be discarded. I assume that in the middle construction the morphologically null morpheme, *-EN*, resides in the head of the light verb, on the basis of Pesetsky (1990). The crucial difference between middles and passives is while the phonologically null *-EN* in the middle construction is specified with the [+ del] feature, the morphologically overt *-en* is not. The null *-EN* would be specified with [+ del] in addition to [+ Acc]. I propose that middles have the following structure:



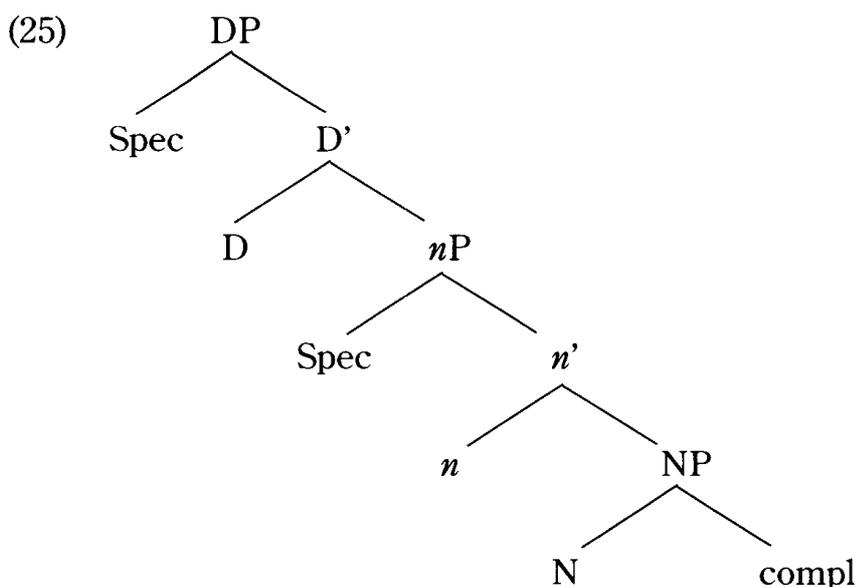
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In (24), the verb in the lower VP head-moves to the head of the light verb. When the verb incorporates to the null morpheme, the [V-EN] amalgam is formed, satisfying (23). The accusative Case feature in V is checked off by the accusative Case feature in the phonologically null -EN. At the same time the [+ del] feature in V is checked off by the [+ del] feature in the null morpheme. If the V does not have the [+ del] feature, that is, the verb with the atelic interpretation, the derivation is canceled, since the [+ del] feature in the null morpheme mismatches with the feature in V⁴.

If this analysis is on the right track, the additional functional category, AspP, is attributed to the [+ del] feature, which is specified with the phonologically null -EN. The aspectual restriction of middles is due to the [+ del] feature which is specified with the null morpheme⁵.

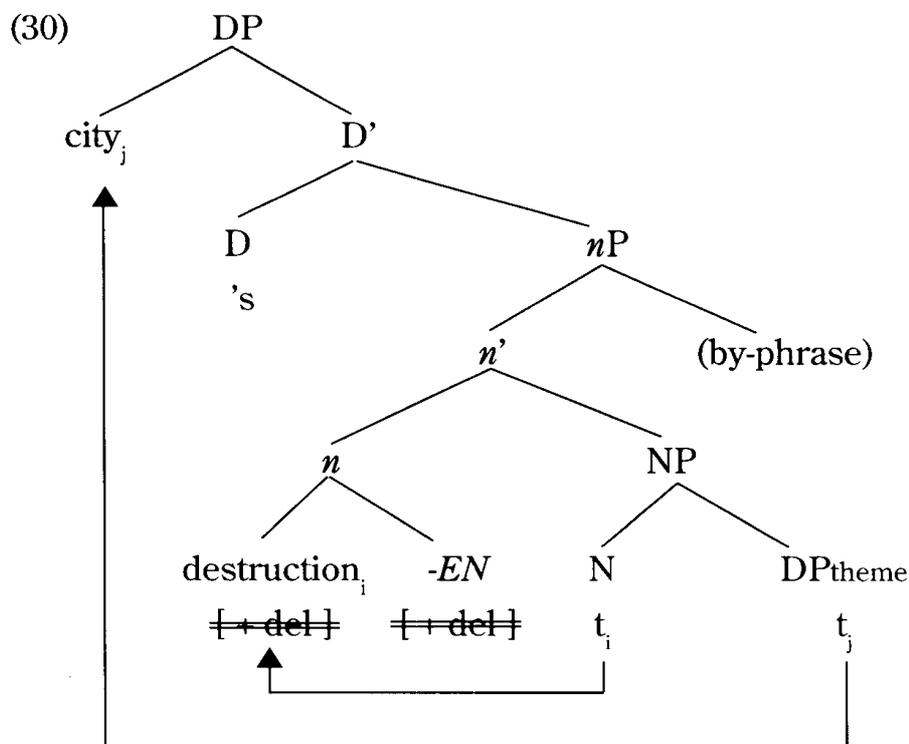
4.3 Passive Nominals

In this section, I will analyze passive nominals and propose that nominals also have the Larsonian Shell construction like VP. Some studies (cf. Abney (1987) and others) claim that the nominal is derived from a clause except its categorial status, observing the parallelism between a clause and a nominal. If this claim is on the right track, it is probable that the nominal has the Larsonian Shell structure; thus, the little *n* takes NP as its complement:



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the [+ del] features are properly checked. This is schematized in (30)⁶:



DP_{theme} in (30) can be raised to the Spec of DP in order to satisfy its Case property. This is because the head-movement of N creates the proper path of the movement of DP_{theme} to the Spec of DP.

On the other hand, in (29b), if N, *expression*, which is derived from an activity verb and then has the [- del] feature, moves to the head of the light *n*, the feature of N mismatches with the [+ del] feature of the phonologically null *-EN*. This prevents the DP_{theme} from raising to the Spec of DP, since the Spec of *nP* and the Spec of DP are not equidistant from D. Thus, Theme NP-Preposing is blocked in (29b), since *expression* cannot head-move to the head of *nP*⁷.

In sum, in the present analysis, the preposability of Theme NP is syntactically captured, given that phonologically null passive morpheme in the head of *nP* has the [+ del] feature. When head nouns have the [+ del] feature, Theme NP-Preposing is permitted, since the licit head movement of the deverbal nominal takes place. If the deverbal nominal has the atelic interpretation, on the other hand, the illicit head movement of the deverbal nominal prevents Theme NP-Preposing.

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4.4 The Distribution of an Implicit Agent

In previous subsections, I have proposed that the morphological nature of the head of the light verb is responsible for differentiating construction types. In this subsection, I would like to suggest that the behavior of implicit arguments in passives, middles and passive nominals corroborates the analysis presented in this paper. I would like to claim that the morphological differences affect the requirement of a theta-role of the implicit argument.

4.4.1 *by*-phrases

Jeaggli (1986), citing Jackendoff (1977) and Hornstein (1975), argues that *by*-phrases in nominals must be interpreted as Agent, while *by*-phrases in passive sentences are interpreted in various ways depending on what theta-role external arguments of base verbs assume.

(31) a. The packages were received by John.

b. ?*the receipt of the package by John

(32) a. Harry was feared by John.

b. *the fear of Harry by John

(33) a. Danger was sensed by John.

b. *the sense of danger by John

(34) a. Mary was respected by John.

b. *the respect for Mary by John

(Jeaggli (1986: 606))

Jeaggli (1986) assumes that theta-role transmission is not available in passive nominals, since they lack the passive affix. Thus, Agent is assigned to the *by*-phrase by default at LF. The ungrammaticality of (b)-examples in (31)-(34) is accounted for by the assumption that the thematic relation of the *by*-phrase with the head noun does not match, since the *by*-phrase is interpreted as Agent (by default), but the head nouns in (b)-examples in (31)-(34) require Goal, Causer, Experiencer and Patient, respectively. On the other hand, in passive sentences, the overt passive morpheme renders theta-role transmission possible; thus, the *by*-phrase is interpreted in various ways.

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Therefore, the overt *-en* works as a theta-transmitter, while the phonologically null *-EN* does not.

4.4.2 Implicit Argument in Middles

Fujita (1994) points out that the implicit argument in middles is restricted to the Agent interpretation, as shown in (35).

- (35) a. Girls frighten John. (Agent / Causer)
 b. John frightens easily. (only Agent) (Fujita (1994: 75))

In (35a), the subject, *girls*, is interpreted as either Agent or Causer, while in (35b), the implicit argument in the middle construction is only interpreted as Agent. Generally in the middle construction, the Causer role contained in psychological predicates is dismissed. This means that the implicit argument in middles has the same behavior as the *by*-phrase in passive nominals.

4.4.3 Morphological Differences and Theta-transmission

In previous subsections, I observed that the *by*-phrase in the sentential passive inherits the theta-role from the base-verb, while the implicit argument in middles and the *by*-phrase in passive nominals do not take over the theta-role that the base-verb inherently has. The latter is restricted to Agent.

I assume that the overt *-en* works as a theta-role transmitter, while the covert one does not, modifying Jeaggli (1986). The lower verb is incorporated into the light verb, and then they form the [V-*en*] amalgam. When the light verb is the morphologically overt *-en*, the theta-role in V is copied to the light verb. Therefore, the light verb requires the *by*-phrase which has the same theta-role copied to the light verb. On the other hand, the phonologically null *-EN* resides in *vP* or *nP*, the theta-role in V or N does not transmit to the light verb/noun. The null *-EN* is deprived of the theta-role in V. When the implicit argument appears in the Spec of *vP* or *nP*, it is assigned the Agent role by default. The behavior of theta-role transmission supports my claim that the morphological property of the head of a light projection determines the construction types. In addition to the aspectual difference among sentential passives, middles,

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and passive nominals, there is a difference among them in terms of theta-role transmission. Therefore, it is reasonable to assume that the morphological difference of the head of a light projection can account for the difference among passives, middles and passive nominals.

5. Conclusion

In this paper, I have tried to integrate the aforementioned proposals of passives, middles and passive nominals into the Minimalist Program. The present analysis has suggested that the morphology which resides in the head of vP or nP determines the construction types. I have assumed that the phonologically null $-EN$ resides in the head of vP or nP in the middle construction and the passive nominal, while the overt passive morpheme resides in the head of vP in the passive. I have shown that the formation of the middle and Theme NP-Preposing in passive nominals, which had been accounted for by the affectedness condition, can be syntactically captured, given the phonologically null $-EN$ with the [+ del] feature. I have also shown that the present analysis predicts the behavior of the *by*-phrase and the implicit argument, which had not been given a unified account.

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¹ Hasegawa (1988) assumes that Case-assignment by an (empty) P is optional. P, theta-assigner, for the subject is spelled-out when the Spec of IP is unavailable. In the passive construction, the DP_{theme} raised from the complement of the lower V occupies the Spec of IP. Therefore, the DP in the Spec of the lower VP cannot move up to the Spec of IP; thus the last resort option, the

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insertion of *by*, is called for to satisfy the Case property.

² Baker, Johnson & Roberts (1989) reach to the same conclusion that *-en* is assigned Accusative Case by V.

³ Pesetsky claims that null morphemes *-PASS* and *-MIDDLE* have different characteristics, since passive nominals cannot derive from middle verbs.

- (i) a. *the bureaucrats' easy bribery
- b. *cities' easy destruction (Pesetsky (1990) : 65))

Myers (1984) claims that zero-derived words do not permit the further affixation of derivational morphemes. The ungrammaticality of (i) is predicted given Myers' generalization. Pesetsky claims that the middle verb is formed by the affixation of *-MIDDLE* to the verb-stem. In the course of the derivation of passive nominals from middle verbs, the middle verb, which has already been attached by the null morpheme *-MIDDLE*, does not permit any further attachment of morphemes. Under Pesetsky's assumption, in order to derive the passive nominal, the null morpheme *-PASS* must attach to the verb. If the *-Pass* attaches to a middle verb in order to derive a passive nominal, this derivation is excluded by Myers' generalization. Thus, passive nominals and middles are derived by distinct morphemes.

⁴ One of the *SLS* reviewers and Mikinari Matsuoka (personal communication) point out to me that (13b), repeated as (i) below, cannot be accounted for by the present analysis.

- (i) This kind of metal hammered smooth easily.

In (i), *hammer* is an activity verb, which has [- del]. Apparently, this feature mismatches with the feature in the null *-EN*. However, this is not a problem, if I assume that the aspectual feature of a verb is determined by the aspectuality of predicates. In (i) the predicate, *hammer this kind of metal smooth*, has the telic interpretation. If we assume that the verb inherits the aspectuality of predicates, the verb has the same aspectual feature as the predicates. Therefore, the verb in (i), *hammer*, has [+ del]. Given this assumption, the present analysis correctly derives the middle from the verb in the resultative construction.

⁵ This analysis can be extended to the derivation of unaccusative verbs. Chomsky (1995) claims that unaccusatives have a simple VP structure, since they lack Agents. However, there is a reason to assume that a light verb is involved in the unaccusative verb. Unaccusative verbs inherently have the telic interpretation (see Borer (1994)). Thus, in the present analysis, they inherently have the [+ del] feature. This fact suggests that unaccusatives have the same property as the middle construction, in terms of the telicity of a predicate. It is reasonable to assume that unaccusatives have the light verb occupied by the phonologically null morpheme which is specified with [+ del], contrary to Chomsky's (1995) proposal. I propose the following as the structure of unaccusatives:

- (ii) [*v*P *v* [VP [V DP_{theme}]
- [+ del]

In (i), since the unaccusative verb inherently has the change of state interpretation, it can be raised to the head of *v*P and the [+ del] feature in unaccusative verb can be checked off by the [+ del] feature in the head of the light verb. See also Collins (1997).

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⁶ One of the *SLS* reviewers points out to me that alternative structure of (30), suggesting that the raising of destruction head-moves to the head of the higher *nP* and that of DP equidistance.

(i) [DP the city_i's [*nP* -EN [*nP* *n* [NP (barbarians) [destruction t_i]]]]]

In (i), *destruction* head-moves to the head of the higher *nP*. This head-movement makes the Spec of *nP* and that of DP equidistance. This alternative structure calls for further consideration. I will leave it as a future research.

⁷ In (29b), if Theme DP raises to the Spec of DP, the derivation is canceled. However, when the N remains in the base-position like (29a), the head of N, *expression*, which has the [- del] feature does not induce feature mismatch with respect to the head of *n*, which is specified with [+ del]. In this case, *of* is inserted between N and DP_{theme} in order to satisfy the Case-property of DP_{theme}, by Last Resort. The same story holds for (28a). The *destruction* in (28a) has the [+ del] feature. However, if we suppose that *destruction* remains in the base-position, and the [+ del] feature remains unchecked in overt syntax, it is predicted that the derivation would crash. However, this is not the case, if we assume that the [+ del] feature is a weak feature, rather than a strong one. The [+ del] feature in *destruction* is covertly raised to the head of *n*, and it is checked off. This means that the [+ del] feature is a strong feature, when the Theme NP-Preposing takes places, while it is a weak one, when it does not.

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