Rude Type and Eager Type Adjectives from the Perspective of the Theta System*

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1. Introduction

This paper will deal with rude type adjectives and eager type adjectives, as shown in (1) and (2).

(1) Rude type
rude, kind, wise, clever, stupid, mean, ...  (1)
(2) Eager type
eager, anxious, reluctant, keen, ...  (2)

On the one hand, these adjectives take a human argument and an infinitival clause, as shown in (3) and (4).

(3) John was clever/mean to punish the dog.
   (Stowell (1991: 106))  (3)
(4) Bill was eager/rehecant to punish the dog.
   (ibid.: 114)  (4)

On the other hand, they exhibit different behaviors. One is the semantic difference: rude type adjectives evaluate a human on the basis of his act denoted by an infinitival clause (Bennis 2000), while eager type adjectives express human's will for what the infinitival clause denotes (see Yasui et al. 1976). Another is the difference in the way in which the arguments of these adjectives are realized syntactically: rude type adjectives can appear in infinitival subject constructions like (5a) and expletive it constructions like (5b), while eager type adjectives cannot, as shown in (6a,b).

(5) a. To punish the dog was rude of John.
   b. It was clever of John to punish the dog.
(6) a. *To punish the dog was eager/rehecant of John.
   b. *It was eager/rehecant of Bill to punish the dog.
   (Stowell (1991: 114))

In this paper, on the basis of their semantic difference mentioned above, we propose an argument structure for each type of adjective within the framework of the theta system proposed by Reinhart (2002). We argue that this proposal explains different argument realizations of these two types of adjective in spite of the apparent similarity in category selection. We will further discuss the consequences that our proposal has for different syntactic behaviors of these adjectives toward pied-piping, nominalization and extraction.

2. The Framework

In the modular view of Fodor and Chomsky, the cognitive systems operate independently of each other, and generally the information processed in any given system is not legible to the others. However, Reinhart (2002) claims that for the interface to be possible, each system should contain also some information that is legible to other systems. Then, she hypothesizes that for each set of systems, there is some central system that
gathers information that may be legible to the other sets of systems, and it is this system that enables the interface. Especially, she proposes the theta system which is the central system of the systems of concepts and enables the interface between the systems of concepts and the computational system (syntax). This system gives a meaningful explanation to a wide range of phenomena such as a problem of θ-selection, problems with learnability of unaccusative verbs and unergative verbs, and argument realizations of causative verbs and psych verbs.

In what follows, we briefly present a synopsis of the system in Reinhart (2002) and some of the motivations for our adopting it. Of course, we do not sketch out all of the system. We give you only what is relevant to our arguments. Reinhart (2002) assumes the following model of mapping from the lexicon to the syntax:

\begin{align*}
& \text{Base entry} \rightarrow \text{Marked entry} \rightarrow \text{Syntax(CS)} \\
& \text{Lexicon marking} \quad \text{CS Merging instructions} \\
& \text{(Arity Operations)} \quad \text{Cluster distinctness}
\end{align*}

Although thematic role labels such as agent have been used as if they were primitive terms, Reinhart (2002) assumes that they are not primitives and are composed of the two types of formal feature with two values: the cause change feature (\([+/-c]\)-feature) and the mental state feature (\([+/-m]\)-feature). The former codes the causal relation in the event, whereas the latter codes some mental properties of the participant in the event. For the sake of convenience, in (8), we show the correspondence of these clusters to the familiar theta roles.\(^1\)

(8) Theta feature cluster
\begin{enumerate}
\item \([+c+m]\) - agent
\item \([+c-m]\) - instrument (…)
\item \([-c+m]\) - experiencer
\item \([-c-m]\) - theme /patient
\item \([+c]\) - cause (Unspecified for/m); consistent with either (a) or (b)
\item \([+m]\) - sentient (?)
\end{enumerate}

\(^1\) Reinhart (2002) mentions that the correspondence of these clusters to the traditional theta roles is not always one to one, and that many of these clusters have different interpretations, depending on some properties of the lexical semantics of the verbs.

\begin{enumerate}
\item \([-m]\) - (Unspecified for/c): subject matter /locative source
\item \([-c]\) - (Unspecified for/m): Internal roles like goal, benefactor typically dative (or PP))
\end{enumerate}

(Reinhart (2002: 232))

Then, the verb entry with formal features defining the theta relations is mapped onto the marked entry by the lexicon marking as defined in (9):

(9) Lexicon marking
Given an n-place verb-entry, n > 1,
\begin{enumerate}
\item Mark a \([-\] cluster with index 2.
\item Mark a \([+\] cluster with index 1.
\item If the entry includes both a \([+\] cluster and a fully specified cluster \([a,-c]\), mark the verb with the ACC feature.
\end{enumerate}

(ibid.: 246)

(9a,b) determine the merging order among the theta clusters by assigning indices. (9a) marks with 2 a cluster all of whose features have the minus value (henceforth the \([-\] cluster). (9b) marks with 1 a cluster all of whose features have the plus value (henceforth the \([+\] cluster). The other clusters are not marked. (9c) determines whether the verb carries an accusative feature (cf. Bruzio’s generalization). (9c) assigns the verb the accusative case feature (henceforth the ACC feature) if it is a two (or more) place verb, it has a \([+\] cluster, and one of its clusters is specified for both c-feature and m-feature and has the minus value for the c-feature.

After indices are assigned, the marked entry is mapped onto a syntactic structure according to the CS merging instructions as represented below:

(10) CS merging instructions
\begin{enumerate}
\item When nothing rules this out, merge externally.
\item An argument realizing a cluster marked 2 merges internally; An argument with a cluster marked 1 merges externally.
\end{enumerate}

(10b) states that the argument bearing the index 1 must merge externally and that the argument with the index 2 is obligatorily internally merged. According to (10a), the unmarked argument is free to merge in either posi-
tion, depending on availability of a position or other CS requirements (such as the accusative case).

Let us look at how the marking procedures apply to the basic verb entry of \textit{wash} in (11a) and the CS merging instructions map the marked entry in (11b) to syntax.

\[(11)\]
\[
a. \text{wash } [+c+m], [-c-m] \\
b. \text{wash}_{\text{acc}} [+c+m, [-c-m]_2 \\
c. \frac{[sP \text{ Max}[+c+m]]}{[\_V 	ext{ VP wash } \text{the child}[-c-m]_2]} \\
\]

(9a,b) require that the \([-c-m]\) cluster be marked with 2 and the \([+c+m]\) cluster with 1, respectively. (9c) assigns the verb the ACC feature, because it has the \([+]\) cluster and the \([-c-m]\) cluster. This marking yields (11b). The CS merging instructions, then, decide that the \([+c+m]\) argument must be merged in [Spec, sP] as an external argument and that the \([-c-m]\) argument is obligatorily merged in complement of VP as an internal argument.\(^2\) As a result, the structure of (11c) is derived.

Let us next consider the cluster distinctness in (7), which Reinhart formulates as follows:

\[(12)\]
\[
a. \text{Two indistinct } \theta\text{-clusters cannot be both realized on the same predicate.} \\
b. \text{Distinctness: Two feature-clusters } \alpha, \beta, \text{ are distinct iff} \\
a. \text{they share at least one feature, and} \\
b. \text{there is at least one feature or value which they do not share.} \\
\]

(13) Arity operations on the theta grid

\[
\text{Explicitization: Reduction of an external } [+c] \text{ role (semantically null function)} \\
a. \text{V}_{\text{acc}} (\theta_1 [+c], \theta_2) \rightarrow R_v (\theta_2) \\
b. \text{R}_v (\theta_2) \rightarrow V (\theta_2) \\
\]

(13) also proposes the reduction operation in (13). This operation applies to the verb entry with at least two theta clusters one of which must be the \([+c]\) cluster. It then results in eliminating the cluster and the ACC feature.

\[(14)\]
\[
a. \text{The doctor worried Lucie.} \\
\text{cause } [+c] \text{ experiencer } [-c+m] \\
b. \text{Lucie worried (about the doctor).} \\
\text{experiencer } [-c+m] (\text{subject-matter}) [-m] \\
c. \text{*The doctor’s letter } [+c]\text{ worried Lucie}[-c+m]\text{ about her health}[-m]_2. \\
\]

The cluster distinctness is a restriction on the realization of feature clusters. The condition rules out not only the simultaneous realization of two identical theta clusters, but also that of two unary theta clusters that share no feature. For example, in the former case, a verb cannot realize the \([+c]\) cluster twice. In the latter case, the \([+c]\) cluster and the \([-m]\) cluster cannot be realized together.

Reinhart (2002) also proposes the reduction operation in (14) and in (13) apply to the basic verb entry of \textit{worry}. The following examples show that the verb allows either the \([+c]\) argument and the \([-c+m]\) argument in (14a) or the \([-c+m]\) argument and the \([-m]\) argument in (14b). However, as shown in (14c), it cannot realize the \([+c]\) argument, the \([-c+m]\) argument and the \([-m]\) argument at the same time.

To account for this, Reinhart assumes that the lexical entry for the verb has the argument structure in (15a) that consists of the \([+c]\) cluster, the \([-c+m]\) cluster and the \([-m]\) cluster.

\(^2\) Although Reinhart (2002) assumes that an external argument is merged in [Spec, TP], we assume that it is merged in [Spec, sP].
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(15)  
a. worry  \([+c], [-c+m], [-m])  
b. worry\(_{\text{ACC}}\)  \([+c], [-c+m], [-m]_2\)  
\[\text{Reduction}\]
\[\text{c. worry}  \(\emptyset [-c+m], [-m]_2\)\]
\[\text{d. (i)}  (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)\]
\[\text{(ii)}  \[+c]\text{DP}[-c+m]\text{DP}[\_\_\_\_\_\_\_\_]\]
\[\text{Lucie worried (about something)}  \quad \text{The doctor worried Lucie.}\]

The lexicon marking applies to (15a) to yield the marked entry in (15b). On the basis of the marked entry, the CS merging instructions construct a syntactic structure. In doing so, the \([+c]\) argument and the \([-m]\) argument cannot be realized together because of the cluster distinctness, as illustrated above in (14c). Instead, (15b) leads to the syntactic structure in (15dii). In (15dii), the \([+c]\) argument merges externally and the \([-c+m]\) argument, which is not marked, merges internally because the external position is occupied in this derivation. The entry in (15b) can also be the target of the reduction operation that reduces the \([+c]\) cluster and the ACC feature. The resulting reduced marked entry in (15c) can be mapped onto the syntactic derivation, yielding (15di), where the CS merging instructions require the \([-m]\) argument to merge internally. The \([-c+m]\) argument is linked to the external position, because there is no cluster marked with 1 in this derivation.

Finally, we offer some of the motivations for adopting her theta feature system. Among the empirical motivations for this system is a problem of \(\theta\)-selection. In general, the assumption about \(\theta\)-selection is that the lexical entry specifies the number and the type of thematic role a verb selects. Some commonly assumed thematic roles are agent, cause experiencer, instrument and theme, among others. Under these assumptions, a causative verb like open selects an agent, an instrument, and a cause as its external argument. Thus, it must be listed as three entries which select a different external theta role, agent, cause, and instrument respectively. The problem with such specification is that it is not clear how the three entries are related to each other. In contrast, her theta feature system allows such a verb to be listed as one entry which contains one external theta role, the \([+c]\) role, because agent, cause, and instrument have the \([+c]\) feature in common. This cluster is specified only for c-feature with m-feature unspecified. Whether this role is interpreted as agent \([+c+m]\), cause \([+c]\) or instrument \([+c-m]\) is determined by the context. The way of listing can be possible only by assuming her theta feature system. Thus, the above argument about \(\theta\)-selection is one of the motivations for our adopting her system rather than other theta theories which use thematic role labels such as agent, cause, experiencer, and instrument as if they were primitive terms.

Further motivation to adopt the system comes from the analysis of unaccusative verbs. It has been observed that many of the unaccusative verbs have also a transitive alternation, which is known as the causative-inchoative alternation. The standard approach to such alternations was that the transitive entry is derived from the basic intransitive entry. In such an analysis, the set of unaccusative verbs is just listed individually in the lexicon. However, as Levin and Rappaport (1995) pointed out, this view raises certain learnability problems. Unaccusative verbs and unergative verbs have significantly different syntactic realizations, so it is crucial for the child to determine which one-place verbs are intransitive. However, it is unclear how this knowledge is acquired. This is particularly noticeable in languages where there is no morphological or auxiliary marking of intransitiveness like English and Spanish, which do not distinguish the derivations by the auxiliary.

In opposition to the standard approach to the causative-inchoative alternation, Reinhart (2002) assumes with Chierchia (1989) that the transitive entry is basic and the intransitive entry is derived from it by a lexical operation of reduction. The learnability problem under this view is that the child needs to know which
transitive verbs allow the alternation. However, Chierchia himself does not define the conditions under which unaccusative reduction takes place. Thus, his system, as it stands, seriously overgenerates. For example, while his system correctly derives *The window broke from Max broke the window, it equally generates *The soup ate from *The baby ate the soup. This means that the learnability problem is not solved yet by his analysis.

According to Reinhart (2002), the reduction operates on the set of transitive verbs which takes agent and cause such as natural force and instrument in the subject position (e.g. open and break), while it does not operate on the set which selects only agent as the subject (e.g. feed and eat). On the basis of this fact, she argues that the former set contains the \([+c]\) role in its base entry, while the latter set contains the \([+c+m]\) role. This difference provides the clue to the unaccusative question: the lexical reduction operation which generates one-place unaccusative entries from transitive ones applies only to verbs selecting a \([+c]\) role. This condition can be defined only by assuming her theta feature system. Thus, the argument about the causative-inchoative alternation is one of the motivations for her feature approach.

3. The Proposed Analysis

In the previous section, we briefly sketched out the theta system proposed by Reinhart (2002). The system is proposed to explain different argument realizations of a verb. In this paper, we apply the system to rude type adjectives and eager type adjectives to explain their argument realizations. First, we propose argument structures of rude type adjectives and eager type adjectives. Specifically, the former argument structure includes the three theta clusters: the \([+c]\) cluster, the \([-c+m]\) cluster, and the optional \([-m]\) cluster, as shown in (16a). The latter argument structure consists of the two theta clusters: the \([-c+m]\) cluster, and the \([-m]\) cluster, as shown in (16b).

\[(16) \quad \text{a. Rude type adjectives (}[+c], [-c+m], [-m]) \]
\[\text{b. Eager type adjectives (}[+c+m], [-m]) \]

The rude type entry includes the \([+c]\) cluster because the adjective selects the infinitival clause and the noun phrase like the act that denote the grounds of the evaluation, as shown in (17) (cf. Bennis 2000).

\[(17) \quad \text{a. To punish the dog was clever of John.} \]
\[\text{b. The act was rude of John.} \]

The entry also involves the \([-c+m]\) cluster, because the adjective takes the noun phrase such as John in (18) that expresses the possessor of the mental state (cf. Bennis 2000, 2004, Landau 2009). In addition, the adjective selects the prepositional phrases such as to me and to flowers in (18) that denote the subject of the mental property. These phrases in (18) are considered to be the realizations of the \([-m]\) cluster.

\[(18) \quad \text{a. John was kind to me.} \]
\[\text{b. John was kind to flowers.} \]

The eager type includes the \([-c+m]\) cluster, because it selects the noun phrase such as John in (19) that involves a mental property. It also selects the infinitival clause and the prepositional phrase which denote the subject at which the mental property is directed, as shown in (19). They are regarded as the realizations of the \([-m]\) cluster.

\[(19) \quad \text{a. John was eager to leave town.} \]
\[\text{b. John was eager for that.} \]

(Landau (2009: 324))

Here, it is important to keep it in mind that the rude type does contain the \([+c]\) cluster unlike the eager type.\(^3\)

\(^3\) Anonymous reviewers point out what is the motivation for assuming the \([+c]\) cluster for the rude type but not for the eager type. One semantic motivation comes from the view of Bennis (2000). Much research in lexical semantics has assumed that states are semantic primitives in word meaning and cannot be decomposed any more. In contrast, causative meanings usually have some internal structure, namely, they can be decomposed into at least two parts: some kind of a process and a change of state. On the basis of the view, adjectives are aspectually static, so that they would lack causative semantics. However, Bennis (2000) assumes that a sentence such as That is mean of John means that the meanness of John is caused by that. If this semantic intuition is on the right track, it may be
In addition, we extend the clause (c) in the lexicon marking in (9) to deal with the adjective. Specifically, we propose that the adjective is optionally assigned a genitive feature (a GEN feature) under the condition that the entry includes both a \([+]\) cluster and a cluster with two features one of which is a \(-c\) feature, as shown in (20c) (cf. Stowell 1991).

(20) Extended lexicon marking
Given an n-place verb-entry and adjective-entry, n > 1,
a. Mark a \([-\] cluster with index 2.
b. Mark a \([+]\) cluster with index 1.
c. If the entry includes both a \([+\) cluster and a fully specified cluster \(\vec{a}[-c]\), mark the verb with the ACC feature and mark the adjective with the GEN feature optionally.

3.1. Derivations of the Rude Type Adjective
In what follows, we show how the proposed entry in (16) is mapped from the lexicon onto the syntax. Let us consider the rude type entry in detail. We can provide the rude type with the following derivation of (21).

\[
[\text{AspP} \downarrow [\text{ApP}] [-c+m] \downarrow \text{InfP} [+] \downarrow \text{EPP} \downarrow \text{ApP} \downarrow \text{rude DP} [-c+m]]
\]

Since T also has an EPP feature that requires its specifier to be filled, the \([-c+m]\) argument should then undergo further movement to specifier of TP at the stage of the derivation where \(T\) is merged. This prediction is reasonable to say that the rude type has a version of lexical semantic representation like \([x \text{CAUSE } y \text{BE AT MENTAL STATE}]\). In contrast, a sentence like John was eager for that does not mean that John’s eagerness was caused by that. Thus, the eager type lacks causative semantics and is associated with a kind of lexical semantic representation like \([x \text{BE AT MENTAL STATE FOR y}]\).

An anonymous reviewer asks us whether there are any differences in an argument structure between rude-type of adjective and object-experiencer adjectives like surprising, worrying, and worrisome. He goes on to point out that if an adjective like worrisome has the same argument structure as the adjective rude in (16a), it should be equally assigned a genitive feature. This prediction seems to be contradicted by the following data.

(i) a. Bill was worrisome to her classmates.
b. Bill’s behavior was worrisome to her classmates.

b. Bill’s behavior was worrisome to her classmates.

The above derivation involves two steps. In the first step, the lexicon marking the \([+c]\) cluster with the index 1, the \([-m]\) cluster with the index 2, and the adjective with the Gen feature, as shown in (21b). In the second step, the CS merging instructions decide that the external position is occupied by the argument that realizes the cluster with the index 1. Since there is a cluster marked with 1 and realized as an external argument, the argument that realizes the unmarked cluster merges internally.

The analysis assumes that the small \(a\) head has an optional EPP feature that triggers A-movement of the internal argument (i.e. the \([-c+m\) argument] to the outer specifier of aP. In addition, we assume with Richardson (2007) that the rude type of adjective is dominated by the aspect head (AspP) and that it undergoes head movement from A to Asp head via \(a\) head. These assumptions are diagramed as in (22).

\[
[\text{AspP} \downarrow [\text{ApP}] [-c+m] \downarrow \text{infP} [+] \downarrow \text{EPP} \downarrow \text{ApP} \downarrow \text{rude DP} [-c+m]]
\]

borne out by the data in (23).

(23) He\((-c+m\) was clever to punish the dog\([+c\) in.

This proposed approach makes further predictions. Consider the case where the \([+c]\) cluster is represented as an infinitival clause that is merged in the inner specifier of aP. In general, an infinitival clause does not have to be assigned Case, so that it may remain in situ. In this case, the expletive it may be merged in specifier of TP in the subsequent derivation in order to check the EPP feature of T. In fact, the rude type of adjective can

\[
(\text{Pesetsky} (1995: 66))
\]

In (i), the experiencer object is realized as the to phrase rather than the of phrase. This suggests that we should assume that such adjectives have a different argument structure from the adjective rude and the verb worry or we should define other conditions under which a genitive feature is marked. However, in this paper, we leave this issue for the further research.
appear in the expletive it construction, as shown in (24).

(24) It was clever of John to punish the dog.

Furthermore, if we assume that the inner and outer specifier are equidistant from T head (Chomsky 1995: 357), the EPP feature of T head can still move the [+c] argument in the inner specifier of aP to specifier of TP. As a consequence, we can derive (25) from (22).5

(25) a. To punish the dog[+c] was clever of John[−c+m].
   b. The act[+c] was rude of John[−c+m].

The [+c] clusters in (25a.b) are realized as the infinitival clause and the noun phrase, respectively, and the [−c + m] cluster as the noun phrase John that is assigned the Gen feature by the adjective.6

Further support for this analysis comes from the analysis of the binding relation which is established between arguments of the matrix clause and those of the infinitival clause. The [+c] argument is merged in the inner specifier of aP and the [−c + m] argument is merged in complement of the lexical AP and moved to the outer specifier of aP. As a consequence, the [−c + m] argument c-commands the infinitival clause that realizes the [+c] cluster. Thus, we can account for the following binding relation established, as shown in (26)

(26) a. [PRO To kick himself] was stupid of John.
   b. It was stupid of John, to kick himself.

5 In (21c), there are two possibilities in the subsequent derivation. One is the derivation where InP is moved from specifier of aP to specifier of TP to check the EPP feature of T. However, such a derivation faces a problem. The problem is about Case assignment of T to InP, as pointed out by Professor Yoshio Endo and Professor Etsuro Shima (personal communication). InP in general does not need Case. If so, nominative Case of T head would remain unassigned. An alternative approach to the problem assumes that InP moves to specifier of CP to satisfy an edge feature of C head in the matrix clause (Chomsky 2008). In addition, we assume that specifier of TP is filled with a null DP or a null counterpart of expletive that is assigned Case by T. (We owe this idea to Koster (1992) and Alrenga (2005), but our analysis is different from theirs in that InP itself moves to specifier of CP.) There is a piece of indirect evidence in favor of the alternative analysis. The evidence comes from the The sentences in (26a,b) have the structure of (22) at a relevant stage of the derivation. In this stage, the [−c + m] argument (John) binds PRO inside of the [+c] argument and then PRO binds himself. By transitivity, (of) John binds himself. Thus, the sentences do not violate Condition A of the Binding Theory and then are grammatical. Additionally, we can also account for the data in (27).

(27) a. *To kick John, was stupid of him.
   b. *It was stupid of him, to kick John.

In (27), the [−c + m] argument (him) binds the referential expression (John) inside of the [+c] argument. Thus, the sentences are ungrammatical, because of a Condition C violation.

We can provide a further argument for assuming an EPP feature in a head. In the expletive it construction, the [−c + m] argument (of John) precedes the [+c] argument (InP), as shown in (28).

(28) It was clever of John to punish the dog.

This surface word order can be derived under the proposed analysis, because the small a head with an EPP feature enables the [−c + m] argument to undergo movement to the outer specifier of aP which precedes the [+c] argument. Note that the adjective undergoes head movement from A head to AsP head via a head. This head movement enables it to linearize to the left of the [−c + m] argument (of John).7 possibilities of subject auxiliary inversion (SAI).

(i) a. To punish the dog was clever of John.
   b. *Was to punish the dog clever of John?

If InP was placed in specifier of TP in (ia), SAI would be possible when (ia) is transformed from the declarative sentence into the yes-no question sentence, as shown by (ib). However, in fact, (ib) is ungrammatical. This suggests that InP is in a higher position than Spec of TP. However, in this paper, we leave the problem of which analysis is better for the further research.

6 An anonymous reviewer asks me why a sentence like *John was rude of the act is not allowed. In principle, it is possible to generate the sentence in syntax, as shown in (i).

(i) [TP John[+c]: ...[aP of the act[−c+m] [AP John[+c]l [aP rude of the act[−c+m]]]]]

However, what is important is that in (i) the act is assigned the
Next, we predict that the \([+c]\) argument and the \([-m]\) argument cannot be realized together, because of the cluster distinctness. This prediction is borne out by the data in (29a).

(29) a. That\([+c]\) was rude (of John\([-c+m]\)) (*to Mary\([-m]\)). (Landau (2009: 315))
b. That was rude towards Mary. (ibid.: 343)

In addition, Landau (2009) observes that if to Mary is replaced with towards Mary, the sentence is improved, as shown in (29b). This contrast can be accounted for if we assume with Bennis (2000, 2004) and Landau (2009) that towards Mary is an adjunct, because the cluster distinctness applies to an argument but not to an adjunct.

So far, we have seen the derivation of the marked entry in the rude type and certain pieces of evidence for it. Then, we will provide the rude type with the following derivation of (30) in which the reduction operation is involved.

(30) a. rude \([+c], [-c+m], [-m]\)
b. rude\(_{\text{GEN}}\) \([+c)_1, [-c+m], [-m]_2\)
c. rude \((\emptyset [-c+m], [-m]_2)\)
d. \(\text{DP}_{[-c+m]} \ [a \text{DP} \text{rude} \text{DP}_{[-m]_2}]\)

The reduction operation can apply to (30b), and eliminate the \([+c]\) cluster and the GEN feature. On the basis of the resulting reduced marked entry in (30c), the CS merging instructions, then, generate a syntactic structure of (30d). The \([-m]\) cluster is marked with the index 2 and thus linked to the internal position. The \([-c+m]\) argument is left unmarked, and is merged externally, because the external position is not occupied in this derivation. The structure of (30d) yields the sentence in (31), where the realization of the \([-m]\) cluster is the prepositional phrase to Mary and that of \([-c+m]\) cluster the noun phrase John.

(31) John\([-c+m]\) was very rude (to Mary\([-m]\)). (ibid.)

Support for this analysis comes from the ne-cliticization test. Stowell (1991), Bennis (2000, 2004), and Landau (2009) observe that adjectives like (31) are unergative in terms of the ne-cliticization test that is used as a diagnostic for complement status in underlying structure (Cinque 1990). For example, ne-cliticization is possible with the adjective likely in (32).

(32) Ne sono probabilmente pochi (di dimissioni). *of-them are likely really few (of resignations)
    ‘Really few of them are likely’
    (Cinque (1990: 7))

This fact shows that the argument of likely is a complement in the underlying structure, and then the adjective is unaccusative. According to the test, the rude type does not allow ne-cliticization, as shown in (33).

(33) *Ne sono stupidi pochi
    *of-them are stupid few
    ‘Few of them are stupid.’
    (Stowell (1991: 121))

As a result, the argument John in (31) is a noncomplement and then the rude type is unergative. Thus, the ne-cliticization test provides us with a piece of evidence for the derivation where the \([-c+m]\) argument merges externally.

In sum, the proposed entry of the rude type derives different argument realizations from its interaction with the operation in the lexicon and the syntax.

3.2. Derivations of the Eager Type Adjective

Next, let us consider the possible derivation for the eager type under our proposal.

(34) a. eager \([-c+m], [-m]\)
b. eager \([-c+m], [-m]_2\)
c. \(\text{DP}_{[-c+m]} \ [a \text{DP} \text{eager} \text{DP/InP}_{[-m]_2}]\)

\([-c+m]\) cluster. Thus, the sentence is ruled out by an interpretive condition at the inference system, because the act is semantically incompatible with the \([-c+m]\) cluster.

\(^7\) We have shown that arguments about the binding relation and the surface word order are among the motivations for assuming an optional EPP feature in the small a head. However, as an anonymous reviewer points out, such arguments seem to be insufficient yet. We leave this issue for future work.
The lexicon marking applies to (34a) to yield the marked entry in (34b). The \([-c + m]\) cluster in (34b) is not marked because it is neither a \([+]\) cluster nor a \([-]\) cluster. The \([m]\) cluster is a \([-]\) cluster, so that it is marked with 2. The entry is not assigned the Gen feature because the entry does not include a \([+]\) cluster. After the marking procedure, the CS merging instructions build up a syntactic structure of (34c) where the \([m]\) argument is obligatorily internal and the \([-c + m]\) argument can be projected externally due to availability of the external position in this derivation. The derivation yields the sentence in (35). The \([m]\) cluster in (35a,b) are realized as the infinitival clause and the prepositional phrase for that, respectively, and the \([-c + m]\) cluster as the noun phrase John.

\begin{align*}
\text{(35)} \quad & \text{a. John was eager to leave town.} \\
& \text{b. John was eager for that. (Landau 2009: 23)}
\end{align*}

Our analysis based upon the theta system in Reinhart (2002) does not allow any other derivations of the eager type, as shown in (36).

\begin{align*}
\text{(36)} \quad & \text{a. *To punish the dog was eager/reluctant of John.} \\
& \text{b. *It was eager/reluctant of Bill to punish the dog. (= (6))}
\end{align*}

The ungrammaticality is accounted for in terms of the lack of the \([+c]\) cluster in the entry. The \([+c]\) cluster plays a crucial role in marking the entry with the GEN feature in the lexicon. Its lack makes it impossible to assign the GEN feature to the adjective, so that the \([-c + m]\) argument cannot appear as the if phrase. Thus, (36a,b) are ungrammatical, whether the infinitival clause stays at the internal position or moves to Spec of TP.\(^8\)

\begin{align*}
\text{(37)} \quad & \text{a. It was stupid of Bill to leave town.} \\
& \text{b. How stupid of Bill was it to leave town?} \\
& \text{c. How stupid was it of Bill to leave town?} \\
& \text{d. *How stupid of Bill to leave town was it?} \\
& \text{e. *How stupid to leave town was it of Bill?}
\end{align*}

On the other hand, the infinitival clause in the eager type has the option of either pied-piping with AP, or remaining in situ, as shown in (38b,c), respectively.

\begin{align*}
\text{(38)} \quad & \text{a. John is eager to succeed in the examination.} \\
& \text{b. How eager to succeed in the examination is John?} \\
& \text{c. How eager is John to succeed in the examination?}
\end{align*}

To account for the fact, our analysis relies crucially on the assumption that a degree expression like how is adjoined to APs and only lexical APs can be fronted in \(wh\)-question (cf. Komachi 2005). Hence, (37b-e) have the structure of (39).

\begin{align*}
\text{(39)} \quad & \text{[CP[AP\text{How}[AP A DP[-c+m]]]...[\text{AP}^{-}\text{InP[+c]}][\text{AP}\text{How}[AP A DP[-c+m]]]]]}
\end{align*}

As shown in (39), an infinitival clause cannot be pied-piped with AP via \(wh\)-movement, because it is in Spec, \(\text{[Spec,}\)

\(\text{aP]}\) rather than in lexical AP. Furthermore, our proposal can account for the fact in (37b,c) that the if phrase can be both pied-piped and stranded, because of the two copies of AP including the if phrase. If all the constituents in AP are pronounced in its superficial position in which they end up after \(wh\)-movement, then the if

\(^8\) An anonymous reviewer points out that we should compare our analysis with Bennis's (2000, 2004) analysis and Landau's (2009) analysis and make it clear why our approach is more desirable than theirs. We leave this issue for future work.
phrase is pied-piped with AP, as schematized in (40).

\[(40) [CP[AP How[AP A DP[-c+m]]] \ldots [\alpha \text{InfP}[+c]]1[\alpha' \alpha[AP How[AP A DP[-c+m]]]]]\]

Our analysis has assumed that the small \(\alpha\) head has an EPP feature optionally. This assumption enables DP to move to [Spec, \(\alpha\)P]. The higher copy is spelled out and the lower one is deleted, as shown in (41).

\[(41) [\alpha \text{DP[-c+m]}] [\alpha \text{InfP}[+c]]1[\alpha' \alpha[AP How[AP A DP[-c+m]]]]]\]

Then, the movement of AP to [Spec, CP] takes place and creates two copies of the lower one of which is deleted.

\[(42) [CP[AP How[AP A DP[-c+m]]] \ldots [\alpha \text{DP[-c+m]}] [\alpha \text{InfP}[+c]]1[\alpha' \alpha[AP How[AP A DP[-c+m]]]]]\]

This configuration derives an example like (37c), where the of phrase appears to be stranded. In addition, if the \([-c+m]\) argument in (42) undergoes further movement to specifier of TP at the stage of the derivation where T is merged because of an EPP feature of T, (43b) is derived.\(^9\)

(43) a. Bill was stupid to leave town.
    b. How stupid was Bill to leave town?
    c. *How stupid to leave town was Bill?

(Stowell (1991: 125-126))

In the above discussion, we have seen the derivation of the marked entry in how question sentences, as shown in (44a). Next, we will discuss the derivation of the reduced marked entry in how questions, as shown in (44b).

\[(44) \alpha \text{DP[+c]}_1[\alpha' \alpha[AP rude DP[-c+m]]] \quad \text{(the derivation of the marked entry)}\]

\[\alpha \text{DP[-c+m]}[\alpha' \alpha[AP rude DP[-c+m]]] \quad \text{(the derivation of the reduced marked entry)}\]

The \([-m]\) argument in (44b) occupies the same position as the \([-c+m]\) argument in (44a). That is to say, they are in the same configuration relation. On the above line of reasoning, our analysis of the pied-piping will make the first prediction in the derivation of (44b): the \([-m]\) argument should be pied-piped, because the two copies of AP appear in the derivation and the lower one is deleted. This prediction is borne out by the data in (45b).

\[(45) \alpha \text{DP[-c+m]}[\alpha' \alpha[AP rude DP[-c+m]]] \quad \text{(the derivation of the reduced marked entry)}\]

\[\alpha \text{DP[-c+m]}[\alpha' \alpha[AP rude DP[-c+m]]] \quad \text{(the derivation of the marked entry)}\]

b. How rude to Mary was John?

The second expectation is that the \([-m]\) argument should be stranded. This is because the \([-m]\) argument in (44b) may be moved to [Spec, \(\alpha\)P] by an optional EPP feature in the small \(\alpha\) head, as shown in (46).

\[(46) \alpha \text{DP[-c+m]}_2[\alpha \text{DP[-c+m]}[\alpha' \alpha[AP How[AP A DP[-c+m]]]]]\]

This movement prevents it from being pronounced with the other constituents in AP. In the subsequent derivation, AP moves to [Spec, CP] and the two copies are generated. Then, the lower one of them is deleted, as illustrated in (47).

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\(^9\) I would like to express my gratitude to an anonymous reviewer for bringing these sentences to my attention.
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(47) \[ \text{CP}_A \text{AP} \text{How} \text{[AP A DP}_{[-m]2}] \ldots \text{[ap DP}_{[-m]2} \text{[ap DP}_{[-c + m}] \text{[\text{ap AP}} \text{How}[\text{AP A DP}_{[-m]2}]]) \]

This prediction is supported by the data in (48).

(48) How rude was John to Mary?

So far, we have shown the (in)ability to pied-pipe the infinitival clause and the of phrase in the rude type.

(49) \[ \text{CP}_A \text{AP} \text{How} \text{[AP A InfP}_{[-m]2}] \ldots \text{[ap DP}_{[-c + m}] \text{[\text{ap AP}} \text{How}[\text{AP A InfP}_{[-m]2}]) \]

As a result, the derivation has the two copies of AP. (38b) is derived if all the constituents in AP are uttered in its landing site, and the original copy is deleted, as illustrated in (50).

(50) \[ \text{CP}_A \text{AP} \text{How} \text{[AP A InfP}_{[-m]2}] \ldots \text{[ap DP}_{[-c + m}] \text{[\text{ap A How}} [\text{AP A InfP}_{[-m]2}]) \]

Next, we consider how our analysis derives the case like (38c) where InfP is stranded. Note that we have assumed an optional EPP feature in the small a head which makes DP move to [Spec, aP], as depicted in (51).

(51) \[ \text{ap InfP}_{[-m]2} \text{[aP DP}_{[-c + m}] \text{[\text{ap A How}} [\text{AP A InfP}_{[-m]2}]) \]

The higher copy in (51) is spilled out and the lower one is deleted. In the subsequent derivation, AP undergoes movement to Spec of CP and the deletion operation applies to its lower copy, as schematized in (52).

(52) \[ \text{CP}_A \text{AP} \text{How} \text{[AP A InfP}_{[-m]2}] \ldots \text{[ap InfP}_{[-m]2} \text{[aP DP}_{[-c + m}] \text{[\text{ap A How}} [\text{AP A InfP}_{[-m]2}]) \]

The derivation in (52) keeps InfP from being pronounced with the other constituents in AP. Thus, our analysis can account for the data like (38c) where InfP is stranded.

If the above argument is on the right track, we will make a further prediction. We have argued that the [-m] cluster in the eager type of adjective can be realized not only as an infinitival clause but also as a for phrase. Hence, when the infinitival clause is replaced with the for phrase, the phrase should be both pied-piped and stranded, too. This prediction is borne out by the data in (53).

(53) a. How eager for that was John?
   b. How eager was John for that?

4.2. Nominalization

Each type of adjective has a difference with respect to nominalization, as observed by Yasui et al. (1976) and Landau (2009), among others. On the one hand, if the rude type of adjective is nominalized, it cannot directly select an infinitival clause, as shown in (54b). Instead, the infinitival clause is replaced with an adverbial phrase like (54c).

(54) a. To punish the dog was clever of John.
   b. *the cleverness of John to punish the dog
   c. the cleverness of John in punishing the dog

On the other hand, in nominalizing the eager type of adjective, it directly selects an infinitival clause, as shown in (55b).

(55) a. Bill is eager to go there.
   b. Bill's eagerness to go there
We can account for this fact by assuming that the argument marked with 1, if any, is absorbed and the adjunct clause is used as a substitute for it when the adjective is nominalized (cf. Grimshaw 1990). In the rude type of adjective in (54b), the infinitival clause, which is marked with 1, is absorbed when the adjective is nominalized, so that it cannot directly select the infinitival clause. In contrast, (54c) is grammatical, because the adjunct clause is used as a substitute for the argument. In the eager type adjective in (55b), the infinitival clause is an internal argument and then is not absorbed when the adjective is nominalized, hence it can be selected directly by the adjective.

4.3. Extraction from Infinitival Clauses

In section 3, we have shown that the infinitival clause in rude type adjectives is in specifier of aP, while the one in eager type is in complement of AP. To determine complement versus noncomplement status, we can use island effects (such as CED effects, in the sense of Huang 1982). Stowell (1991) observed that extraction from complements is generally better than that from noncomplements: extraction of direct object NP is fine in both cases, but extraction of PPs and adjuncts from noncomplements is typically excluded as shown in (56) and (57).

(56)  
\begin{enumerate}
\item Who is John eager [to talk to ti]?
\item To whom, was John eager [to talk ti]?
\item When, was John eager [to eat dinner ti]?
\end{enumerate}

(Stowell (1991: 123))

(57)  
\begin{enumerate}
\item Who was it stupid of John [to talk to ti]?
\item Who was John stupid [to talk to ti]?
\item %Who? To whom, was it stupid of John [to talk ti]?
\item %Who? To whom, was John stupid [to talk ti]?
\item %When, was it stupid of John [to eat dinner ti]?
\item %When, was John stupid [to eat dinner ti]?
\end{enumerate}

In (56), the infinitival complement of eager type adjectives freely allows all kinds of extraction. In contrast, that of rude type adjectives behaves unlike a true complement. The status of (56) and (57) supports our contention that the former infinitival clause is in a complement position, while the latter occupies a noncomplement position.

5. Conclusion

In this paper, following the theta system proposed by Reinhart (2002), we have proposed each argument structure for rude and eager types. The proposed single entry of the rude type yields two derived entries: one is the marked entry that results from the lexicon marking rule. The other is the reduced marked entry derived from the marked entry by the reduction operation. On the basis of these entries, the CS merging instructions build up different syntactic structures. Therefore, the rude type of adjective allows different argument realizations. In contrast, the eager type can only derive a single marked entry by the application of the lexicon marking. This type is not subject to the reduction operation because of the lack of the [+c] cluster. Thus, according to this single marked entry, the CS merging instructions generate a single syntactic structure for the eager type.

Furthermore, we have shown that the rude type of adjective is different from the eager type of adjective with respect to the position where an infinitival clause merges. In the former, it merges in the external position, while in the latter, it merges in the internal position. On the basis of this difference, we have accounted for the additional syntactic difference in the (in)ability to pied-pipe an infinitival clause, the nominalization process, and the possibility of extraction.

Works Cited


