

# Noun Phrase Modifications by Adverb Clauses\*

KANETANI Masaru

## 1. Introduction

This article is concerned with anomalous modifications of a noun phrase (NP) by an adverb clause, as indicated by the underlined phrases in (1a, b):

- (1) a. I am indebted to many students whose reactions and ideas when this material has been presented have led to quite substantial modifications. (Google)
- b. Similarly, what is one to make of the testimony of T. Shelling ..., in which he discusses the two great dangers if all Asia “goes Communist”?

(cited in McCawley 1998:419f.)

In (1a), the NP *whose reactions and ideas* is modified by the adverbial *when*-clause. Likewise in (1b), the NP *the two great dangers* is modified by the *if*-clause. Canonically, nominals should be modified by adjectivals, not by adverbials. The above examples deviate from the norm; nevertheless, the anomalous modifications are accepted.

It should be noted that not all NPs may be modified by an adverb clause and that not all adverb clauses may modify an NP. For example, Ross (2004) observes that *before*-, *after*-, *because*-, *if*-, *when*-, and *while*-clauses may modify a derived noun (e.g. (2a)), but *unless*-, [reason] *since*-, (*al*)*though*-clauses may not (e.g. (2b)).<sup>1</sup>

- (2) a. ??His destruction of the fortune cookie before he read the fortune is to be regretted.
- b. \*His drive to the hospital, though he was in pain, was incred-

ible.

(Ross 2004:417)

The adverb clauses used in (1a, b) are introduced by *when* and *if*, respectively; hence, Ross's generalization accounts for the grammaticality of (1a, b) as well. Actual examples with adverb clauses that Ross considers grammatical may also be found, as shown in (3a-c):

- (3) a. Below the surface ran a current of intrigue that ended with the assassination of Abraham Lincoln *because* he was determined that the United States be free from the bondage of the international bankers.
- b. The destruction of the adversary's body balance *after* he has been subtly off-balanced, psychologically, is a fundamental of judo.
- c. JFK's inspiration and idealism, and then his assassination while I was a graduate student at Cal, were among the reasons I joined the Peace Corps.

(Google)

In (3a-c), the underlined NPs are modified by the *because*-clause, the *after*-clause, and the *while*-clause, respectively.

The present article offers a descriptive generalization that may account for the modification of an NP by an adverb clause and shows its validity. The organization of the article is as follows. Section 2 critically reviews McCawley's (1998) and Fu et al.'s (2001) analyses. Section 3 proposes an alternative analysis and section 4 makes concluding remarks.

## 2. Previous Studies

### 2.1. McCawley (1998)

McCawley (1998) takes adverb clauses as PPs for the following two reasons. A first reason is that adverb clauses have the same syntactic distribu-

tions as PPs. Consider the following examples:

- (4) a. {Before the football game / Before he left for London}, John looked sad.  
 b. ??John {before the football game / before he left for London} looked sad.  
 c. The outcome {under those circumstances / if John refuses our offer} is unpredictable.

(McCawley 1998:196)

Both a PP and an adverb clause can pre-modify a clause (e.g. (4a)); neither of them can be a pre-modifier of a VP (e.g. (4b)); both of them can post-modify an NP (e.g. (4c)). The other reason comes from the paraphrasability of an adverb clause with a PP (e.g. *while you were singing*  $\approx$  *during your singing*).

For these reasons, McCawley treats adverbial subordinate clauses as prepositional phrases, i.e. prepositions with a sentential object. Based on the fact that PPs in general may modify both a VP and an NP, he concludes that adverbial subordinate clauses, i.e. PPs, may modify NPs as well as VPs, as observed in (1) and (3) above. In contrast, according to McCawley, since adverbs (generally) cannot modify NPs, pure adverbs like *viciously*, as in (5), cannot modify an NP:

- (5) \*His attack on you viciously left me speechless.

(McCawley 1998:409)

There are at least three problems with McCawley's analysis. First, as Ross (2004) observes, not all adverb clauses may modify an NP. Consider example (2b), repeated here as (6):

- (6) \*His drive to the hospital, though he was in pain, was incredible.  
 (= (2b))

If McCawley's analysis were correct, the *though*-clause as used in (6) should

also count as a PP, and hence, the sentence should be grammatical, but it is not (cf. Ross 2004:416).

Second, not all NPs may be modified by an adverb clause. An NP like *the mammal* may not be modified by an *if*-clause, as in (7):

- (7) \*The mammal if that's a mouse must be smaller than the mammal if that's a dog.

(Shizawa 2009:259)

Note that Ross (2004) includes an *if*-clause as a possible modifier of an NP, and so the ungrammaticality of sentence (7) should be attributed not to the type of adverb clause but to the type of modified NP. If, as McCawley claims, the *if*-clauses in (7) were PPs and could be modifiers of the NPs for this reason, the sentence should be grammatical. The prediction, however, is not borne out. Thus, we need an alternative account.

Third, by contrast to McCawley's observation, *-ly* adverbs *can* modify an NP, as shown in (8):

- (8) a. Kim's explanation of the problem to the tenant thoroughly (did not prevent a riot).  
 b. The occurrence of the accident suddenly (disqualified her).

(Fu et al. 2001:549)

In (8a, b), the adverbs *thoroughly* and *suddenly* modify the NPs, respectively, and according to Fu et al. (2001), the sentences are acceptable. McCawley's analysis cannot handle these examples and amendments are necessary to be made.

## 2.2. Fu et al. (2001)

Fu et al. (2001), who consider examples (8a, b) grammatical, postulate a structure for what they call "process nominals" as in (9) and account for why certain NPs may be modified by certain adverbials.

- (9)  $[_{DP} D [_{NP} (adj) [_{NP} V_i\text{-suf} \cdots [_{VP} adv. [_{VP} t_i \cdots]]]]]$   
 (adapted from Fu et al. 2001:563)

The structure in (9) shows that a process nominal (e.g. *arrival*) is derived by the head movement, in which the VP head (e.g. *arrive*) in an underlying structure is raised to the NP head and adjoins to the nominal suffix *-suf* (e.g. *-al*). Thus, according to Fu et al., adverbials that may modify the VP within the underlying structure appear in the surface structure as well and look as if they modify the DP. Their proposal is based on the following facts. First, when an adjective and adverb co-occur within the same DP, they appear in the configuration specified in (9) and the meanings are different in accordance with which order they appear in. Observe the following examples:

- (10) a. his careful destruction of the documents immediately  
 b. his immediate destruction of the documents carefully  
 (Fu et al. 2001:564)

In (10a, b), the adjectives *careful* and *immediate* appear between the determiner and noun; the adverbs *immediately* and *carefully* appear as an adjunction to the VP. Fu et al. observe that their interpretations are different.

Second, as shown in (11a, b), manner adverbs (e.g. *thoroughly*) may modify a process nominal but sentence adverbs (e.g. *fortunately*, *presumably*) may not:

- (11) a. Her explanation of the problem {thoroughly/\*fortunately} to the tenants...  
 b. She explained the problem {thoroughly/\*presumably} to the tenants.

(Fu et al. 2001:556)

The reason for this contrast is that manner adverbs adjoin to a VP while sentence adverbs do not adjoin to a VP, but to a higher functional category.

In sum, Fu et al. argue that process nominals may be modified by man-

ner adverbs because they have a VP within the structure. There are two empirical problems with their analysis. First, it cannot account for the modifiability of NPs headed by non-deverbal nouns as in (12a-c):

- (12) a. And if we had problems, imagine the difficulties if 20,000 supporters arrive for the World Cup... (BNC)
- b. ...he discusses the two great dangers if all Asia “goes Communist”?  
(= (1b))
- c. ?The storm after you left was terrifying. (Ross 2004:417)

The noun *difficulties* used in (12a) is derived from the adjective *difficult*. The head nouns that are modified by the *if*- and *after*-clauses in (12b, c) are non-derived nouns. Hence, it is difficult to assume that these NPs have a VP within their structures. An explanation based on the structure in (9) would fail to account for why such non-deverbal nouns may be modified by adverbials as well.

Second, even in the combination of the same noun phrase and adverb clause, the acceptability is different according to the interpretation of the noun phrase. Ross (2004:fn.117) notes that example (13a) is far superior to example (13b) “especially when *criticism* has the reading not of an event, but of something that has been written.”

- (13) a. ??His destruction of the fortune cookie *before* he read the fortune is to be regretted.
- b. ?\*his criticism of the book *before* he read it

Thus, for Ross, the acceptability of (13b) will be different as to whether the head noun is construed as an event or as a thing. Fu et al.’s explanation could not account for this fact, however, since no information about the difference in construal can be gained from the structure that they propose (= (9)).

### 3. Proposal

In section 2, we overviewed previous studies and pointed out some problems. In this section, as an alternative, I will maintain a semantic generalization as follows:

- (14) NPs that convey sentence-like meanings may be modified by sentence adjuncts.

In the following subsections, I will closely investigate the modified and modifying elements stated in (14). Section 3.1 observes what is meant by “NPs that convey sentence-like meanings,” and section 3.2 discusses why the modifier should be restricted to “sentence adjuncts.” Lastly, section 3.3 handles the problems pointed out in the previous section.

#### 3.1. On the Modifiee: NPs with Sentence-Like Meanings

This subsection presents a more fine-grained description about the modifiee in the generalization proposed in (14) above. Specifically, I will define what “sentence-like meanings” are in terms of Nakau’s (1994) hierarchical semantic model. Nakau describes the structure of a sentence meaning as follows:<sup>2</sup>

- (15) [D-Mod [S-Mod [<sub>PROP4</sub> POL [<sub>PROP3</sub> TNS [<sub>PROP2</sub> ASP [<sub>PROP1</sub> PRED (ARG<sub>1</sub>, ARG<sub>2</sub>, ... ARG<sub>n</sub>)]]]]]] (adapted from Nakau 1994:15)

As shown in (15), according to Nakau, there are four strata of propositions (i.e. PROP1-PROP4). The most basic level (i.e. PROP1), which Nakau calls “the core proposition,” consists only of the combination of the predicate and its argument(s), over which propositional operators such as aspect, tense, and polarity, are added, yielding more complex, composite propositions (i.e. PROP2-PROP4). Then, the PROP4, the combination of all the propositional operators over the core proposition, functions as the operand to S-MOD, the speaker’s mental attitude towards the proposition. The topmost operator

D-MOD further takes its scope over the combination of S-MOD and PROP4 and restricts the speaker's mental attitude towards the utterance (for more details, see Nakau (1994)). To see how this works, let us take sentence (16) for example:

(16) He destroyed the fortune cookie.

Sentence (16) consists of the transitive verb *destroy* with the direct object *the fortune cookie* and the subject *he* as its arguments. As it also conveys information on aspect, tense, and polarity, this simple past affirmative sentence with modality unmarked may be said to express PROP4, which involves ASP, TNS, and POL operators.

Now, let us consider the following NP, derived from sentence (16) through nominalization:

(17) his destruction of the fortune cookie

The NP in (17) may seem to denote the same destroying event as sentence (16). A closer look, however, reveals that the NP conveys only partial information of what the corresponding sentence conveys. From NPs like (17), we can gain no information about tense, aspect, or polarity. To see this consider the following examples:

- (18) a. [The destruction of Israel *in future*] may be a reality.  
       b. [The *present* destruction of the world] reveals itself as the refusal to accept our technology of life.  
       b. [The destruction of nests *last year*] had greatly reduced the infestation...

(Google)

In (18a-c), the noun-object combinations co-occur with the time expressions *in future*, *present*, and *last year*, respectively. These NPs thus describe certain destroying events that will occur in future, that continue in the present,

or that occurred in the past. An attempt to combine notions such as tense or aspect with a noun phrase *per se* might not make sense, as they are elements marked on verbs, but the co-occurrence of the NP *the destruction of X* with those modifiers italicized in (18a-c) suggests that the NP describes no more detailed meaning than the core proposition, or PROP1.

From the discussion so far, we may say that as far as the present paper is concerned, “sentence-like meanings” in (14) may be identical -- and thus paraphrasable -- with “the core propositions.”

### 3.2. On the Modifier: Sentence Adjuncts

In the previous subsection, I proposed that an NP should convey the meaning equivalent to what Nakau (1994) calls the core proposition in order to be modified by an adverbial. The semantic restriction on the modifier described in (14) naturally follows from this semantic restriction on the modifiee. This subsection takes a close look at the restriction on modifiers, focusing on why the modifiers should be limited to sentence adjuncts.

Quirk et al. (1985) divide adverbials into *adjuncts* (to be divided further into *predication adjuncts* and *sentence adjuncts*) and *disjuncts* (to be divided further into *content disjuncts* and *style disjuncts*), noting that “adjuncts denote circumstances of the situation in the matrix clause, whereas disjuncts comment on the style or form of what is said in the matrix clause (style disjuncts) or on its content (content or attitudinal disjuncts) (p. 1070).”<sup>3</sup> That is, adjuncts are elements within a proposition whereas disjuncts comment on it from outside. More specifically, content disjuncts and style disjuncts virtually correspond to Nakau’s S-Mod and D-Mod, respectively.

Recall Nakau’s hierarchical semantic model in (15), repeated here as (19):

$$(19) [D-Mod [S-Mod [_{PROP4} POL [_{PROP3} TNS [_{PROP2} ASP [_{PROP1} PRED (ARG_1, ARG_2, \dots, ARG_n)]]]]]] \quad (= (15))$$

As shown in (19), according to Nakau (1994), S-Mod takes PROP4, and D-Mod, the combination of S-Mod with PROP4, as their operands. As discussed

in the previous subsection, the propositional meaning that an NP may convey is hierarchically as low as PROP1. Therefore, disjuncts (either content or style), as elements of modality, may not modify an NP, whereas sentence adjuncts, as propositional elements, may modify such an NP.

Let us recall Ross's (2004) intuitions mentioned in section 1. His judgments are summarized in (20):<sup>4</sup>

- (20) a. ??derived N+*before*- / *after*- / *because*- / *if*- / *when*- / *while*-clauses  
 b. \*derived N+*unless*- / [reason] *since*- / (*al*)*though*-clauses  
 (adapted from Ross 2004:416)

Those adverbial subordinate clauses in the acceptable group (20a) are all sentence adjuncts and those in the unacceptable group (20b) are all disjuncts. Thus, the argument in the present subsection is compatible with Ross's judgments.

As is clear from the contrast in (20a) and (20b), a *because*-clause, but not a *since*-clause, may express a reason for the event denoted by an NP, though they are both adverbial subordinate clauses of reason. This fact can be straightforwardly accounted for in the present framework. As is well-known, a *because*-clause may function either as a sentence adjunct or as a disjunct, whereas a *since*-clause only functions as a disjunct (cf. Kanetani (2006), Nakau (1994), Sweetser (1990)).<sup>5</sup> Furthermore, a disjunct *because*-clause, like a *since*-clause, is predicted not to be able to modify an NP. This prediction is borne out:

- (21) a. ?[God's destruction of Sodom *because* homosexuality is a sin] is widely known.  
 b. \*[God's destruction of Sodom *because* the Bible tells so] has been studied widely.

The *because*-clause in (21a) is a sentence adjunct that expresses a reason why the God destroyed Sodom. The one in (21b), on the other hand, is a disjunct that provides a premise from which to draw the conclusion that the

God destroyed Sodom. From the contrast in (21a, b), we can say that only adjunct *because*-clauses may modify an NP, although Ross simply includes a *because*-clause in the acceptable group (= (20a)). Therefore, the modifiers should be sentence adjuncts, as generalized in (14).<sup>6</sup>

### 3.3. Solutions to the Problems

In this subsection, I show how the proposed analysis handles the problems with McCawley (1998) and Fu et al. (2001), which I pointed out in section 2. The issues are summarized in (22) and (23), for the sake of convenience.

(22) McCawley's adverb-clause-as-prepositional-phrase analysis:

- a. wrongly predicts that all adverb clauses may modify an NP;
- b. wrongly predicts that all NPs may be modified by an adverb clause;
- c. wrongly rules out modifications by *-ly* adverbs.

(23) Fu et al.'s VP-within-process-nominal analysis:

- a. wrongly predicts that non-deverbal nouns are not modifiable;
- b. has difficulty accounting for different acceptabilities due to different interpretations of a noun phrase.

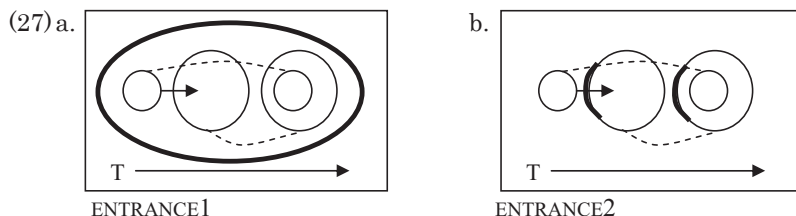
Of the problems above, those in (22a, b) and (23a) may be automatically solved by the generalization in (14); we need no further explanation about them.<sup>7</sup> In the remainder of this subsection, I will show how the problems in (22c) and (23b) are accounted for by the proposed generalization.

First, as for (22c), McCawley's (1998:420) statement that "adverbs, which are not P's, are not possible in nominalizations (or in NPs in general)" is empirically insufficient. Modifications of an NP by *-ly* adverbs are possible, as the following examples suggest:

- (24) a. Her explanation of the problem {thoroughly/\*fortunately} to the tenants... (= (11a))
- b. She explained the problem {thoroughly/\*presumably} to the



tional shift is alternations of a word between noun and verb with no explicit derivational morphemes. The word *sneeze*, for example, may be used either as a noun (e.g. *that was a loud sneeze*) or as a verb (e.g. *he sneezed loudly*). Farrell proposes an analysis that the noun/verb distinctions of these words are in essence underspecified. According to Farrell, what the root lexemes include is event schemas that are compatible with either thing or process meanings (hence, no category-changing rule to convert from one category to another is necessary); the morphosyntactic slots in which they appear supply the process meaning of the verb and the thing meaning of the noun. That is, Farrell takes the noun/verb distinction as different profilings of the same image schema (also cf. Langacker (1987)). Likewise, multiple interpretations of a derived noun like *entrance* can be taken as different profilings of an event image schema. On the other hand, when used in a sentence like *his entrance caused a stir*, the same noun “can be said to profile the abstract region defined by the interconnected states of the process... [and] designates the entering event conceived of as a thing (Farrell 2001:113).” The noun, as used in *the entrance was blocked*, on the other hand, “designates the part of the goal through which the moving participant in the enter schema moves, which is a bounded region in the domain of space -- a more prototypical thing (ibid.).” In terms of cognitive grammar, the two interpretations may be illustrated as (27a) and (27b), respectively:



(Farrell 2001:113)

Let us turn back to the modification of NPs by adverb clauses. As discussed above, the noun *criticism*, as in (25b), has two interpretations (i.e. the activity- and work-interpretations (cf. (26))). As with the noun *entrance*,

these two interpretations for *criticism* may be seen as two different ways of profiling of a single basic image schema. The noun *criticism* in (25a), by contrast, only has an activity-interpretation. Observe the following definition by OALD<sup>8</sup>:

- (28) destruction: *the act of destroying sth; the process of being destroyed.*  
(OALD<sup>8</sup>)

In this connection, we may say that the NP modified by an adverb clause, or the NP that conveys a core proposition, should be headed by a noun that (potentially) designates an event conceived of as a thing, i.e. a noun with a potential profiling of entrance1-type. Recall that Ross (2004:fn.117) notes that example (25a) is far superior to example (25b) “especially when criticism has the reading not of an event, but of something that has been written.” Thus, Ross’s intuition can be interpreted as follows: Whereas the noun *destruction* can be modified by the *before*-clause as unambiguously designating an activity, the noun *criticism* can be modified by the *before*-clause only when it designates an activity of writing; but it cannot when it designates a written work.<sup>8, 9</sup>

#### 4. Conclusion

In this article, I investigated the modification of NPs by adverb clauses, a non-canonical modification from a prescriptive point of view. After pointing out some problems with previous studies, I proposed the generalization in (14) as an alternative. By contrast to the previous morphosyntactic accounts (e.g. McCawley 1998, Fu et al. 2001), the generalization proposed here is based on semantic properties of the modifying and modified elements, and it successfully gives accounts to the problems mentioned above. For example, it can account for the fact that not only adverb clauses but also some *ly*-adverbs may modify an NP. Given this, I suggested that the proposal could be extended to the modification of NP by adverbial in general. The generalization in (14) can also handle the difference in acceptability of the modification

of an NP with multiple interpretations.

In this article, however, I did not answer questions such as why such a non-canonical modification is possible at all and what motivates its use. Dealing with these questions is beyond the scope of the present article, and I will discuss them elsewhere.<sup>10</sup>

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## Notes

- \* The present article is a revised English version of my (2012) paper entitled “Fukushisetsu niyoru Meishiku no Shuushoku,” which appeared in *Eigo Goho Bumpo Kenkyu* Vol. 19. For useful comments on an earlier draft of the present paper, I thank Yukio Hirose. This research is supported in part by a Grant-in-Aid for Young Scientists (B) (25770183) and in part by a Grant-in-Aid for Scientific Research (B) (24320088).
- 1 As Ross puts “??” on sentence (2a) and “\*” on sentence (2b), his judgments are so subtle that it is difficult to tell how good sentence (2a) is in comparison with sentence (2b). Ross (2004:fn.417), however, comments that sentence (2a) is “far superior [to a worse example to be discussed later (= (13b))],” suggesting its acceptability. An informant also considers sentence (2a) acceptable. For these reasons, I take sentences on which Ross put “??” as acceptable (i.e. not ungrammatical).
  - 2 The abbreviations used below are as follows: D-Mod = discourse modality; S-Mod = sentence-modality; PROP1-4 = propositions1-4; POL = polarity; TNS = tense; ASP = aspect; PRED = predicate; ARG<sub>1-n</sub> = arguments selected by PRED.
  - 3 Strictly speaking, in addition to adjuncts and disjuncts, according to Quirk et al. (1985), there are conjuncts and subjuncts, but such classifications are not necessary for the current discussion, and for this reason, details are not discussed here. For details, see Quirk et al. (1985:1068ff.).
  - 4 Note that the modified element should not be restricted to “derived N,” but should be NPs that convey propositions, as we discussed in section 3.1.
  - 5 The distinction of sentence adjuncts vs. disjuncts has been treated in various ways by different researchers, e.g. restrictive vs. non-restrictive adverb clauses (Rutherford 1970), content vs. epistemic adverb clauses (Sweetser 1990), and propositional vs. modal elements (Nakau 1994). Of course, these notions do not completely correspond to one another, but for the sake of the present argument, their differences are not so important.
  - 6 In section 2.1, I pointed out that McCawley’s (1998) analysis of viewing adverb clauses as prepositional phrases is not plausible. It should be noted, however, that the present argument in part supports McCawley’s claim. Recall that his argument is supported in part by the existence of PPs that are semantically equivalent to adverb clauses, e.g. *while you were singing*  $\approx$  *during your singing* (see section 2.1). In this connection, Rutherford (1970) observes that restrictive adverb clauses, but not non-restrictive ones, may be paraphrased into PPs, as the following contrast shows:
    - (i) a. He’s not coming to class because of his sickness.
    - b. \* He’s not coming to class, because of his having just called from San

Diego.

(Rutherford 1970:105)

In other words, sentence adjuncts have corresponding PP expressions, but disjuncts do not (cf. fn. 5). The absence of the PP counterparts to disjuncts leads us to suspect that by saying adverb clauses, McCawley, if not explicitly, could mean only sentence adjunct type adverb clauses. If so, those adverb clauses that McCawley observes modify NPs will be narrowed to sentence adjuncts; his observation will be compatible with the present argument.

- 7 Yukio Hirose (personal communication) has pointed out that it is not clear how the generalization in (14) can account for the grammaticality of examples like (12a-c), whose head nouns do not seem to convey sentence-like meanings. Dictionary definitions of these head nouns are respectively as follows:

- (i) difficulty: a thing or situation that *causes problem* (OALD<sup>8</sup> [italics are mine])
- (ii) danger: the possibility that *something bad will happen* (OALD<sup>8</sup> [italics are mine])
- (iii) storm a period of very bad weather when *there is a lot of rain or snow, strong winds, and often lightning* (LDOCE<sup>5</sup> [italics are mine])

As the italicized phrases in the above definitions indicate, the head nouns used in (12a-c) can be said to convey sentence-like meanings in a manner that implies some eventuality. In other words, the italicized parts of their meanings could be foregrounded in the construction (for an argument for specialized meanings of words in specific constructions, see, for example, Nunberg et al. 1994). Thus, the generalization in (14) holds for examples such as those in (12a-c), as well. Incidentally, Kanetani (2012) accounts for their grammaticality in terms of the partial productivity of constructions (cf. Suttle and Goldberg 2011), or analogical extensions from more basic instances of the construction, i.e. those with a deverbal noun (phrase) modified by a sentence adjunct. See Kanetani (2012) for details.

- 8 Ross's intuition that the acceptability of (25a) is still better than that of (25b) may be explained as follows. In addition to the polysemous nature of *criticism* in (25b) (work vs. activity), the NP *his criticism of the book* appears with no context in (25b). That is, with no context, the noun (phrase) itself is neutral, or ambiguous, in construal: either thing-construal or process-construal is possible. Therefore, its potential thing-construal may prevent the NP from being modified by an adverb clause.
- 9 The unacceptability of sentence (7), for example, may be accounted for in the same way. The example is repeated here as (i):

- (i) \* The mammal if that's a mouse must be smaller than the mammal if  
that's a dog. (= (7))

LDOCE<sup>5</sup> gives the following definition to the noun *mammal*: “a type of animal that drinks milk from its mother’s body when it is young. Humans, dogs, and wales are mammals.” That is, the noun *mammal* simply denotes a kind of animal; under no circumstances does the noun designate a process. Hence, sentence (i) is not acceptable (cf. also Shizawa (2010) for an alternative account of the unacceptability of sentence (i)).

- 10 For example, Kanetani (2012) analyzes the phenomenon from a construction grammar perspective.