

On Nominal Complements And Adjuncts

Nancy Hedberg and Richard C. DeArmond
Simon Fraser University

1 Secondary Complements

In DeArmond and Hedberg (1998) we showed there exists a distinction between primary and secondary complements of the verb; these complements are distinct from adjuncts. In this paper we will show that there is a similar distinction between primary and secondary complements of nouns.

Adjuncts are modifiers of the constituent to which they are adjoined, while complements are arguments of a lexical head. Primary complements are arguments of the integral meaning of the head. Secondary complements are arguments assigned by a lexical feature incorporated into the head. For example the agent is an argument of CAUSE as in (1b):

- (1) a. The window broke. BREAK <patient> (semelfactive)
- b. Leslie broke the window. BREAK+CAUSE <<patient> agent>
 (accomplishment)

Logically in (1b), the agent *Leslie* receives its theta role from CAUSE, which underlies the transitive verb. When the intransitive verb incorporates CAUSE forming the transitive verb, the verb is then seen as taking the theta role agent as in (1b), instrument as in (2a), and benefactive as in (2c) through the lexical feature CAUSE as in (2)

- (2) a. Leslie broke the window with a rock. (instrument)
- b. *The window broke with a rock.
- c. Leslie broke the window for her brother. (benefactive)
- d. *The window broke for her brother.

These arguments, which we call secondary complements, have somewhat different properties from primary complements. This distinction was the topic of our 1998 paper. This differentiation, we claim, is due to the fact that the agent, instrument, and benefactive are not assigned by the integral meaning of such lexical features as BREAK. They are assigned by the integral meaning of such lexical features as CAUSE.

In noun phrases post-nominal adjuncts may occur in the form of a PP. If the PP can be replaced with a relative clause with no change in lexical meaning, they are adjuncts as in (3):

- (3) a. The book on the table is red.
- b. The book which is on the table is red.

Complements cannot be replaced with a relative clause with no change in lexical meaning as in (4b):

- (4) a. The basket of tomatoes looks appetizing.
- b. *The basket which is of tomatoes looks appetizing.

There are other tests for post-nominal adjuncts, but each has a limited range.

The pseudo-cleft test and other tests differentiate primary and secondary complements of the verb. When *break* is an accomplishment verb, an instrument is possible. Only the instrument, a secondary complement, can occur in the post-auxiliary-verb position in a pseudo-cleft construction as in (5a):

- (5) a. What Leslie did with a hammer is break the window.
- b. *What Leslie did the window is break with a hammer.

We return to this topic below. These and other related tests function as good tests for the distinction between primary and secondary complements in the verb. However, the pseudo-cleft test and related tests such as VP-preposing are not available for noun phrases.

1.1 Prenominal Complement Test

In NPs, however, instruments, which we claim are secondary complements, cannot occur in prenominal position unlike primary complements in compounds of the following sort as in (6):

- (6) a. Hunting of bears with pistols is illegal.
- b. Bear hunting with pistols is illegal.
- c. *Pistol hunting (of bears) is illegal.
- d. *Pistol bear hunting is illegal.
- e. **Bear pistol hunting is illegal.

Bears is the theme and *pistols* is the instrument. Example (6e) seems worse than either (6c) or (6d). This may be because there is only one prenominal position for complements.

The same holds true for agents and benefactives, which we have claimed are also secondary complements. The examples in (7) illustrate agents:

- (7) a. *Hunter shooting of bears (with pistols) is illegal.
- b. (*) Hunter shooting is illegal.

(7a) is unacceptable because *hunter* can be interpreted only as an agent; it cannot be interpreted as a goal. (7b) is acceptable if *hunter* is the goal, but not if it is an agent. The examples in (8) illustrate benefactives:

- (8) a. The hunter shot a bear for a buddy.
- b. The shooting of a bear for a buddy is disgusting.
- c. *The buddy shooting of a bear by the hunter is disgusting.

Purpose clauses are also secondary complements as in (9):

- (9) a. The hunter shot a bear for \$50.
- b. The shooting of a bear for \$50 by the hunter is not condoned.
- c. (*)The \$50 shooting of a bear by the hunter is not condoned.

Note that (9c) is acceptable if \$50 refers to the cost of the shooting, not the purpose. In this case \$50 is an adjunct as in (10):

- (10) The shooting of the bear by the hunter, which was for \$50, was not condoned.

However, adjuncts may occur before the prenominal complement position as in (11):

- (11) a. The student of physics at McGill
- b. The McGill student of physics
- c. The McGill physics student.

Example (11c) is interesting, since it shows both a prenominal adjunct position and the prenominal complement position. The complement must be closer to the head; the same ordering constraint holds elsewhere as in (12):

- (12) a. *The physics McGill student
- b. The MIT English teacher
- c. (*)The English MIT teacher.

(12c) is acceptable if *English* is a modifier of *teacher*--the teacher who is English, but it is not acceptable if *English* is an complement of *teacher*--the subject that he teaches.

1.2 Predicate Separation Test

Another test for secondary complements is the predicate separation test.¹ In the predicate separation test an adjunct or a secondary complement may occur in the predicate position of a copular construction as in (13) and (14):

- (13) a. The book on the table is green. (PP = adjunct)
- b. The book is on the table.
- (14) a. The destruction of the city with bombs was deplorable.
- b. The destruction of the city was with bombs. (PP = secondary complement)

A primary complement cannot occur in the predicate position as in (15):

- (15) *The destruction with bombs was of the city.

Thus, the predicate separation test differentiates primary and secondary arguments, but it does not differentiate secondary arguments from adjuncts.

1.3 Left Dislocation Test

¹. For this test and following test, we are grateful to Nathalie Schapansky who suggested them.

A left dislocated NP may be coindexed with a primary or a secondary complement, but it is not easily coindexed with an adjunct. If the preposition head of the adjunct is retained the result is ungrammatical. If the preposition plus the resumptive pronoun is replaced with *there*, *then*, the result is questionable. If the adjunct is a manner adjunct, left dislocation is not possible as in (16):

- (16) a. As for the floor, John's painting it with the new brush in the morning failed to impress Mary.
b. As for the new brush, John's painting the floor with it failed to impress Mary.
c. As for the morning, John's painting the floor with the new brush (*in it) (??then) failed to impress Mary.
d. As for the new house, John's painting the floor with the new brush (*in it) (??there) failed to impress Mary.
e. *As for ease, John's painting the floor with the new brush with it failed to impress Mary.

1.4 The possessive NP Test

Agents and primary complements of the *open* class of verbs may be advanced to the determiner position of the noun phrase, but secondary complements and adjuncts may not as in (17c), (17d), and (18c):

- (17) a. The opening of the door with a pick at night startled Sam.
b. The door's opening with a pick at night startled Sam.
c. *A pick's opening of the door at night startled Sam.
d. *Night's opening of the door with a pick startled Sam.
- (18) a. The destruction of the city with a bomb by the enemy infuriated Milosevich.
b. The city's destruction with a bomb by the enemy infuriated Milosevich.
c. *The bomb's destruction of the city by the enemy infuriated Milosevich.

However, if the secondary complement may be advanced to the subject position in the verbal form, the same argument may be advanced to the determiner position in the NP as in (19):

- (19) a. The bomb destroyed the city (*by the enemy).
b. The bomb's destruction of the city infuriated Milosevich.

1.5 Word order

There is a constraint on word order—secondary complements must follow primary complements as in (20):

- (20) a. The hunting of bears with a rifle
b. *The hunting with a rifle of bears

Without the evidence found in the prenominal complement position, word order

would not provide a convincing argument for secondary complements. Many factors influence word order, for example: the relative weight of constituents (as in heavy NP-shift), new and old information and similar factors, arbitrary left and right branching. However, word order does support the secondary complement hypothesis given the prenominal argument test and other tests that more strongly support it. Primary complements are closer to their heads than secondary complements in fixed word order languages.

1.6 Recursion

When a PP is appended to a noun phrase, the PP can only be an adjunct. Unlike adjuncts primary and secondary complements cannot be iteratively appended to noun phrase complements as in (21b):

- (21) a. The writing of a letter with a quill on the table in the front room in our summer house is inspiring.
b. *The writing of a letter with a quill with a pen in our summer house is inspiring.

With a pen is a PP that is an argument of the verb and cannot be adjoined to another complement. In the intended reading of (21b), *with a pen* is adjoined to *with a quill*. As (21a) shows, PPs may be iteratively adjoined to adjuncts. This restriction on appending PPs to an argument is a general property of complements, and provides evidence that secondary complements are complements and not adjuncts.

Note also that there is another reading of (21b), where *with a pen* could be analyzed as a second instrument. In this case the Theta-Criterion is violated, where two NPs are assigned to the same theta-position instrument. Such is possible only under terms of conjunction as in (22):

- (22) The writing of a letter with a quill or with a pen by Ken in our summer house is inspiring.

Secondary complements either share properties with primary complements or they share properties with adjuncts as the tests above show. They show that primary complements are differentiated from secondary complements and adjuncts in that they are part of the integral meaning of the verb, or adjuncts are distinct from primary and secondary complements in that they are not part of the meaning of the verb at all. In the next section we discuss the theory of secondary complements in noun phrases.

2 Theoretical Concerns

Primary complements are part of the integral meaning of a lexical constituent—they are arguments of the constituent. Certain constituents are composed, arguably, of two or more lexical features or a bundle of lexical features. Let us start with accomplishment verbs. Accomplishment verbs imply an agent. Underlying accomplishment verbs may be a verb marking a state, an activity, or semelfactiveness. *Break* is basically a semelfactive verb as in (23):

- (23) The dish broke!

In its basic meaning it refers to a sudden event. There are several sub-meanings that are not semelfactive. We will not consider them here. It takes one argument, whose argument structure we represent as in (24):

(24) BREAK <patient>

Verbs such as *break* with the structure given in (24) we will call **primary** verbs:

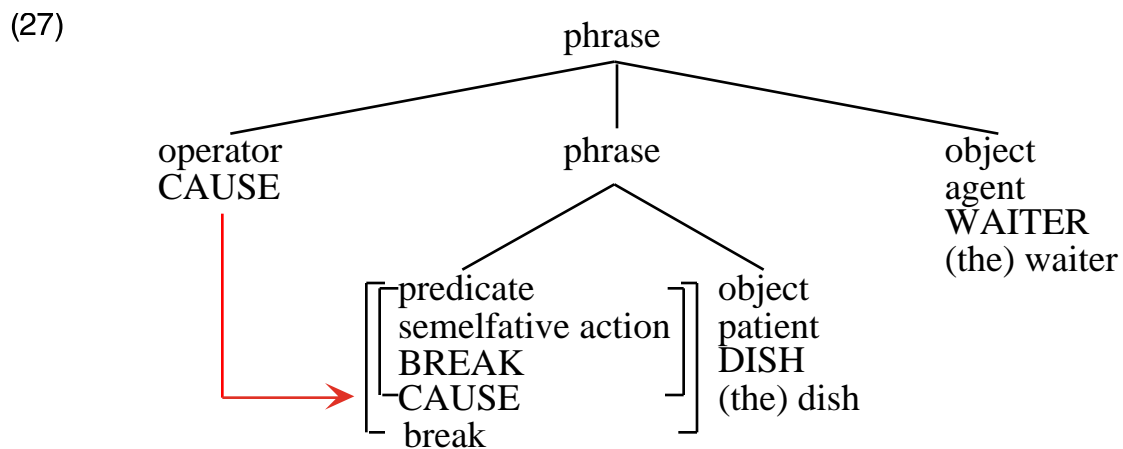
(25) **Primary Verb**

A primary verb is a verb that cannot be decomposed into a set of lexical features whose arguments are referentially distinct.

For example, the intransitive verb *break* is primary. *Break* may be decomposed into three subevents (see Pustejovsky 1995): an initial state, a momentary action referring to the event of breaking, and the final state. In all three subevents, the argument of each sub-predicate is the same. In the following example the common argument is *window*:

- (26) a. STATE <theme: window>
 b. SEMELF. ACTION <patient: window>
 c. STATE <theme: window>

When *break* combines with CAUSE to form the transitive verb BREAK, the result is the transitive verb *break*, homophonous with but distinct from the intransitive verb. The structure and incorporation of CAUSE into BREAK is shown in (27)



The derived verb is not a primary (or integral) verb. It is composed in part of BREAK <patient> and CAUSE <agent>. Note that CAUSE takes two arguments: agent, and the phrase containing BREAK. We take the view here that CAUSE is incorporated into the primary lexical item BREAK a process that occurs in the lexicon before the lexical meaning is assigned.

3 Nominals

3.1 Monadic Nominals

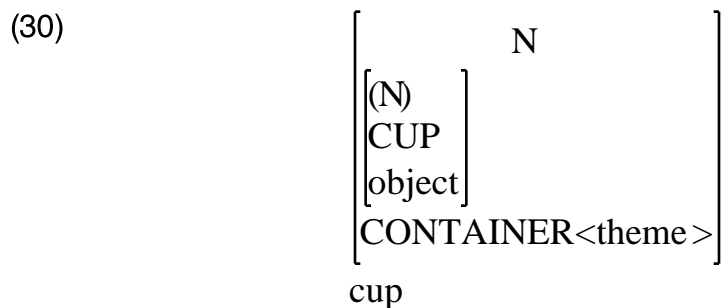
Nouns can be divided into various classes. The first is **object**, such as *bears* in (20). We define object as a noun that assigns no arguments. Objects include tangible and intangible things such as dish, button, dirt, water, sea, air and so forth. There are several classes of nouns that assign arguments. One such class includes **containers**: glass, bottle, cup, can, vase, barrel, and so forth as in (28):

- (28) a. John drank a cup of coffee.
 b. Mary bought a barrel of oil.

We consider containers to be lexical quantifiers. For example *cup* in (28a) where *cup* is referring to the container of the coffee. Most if not all containers are also objects as in (29):

- (29) a. John dropped and broke the cup (*of coffee).
 b. That factory makes barrels (*of oil).

As objects, they do not take arguments as shown immediately above. We propose that containers have a structure similar to that in (30) representing *cup* as in (30):



The figure in (30) indicates that the container *cup* is derived from the object *cup*, and that *container* assigns an argument, theme, which in (28) are *of coffee*, and *of oil*, respectively.² Containers are nouns like their underlying objects indicated here by placing the category in parentheses. The lexical item CUP [CONTAINER] is spelled out as the grapheme *cup*, written outside of the outer brackets.

Next there are gerundials, which have been discussed above. Gerundials are pure nouns that are derived from verbs including the argument structure of the underlying verb. First let us start with the intransitive gerundial *breaking*. The use of a singular object seems rather odd, but not ungrammatical as in (31):

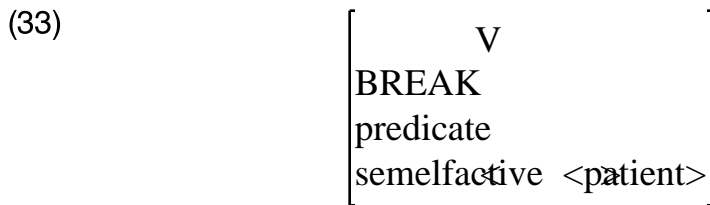
- (31) ?The breaking of the dish was rather sudden.

The use with a plural object seems better as in (32):

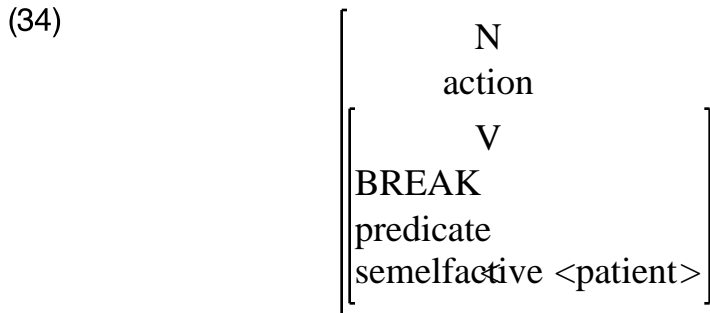
- (32) The breaking of the dishes was unexpected.

Putting aside the question of the number feature of the object, a partial lexical entry for the underlying verb is as in (33):

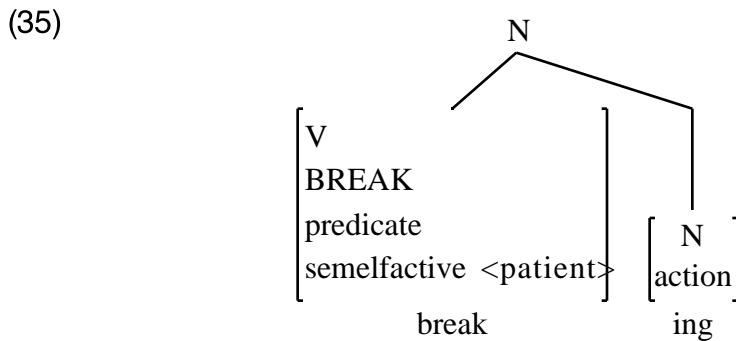
². See Pustejovsky (1995) for a discussion of the derivations of this type.



The lexical entry for the intransitive gerundial incorporates the above verb as in (34):

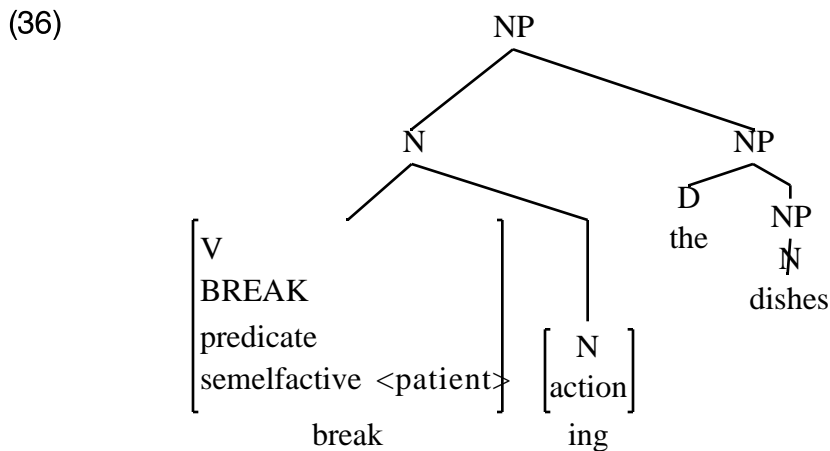


Action here refers to the gerundial. Action does not add an argument to the underlying lexical feature, which is the activity BREAK. The morphology of gerundials determines that the form splits into a verbal stem (BREAK) and the derivational suffix *-ing* marking action and forming a nominal projection. The activity is spelled out as *break* and the action as *ing* as in (35):

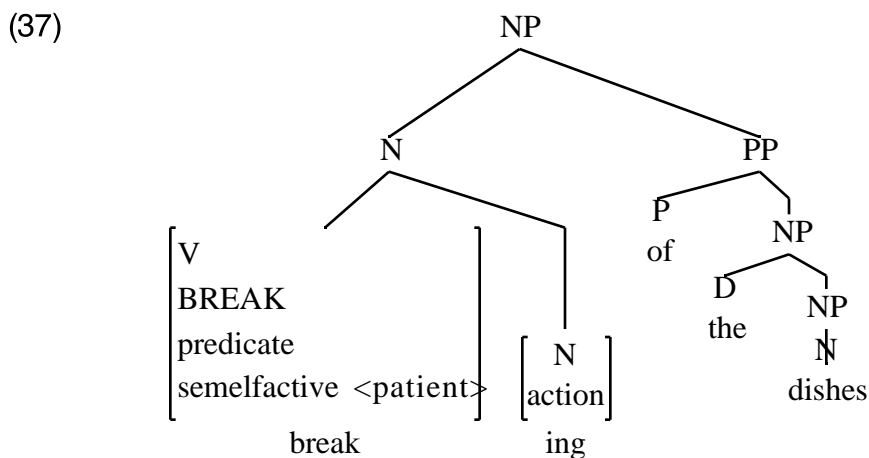


In constructions of this sort, the external feature determines the category of the item, which is N.

In the syntax the argument of the feature *activity* is spelled out as a phrasal complement of the verb. In derivations of the above type the argument is spelled out in a similar way. However, the feature 'N' blocks Case assignment of the direct object by the verb as in (36):



Such diagrams as (35), (36), and so forth, are usually written without the lexical features represented in caps here; BREAK is spelled out as *break* and N as *-ing*. Depending on one's analysis, the preposition *of* is inserted to assign Case to the direct object, or the preposition may be viewed as K, for Case: Similarly, depending on one's analysis, NP may be viewed as DP. We will use NP here as in (37):



3.2 Polyadic Nominals

Transitive gerundials are formed from transitive verbs with relative ease as in (38):

- (38) a. The hunter shot a bear.
 b. The shooting of a bear by the hunter was cruel.

Intransitive gerundials are formed from intransitive verbs as shown in (43a) and (44a) where the stem of the intransitive verb is phonologically distinct from the stem of the transitive verb as in (38) and (39):

- (39) a. The rising of goats into the air was awesome.
 b. The raising of goats is not much fun.

- (40) a. The falling of the trees during the storm was frightening.
 b. The felling of the trees by the woodsmen must be stopped.

A transitive verb, we claim, must underlie a transitive gerundial for the following reason. The lexical feature CAUSE can only take an event as an argument. We know no examples of causative nouns that are not derived from verbs.

It would be more difficult to account for how an abstract lexical feature when adjoined to a derived stem such as RISE+ING would affect the inner stem morpheme RISE. Usually, only external affixes can be affected by a morphophonemic change. Suppose, for example, that *raising* were derived from *rising*. The feature ACTION would first be incorporated into RISE, and then CAUSE would be incorporated into RISE[ACTION] as in (41):



Here, CAUSE would have to have an affect on RISE, which is embedded two levels down to determine the verb *raise*. Given the pattern of morphophonemic alternations this is an unexpected and an undesirable result. However, if the transitive gerundial is derived from the transitive verb, which is in turn derived from the intransitive verb, this unexpected alternation does not arise as in (42):



In (42) CAUSE has an affect on its own argument, which is one level down, creating the stem *raise*. This is the desired effect.

In conclusion of this section we claim that gerundials are directly derived from verbs.

4 Prenominal Position

Following Radford (1988:198ff) the first pre-nominal position may be an argument position. Non-arguments must precede argument positions before the noun as in (43):

- (43)
- a. The shooting of fast bears is rarely acceptable.
 - b. Fast bear shooting is rarely acceptable.
 - c. The fast shooting of bears is rarely acceptable.
 - d. *Bear fast shooting is rarely acceptable.

(43d) is ungrammatical because the argument *bear* does not occur in the immediate prenominal position. (43b) is ambiguous. *Fast* is modifying either *bear* or *shooting*.

If the first prenominal position is a complement, then it is an A-position. The question arises is whether the prenominal complement position is restricted, and if so to what? The prenominal complement position appears to be restricted to generic NPs. A definite NP is not permitted in that position as in (44b) and (44c):

- (44) a. The shooting of that bear was totally uncalled for.
b. *The that bear shooting was totally uncalled for.
c. (*)That bear shooting was totally uncalled for.

(44c) is ambiguous. (44c) is ungrammatical in the reading where *that* is modifying *bear*, but it is grammatical in the reading where *that* is modifying the gerund.

It seems that only lexical modifiers may modify nouns in the prenominal complement position, operators including quantifiers may not modify nouns here: as shown in (45):

- (45) a. The shooting of three bears is always illegal.
b. *(The) three bear shooting is always illegal.
c. *All bears shooting is always illegal.
d. *Some bears shooting is always illegal.

If the noun takes a complement neither the noun nor the complement may occur in the prenominal position of the gerundial as in (46):

- (46) a. The poisoning of gaggles of geese is deplorable.
b. *Gaggles of geese poisoning is deplorable.
c. Goose poisoning is deplorable.
d. *Goose poisoning of gaggles of is deplorable.
e. *Gaggle poisoning of of geese is deplorable.

As these examples in (46) show, the prenominal position is highly restricted as to what may be placed there.

5 Conclusion

In this paper we have shown that adjuncts, secondary complements, and primary complements can be distinguished in the NP as well as in the VP. We are especially interested in the distinction between primary and secondary complements. We have given a number of syntactic tests to distinguish them. And also a couple of syntactic tests to distinguish adjuncts from the other two.

In the remainder of the paper we have discussed a variety of more theoretical concerns including the analysis of container nouns, gerundials, and nominal compounds.

Thus, the prenominal position is limited to two classes: (1) a primary complement—a generic intransitive lexical noun complement of the head noun and (2) a lexical modifier of the complement noun.

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