

THE CONFIGURATION OF PRIMARY AND SECONDARY COMPLEMENTS

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2 Introduction

In DeArmond and Hedberg 1998 we showed that there exists a distinction between primary and secondary complements of the verb. These complements are distinct from adjuncts. In Hedberg and DeArmond 1999 we showed that there is a similar distinction between primary and secondary complements and adjuncts of the noun. In this paper, we return to consideration of the verbal system and argue for a particular configurational arrangement of both types of complements and adjuncts.

We first assume, following most current work, that all branching is binary. With multiple adjuncts this poses no problem since we can assume that each adjunct is adjoined separately to the structure. For multiple primary complements, however, we need to find a solution since the binary branching requirement rules out sister-adjoining them all to the verb. For example, consider the examples in (1):

- (1) a. John put the sugar on the table.
- b. Mary wrote a letter to Paul.
- c. Bill sold his car for \$100.00.

The PPs in these examples fit the category of primary complements since they fail the “pseudocleft” test for secondary complements and adjuncts (cf. DeArmond & Hedberg (1998)):

- (2) a. *What John did on the table was put the sugar.
- b. What Mary did to Paul was write a letter.
- c. *What Bill did for \$100.00 was sell his car.

Note that (2c) is possible when it means:

- (3) Bill received \$100.00 for the act of selling his car.

In this case \$100.00 is a secondary complement, not a primary complement.

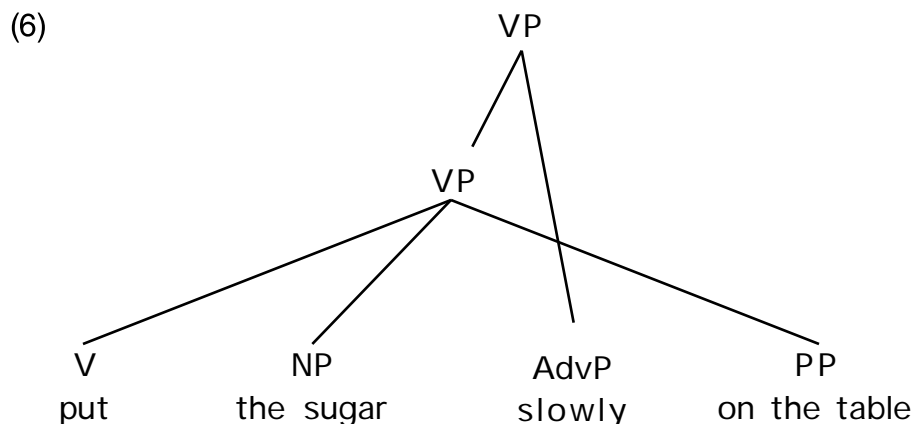
Empirical evidence for a binary branching analysis of these structures comes from a consideration of adverb placement. Consider the examples in (4).

- (4) a. John put the sugar slowly on the table.
 b. Mary wrote a letter quickly to Paul.
 c. Bill sold his car hesitantly for \$100.00.

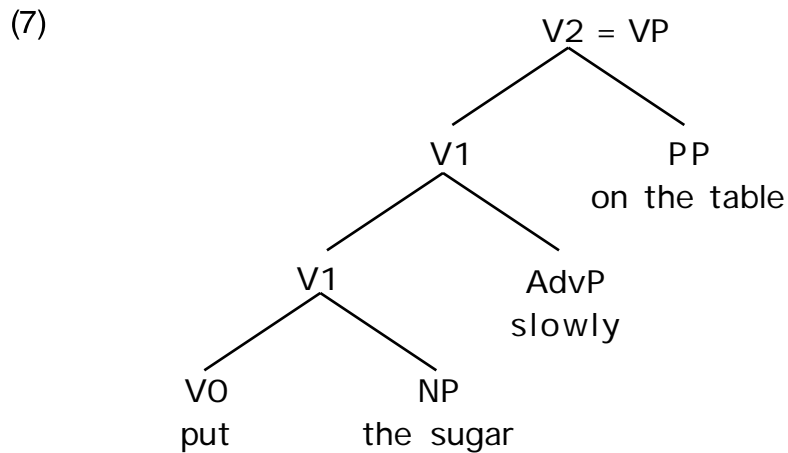
Since we want to treat all adjuncts as adjoined to the projection they modify, we want the verb and the first primary complement to be a constituent:

- (5) [put the sugar], [wrote a letter], and [sold his car].

A second bit of evidence is found in the ban against overlapping segments, i.e. the ban against the crossing of lines. In a flat structure the adverb would overlap with the complements of the verb:



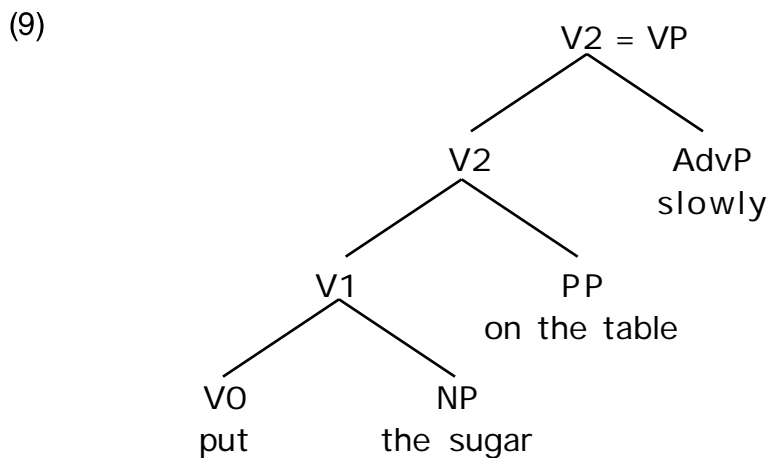
Let us label the verb, the head of VP, in our proposed structure V0 and the new constituent consisting of the head and its primary complement V1. The adverb then adjoins to V1, and the second primary complement sister-adjoins to the top V1 under a V2 node, as shown in (7). The top-most node in the projection of V we call VP.



Note that the adverb may also immediately follow the second primary complement In (8c) the agent is a secondary complement:

- (8) a. John put the sugar on the table slowly.
 b. Mary wrote a letter to Paul quickly.
 c. John's car was sold by his father hesitantly.

In (9) the adverb is adjoined to V2:



The scope of the adverb changes in the two constructions. This appears to be the only semantic difference.

3 Secondary Complements

According to the theory of complementation developed in our previous work, a verb's primary complements are part of its integral meaning. Secondary complements, like instruments and agents, are not part of the integral meaning of the verb. Their theta-roles are assigned by an external operator, the features [Int-Cause]¹ or [Ext-Cause], which is then incorporated into the verb. The definition of integral meaning is not an easy one. Basically, we use this term to refer to verbs from which no further features can be extracted that assign a different theta-role. For example, [Int-Cause] can be extracted from:

(10) The sun melted the ice.

to form the logical structure:²

(11) SUN [Int-Cause] [ICE MELT].

The logical predicate [INT-CAUSE] assigns the theta-role instrument to its entity-argument SUN--this is copied over into syntax. The proposition ICE MELT³ is also an argument of [Int-Cause]. In the following sentence John is an agent, an argument of [Ext-Cause] (DeArmond and Hedberg (1998)):

(12) John melted the ice with a blow-torch.

It might be possible to decompose MELT into features, but if they assign any arguments, the arguments will always be the same argument (ICE in this case).⁴ In cases of this sort we assume that all such features constitute the integral meaning of the verb.

Now consider adding an instrument phrase to the sentences in (4) as shown in (13) after the direct object, which is always a primary complement:

¹ We mark features by enclosing them in square brackets and initializing the first letter.

² The operators modifying the noun are omitted

³ CAPS are used to represent lexical stems.

⁴ For example, we could partially decompose MELT into features which would correspond in some way to "the ice changed from a solid state into a liquid state." The argument remains the same.

- (13) a. John put the sugar slowly on the table with a spoon.
b. Mary wrote a letter quickly to Paul with a felt-tip pen.

The adverb may also occur after the second primary complement:

- (14) a. John put the sugar on the table slowly with a spoon.
b. Mary wrote a letter to Paul quickly with a felt-tip pen.
c. John's car was sold to Paul hesitantly by his father last Sunday.

And the adverb may also occur at the end of the sentence, in which case it is adjoined to the structure to its left:

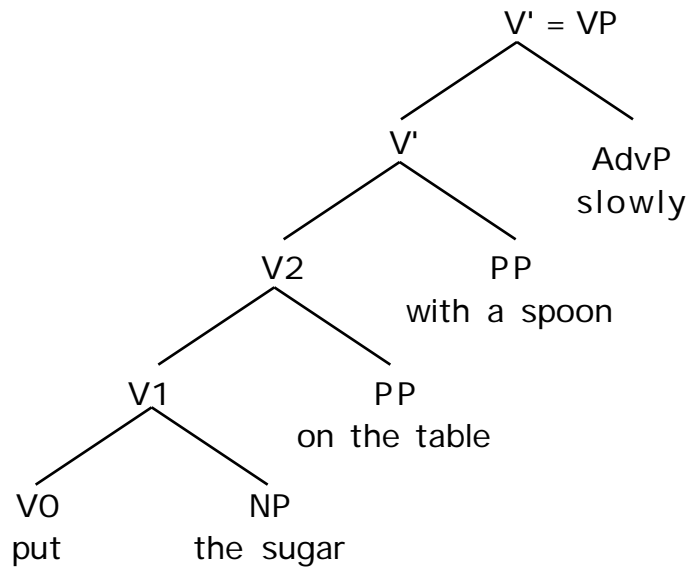
- (15) a. John put the sugar on the table with a spoon slowly.
b. Mary wrote a letter to Paul with a felt-tip pen quickly.
c. John's car was sold by his father last Sunday hesitantly.

In this case, the adverb takes scope over the entire VP.

4 Labelling

In order to differentiate primary and secondary complements, we propose adding a new node V' dominating V_2 or V_n in case of multiple complements with the instrument phrase, a secondary complement, at the end of this phrase. We propose the use of V_0 , V_1 , V_2 , and so forth, to indicate the different levels of primary complements, and V' , V'' , V''' , and so forth, to indicate the different levels of secondary complements. We propose, for example, that the structure for (15a) is that shown in (16):

(16)

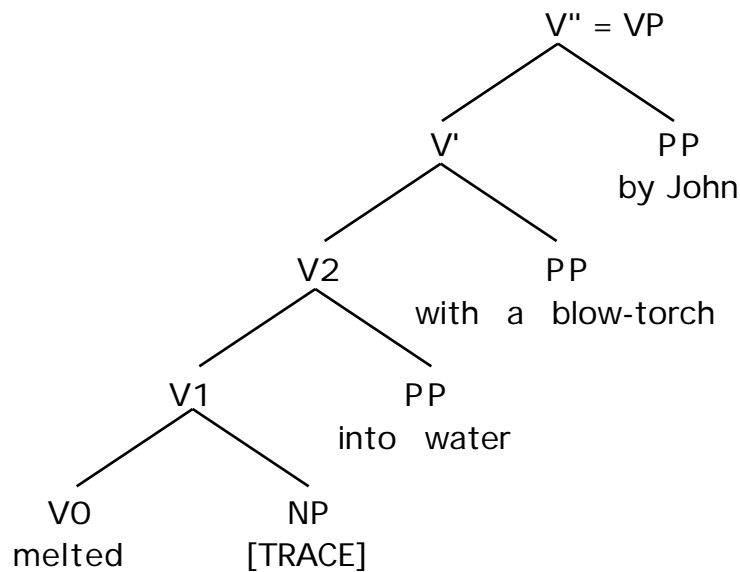


In the passive construction with an overt agent and instrument:

(17) The ice was melted into water with a blowtorch by John.,

we would add a V'' node dominating V' with the [Ext-Cause] operator in initial position and the agent in final position:

(18)



5 The Framework

In the framework we have been adopting (DeArmond and Hedberg (1998)) and (Hedberg and DeArmond (1999)), we have been assuming that the conceptual structure of a sentence is fed into the grammar, which assigns lexical items to conceptual features and syntactic structure to conceptual structures. Furthermore, there are certain lexical processes that occur or are somehow embedded in a lexical entry. For the sake of brevity, we have been doing so without argumentation. One example is the incorporation of the feature [Ext-Cause] as a phonologically null feature in the verb. The double stemmed-arrow indicates spell-out:⁵

- (19) a. MELT ==> melt
 b. MELT+[Ext-Cause] ==> melt.

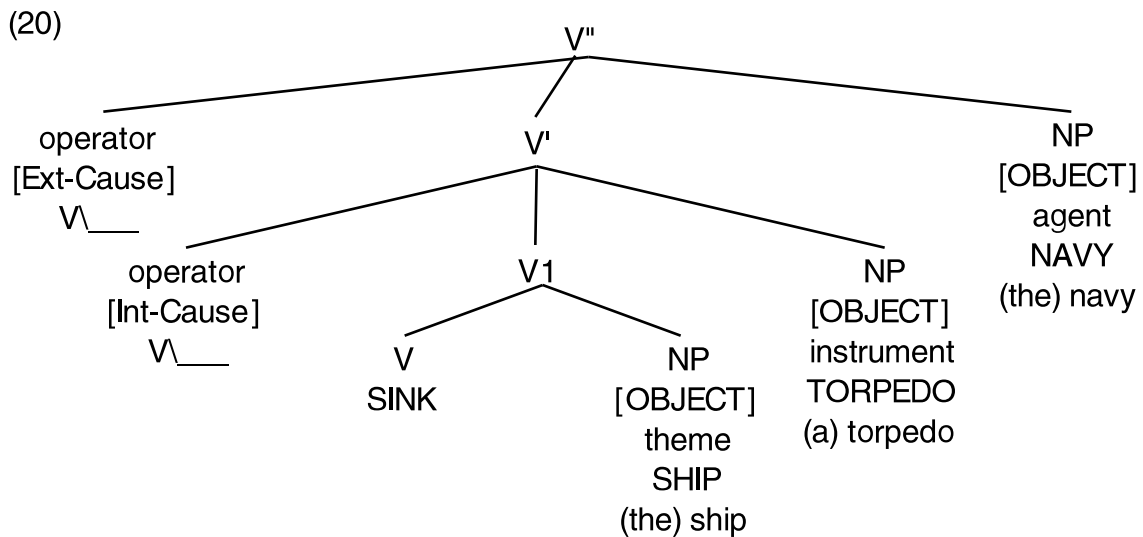
We assume without argumentation here that the feature is copied and added to the basic verb stem MELT forming a complex verb-stem MELT, which is phonologically identical with the simplex verb. If a verb ends with an obstruent, the feature is usually spelled out as a suffix, “-en” as in blacken, redden, thicken, and so forth.

The input to the syntax is a component which we call the “logical structure”; it is fed from conceptual structure which we define in part to exist outside of grammar, but which we assume feeds logical structure in the grammar. Two processes take place. One process develops a lexical entry including the lexical items that are part of a lexical entry. The other process develops the syntactic forms of the input.

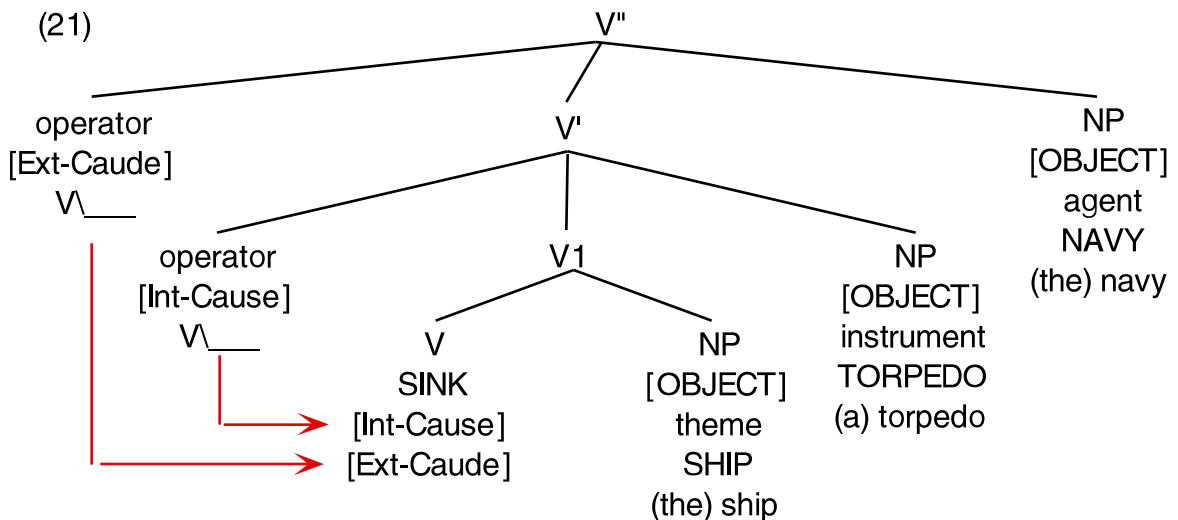
One example which illustrates lexical derivation is the following, produced in DeArmond and Hedberg (1998):⁶

⁵ We mark lexical and grammatical features with initial Caps and square brackets.

⁶ Example (56).



The terminology used there we feel today is not very appropriate. We now feel that terms such as ‘proposition’ should be used for the structure in conceptual structure, replacing it with ‘phrase’ in the syntax:



Note that operators can be spelled out as affixes, as lexical verbs, or as dummy (auxiliary) verbs. Both [Ext-Cause] and [Int-Cause] can be spelled out as lexical verbs:

- (22) a. The sun caused the ice to melt.
- b. John caused the ice to melt by using a blowtorch.

We are not assuming that the lexical verb and the derived causative verb have the same meaning (see Fodor (1970)).

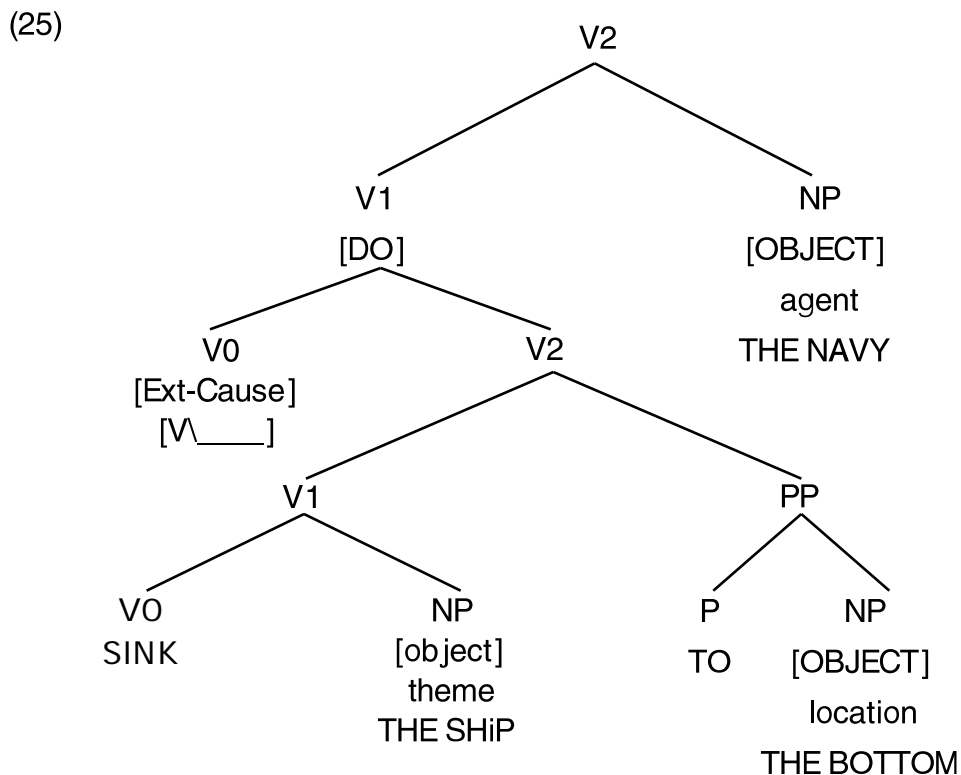
At first it appears in (21) that the branching is ternary: the [Ext-Cause] operator takes V' and the agent NP as its two arguments. However, there is some evidence that there is binary branching here too. Consider the following sentences:

- (23) a. The navy sank the ship.
- b. The navy acted in such a way that the ship sank.

The VP 'acted in such a way that the ship sank' is equivalent to DO proposed by Jackendoff (1990). Note the pseudo-cleft construction:

- (24) What the navy did was sink the ship (act in such a way that the ship sank).

The verb do is coindexed with the VP. Therefore, [DO] has the property of assigning agent to the structure. We suggest that the expression 'act in such a way' is nearly synonymous with [Ext-Cause]:



Note that ‘acted in such a way that the ship sank’ is a VP constituent:

- (26) The British navy acted in such a way that the ship sank and so did the Ukrainian navy.

Note that did, derived from DO, is coindexed with ‘acted in such a way that the ship sank’. We propose that [DO]⁷ is a conceptual feature that can be expressed in English either as the main verb DO, or as verbal projection whose head is [Ext-Cause] and whose argument is the projection of an inchoative verb. If [Ext-Cause] contains the feature [+Host], the feature is copied to the verb it governs and is spelled out as a lexical causative verb. The lexical verb cause contains the feature [Ext-Cause] or [Int-Cause], but the feature [Host] is negative [-Host], which indicates that it is spelled out as a main verb. There are other differences between the [+Host] and the [-Host] forms--these are discussed in Fodor (1970).

There is more evidence. Consider the following gerundial phrase and participial phrases:

- (27) a. [The cause of the sinking of the ship suddenly by the enemy] surprised the navy. (gerund)
 b. The cause of the sinking of the ship by the enemy suddenly surprised the navy. (gerund).
 c. The cause of the sinking of the ship suddenly by a torpedo surprised the navy. (gerund)
 d. The cause of the sinking of the ship by a torpedo suddenly surprised the navy. (gerund)

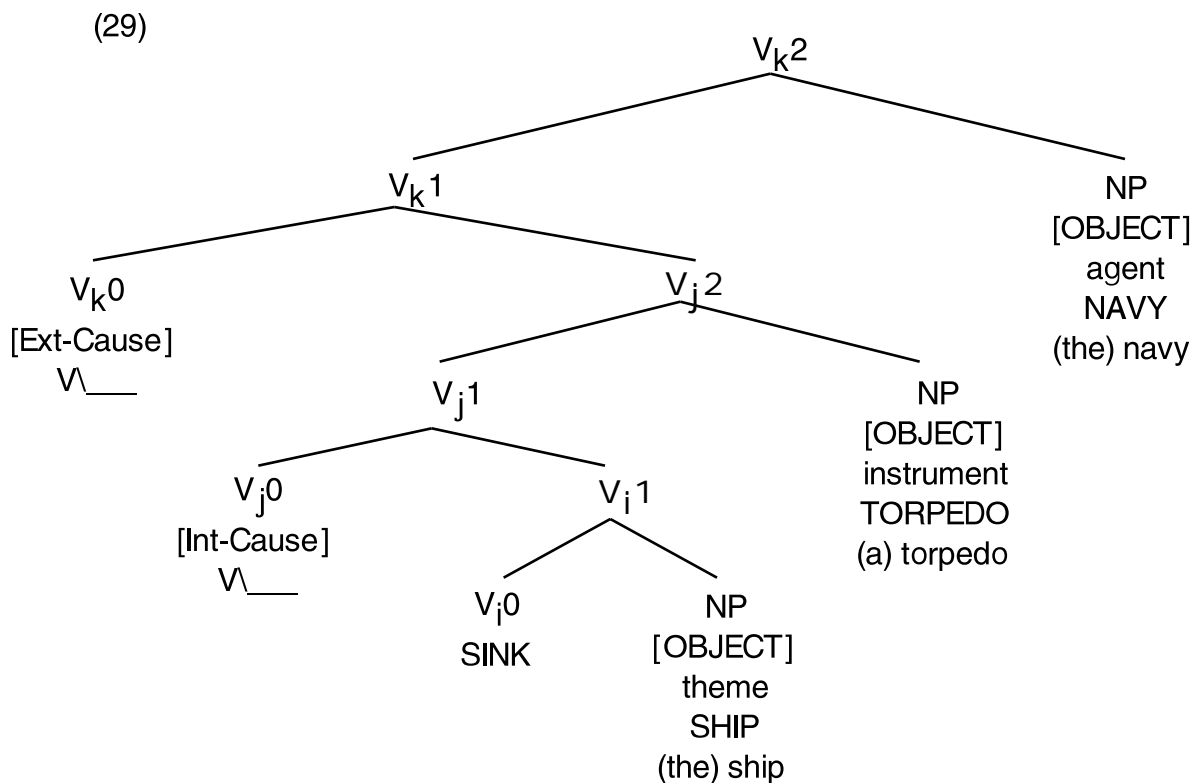
There is also a participial phrase where the agent and the instrument arguments are not possible even though they are understood:

- (28) a. [The cause of the ship sinking suddenly] caught the attention of everybody.
 b. *[The cause of the ship sinking suddenly] by the navy/a torpedo caught the attention of everybody.

⁷ Conceptual features are written in CAPS enclosed in square brackets.

[The cause of the sinking of the ship suddenly] and [the cause of the ship sinking suddenly] each correspond to [DO]. The key word here is the adverb suddenly. The adjunction of adverbs to structures between complements supports our claim that the structure of verbs (and presumably other parts of speech) is binary. Consequently, we claim that [DO] and its corresponding lexical item DO assign an argument which is commonly called the theta role agent although in participial constructions the agent cannot be spelled out.

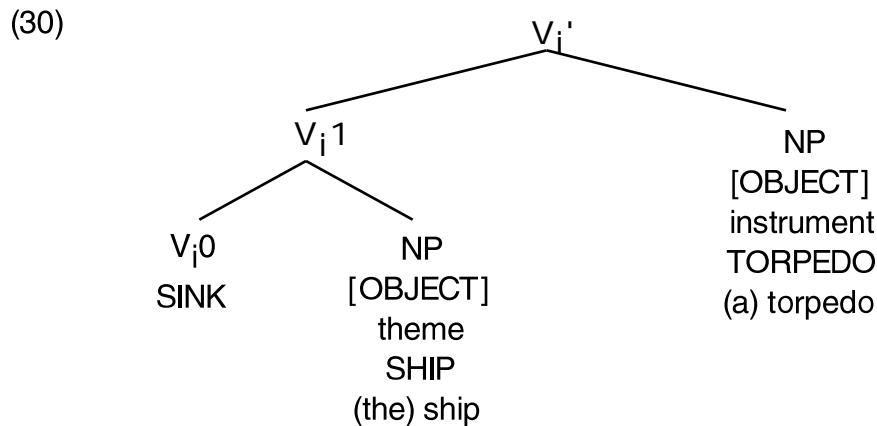
The prelexical structure now has the following form. The various forms based on CAUSE are considered V. Each projection is differentiated from the other by the use of subscripts:



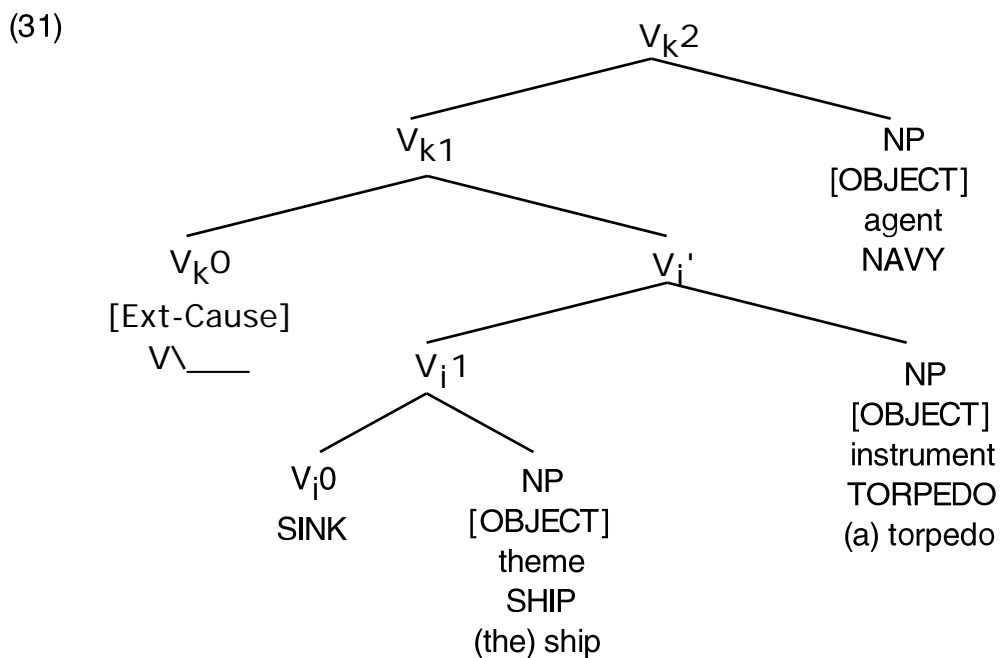
The features [Ext-Cause] and [Int-Cause] each need a verbal host. Each feature that requires a host is copied (following Chomsky (1995)) to the host verb. Each head must govern its landing-site verb (DeArmond (In Progress)).

Let us start here with [Int-Cause]. [Int-Cause] needs a verbal host. It governs SINK and it is copied to SINK, forming the lexical verb SINK+[Int-Cause]. Pre-lexical structures undergo pruning in the sense of

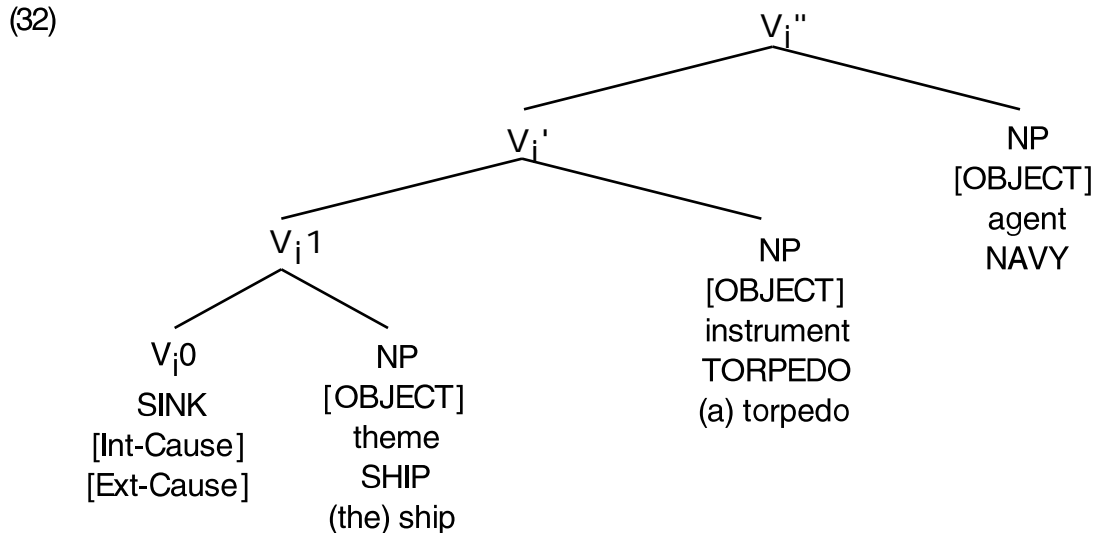
Ross (1967). V_j0 cannot be spelled out; it is a null form. We take the view that such null forms are pruned. Pruning results in a complex morphological form of the verb. The argument of V_j is realized as a secondary complement of the projection V_i . V_j1 is now an extension of V_i and it is represented as V_i' :



When the feature [Ext-Cause] and its external argument the agent occurs in the logical structure, we get the following assuming that (30) has been generated:



V_{k0} needs a verbal host and it governs the verb SINK. Therefore, [Ext-Cause] is copied to SINK. V_{k0} is pruned since it has no host, and then V_{k1} is pruned since it is a non-branching diagram. We now rewrite V_{k2} as V_i'' since the node is now seen as a projection of V_i .



Neither [Int-Cause] nor [Ext-Cause] is spelled out as a suffix. In (27), for example, SINK is spelled out as the verb sink. The rules of English syntax will copy NAVY to the subject position; Case is assigned to both NAVY and TORPEDO in the active voice. In the passive voice:

- (33) a. The ship was sunk by the navy.
 b. The ship was sunk by the torpedo.

NAVY in (33a) and TORPEDO in (33b) are copied to the subject position and the preposition BY is inserted to assign Case to NAVY and TORPEDO, respectively. We cannot cover these rules here.

6 Conclusion

Thus we propose two different systems of node labelling. One system notated with numbers is used for the verb and its primary complements. A second system notated with bars (primes) is used for secondary complements. All adjuncts are adjoined to their sister nodes. Secondary complements, marked by the prime system, are lexically de-

rived verbal-head dependent features copied to the main verb. Then tree-pruning takes place.

7 References

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