

Introduction and Overview

In this chapter we discuss NP-movement, which plays a part in the derivation of passive sentences and raising structures. We examine the characteristics of NP-movement and of the verbs that induce it. From our analysis it follows that each sentence is associated with two levels of syntactic representation: D-structure and S-structure. The relation between these levels will be discussed in this chapter.

In section 1 we give a general survey of movement transformations. In section 2 we concentrate on NP-movement as instantiated in passive sentences and in raising sentences. We discuss the arguments in favour of the assumption that a moved NP leaves a trace in its base position. We also discuss raising adjectives. Section 3 focuses on the verbs which induce NP-raising. It will be argued that the case assigning properties of a verb depend on its argument structure. We discuss the distinction between two types of one-argument verbs: those with only an external argument ('intransitives') and those with only an internal argument ('unaccusatives'). In section 4 we examine the relation between D-structure and S-structure and we discuss how the principles of grammar posited so far apply to these levels. In section 5 we consider the hypothesis that subject NPs are base-generated VP-internally.

1 Movement Transformations

We have already touched upon the movement of constituents in interrogative and in passive sentences (cf. chapters 2 and 3). In this section we give a general survey of the movement transformations posited so far.

1.1 *Passivization: Recapitulation*

In chapter 3 we discussed the properties of passivization illustrated in (1a):

- 1a This story is believed by the villagers.
- 1b The villagers believe this story.

(1a) contains the passive form of the verb *believe*. Comparing (1a) with its active counterpart (1b), we see that the subject NP of the passive sentence, *this story*, corresponds to the internal argument of the active verb. In chapter 3 we proposed that in both (1a) and (1b) the NP *this story* is assigned the internal theta role by the verb. Internal theta roles are by definition assigned directly under government by the head. Hence, the NP *this story* in (1a) ought to be assigned its theta role under government by the verb *believe*, exactly as in (1b). As it stands, *believe* obviously does not govern the NP *this story* in (1a).

In order to maintain the parallelism between (1a) and (1b) and our hypothesis that internal theta roles are assigned directly by a governing head we developed a *movement analysis* relating the patterns in (1a) and (1b). We proposed that at some level of syntactic representation the NP *this story* IS the direct object of the verb *believe*:

2a [_{IP} e [_{I'} is [_{VP} [_{V'} believed [_{NP} this story]]] by the villagers]].

(2a) is called the **D-structure** of (1a). It encodes the basic thematic relations in the sentence as determined by the argument structure of the predicate, passive *believed*. In (1a) the external theta role of *believed* is not assigned to an NP in the subject position, but it is assigned to an NP in a *by*-phrase. Because of the extended projection principle the subject position in (2a) is generated but is not filled by an argument NP. The empty subject position is indicated by the symbol *e* for 'empty'. In the D-structure (2a) the object NP *this story* is VP-internal and is assigned an internal theta role directly by the governing verb.

In addition to the D-structure representation which reflects lexical properties, a sentence is associated with a second level of representation, **S-structure**. The S-structure of (1a) is (2b):

2b [_{IP} This story_i [_{I'} is [_{VP} believed [_{e_j]]] by the villagers]].}



In (2b) the NP *this story* has been moved from the VP-internal position to the subject position of the sentence. This movement is called **NP-movement**. As a result of movement, the VP-internal D-structure position of *this story* is left vacant or empty: it is a *gap* represented provisionally by *e*. We turn to a discussion of such empty positions in section 2. The link between the gap

and the moved NP is indicated by coindexation. The coindexation encodes the derivational history of the sentence.

The word-order of (2a) is referred to as the **underlying order**. The S-structure order in (2b) is called the **derived order**: it is an order which results from modifications of the D-structure. Similarly, the NP *this story* in (2b/1a) is referred to as a **derived subject**: it is not a D-structure subject of the sentence (2a). The D-structure position of the NP, i.e. the object position, is called the **base-position**. We say that the NP *this story* is **base-generated** in the object position of the passive V *believed*.

In our discussion in chapter 3 we derived the movement of the NP from the object position to the subject position from case theory. For some reason (to which we return in section 3) passive verbs do not assign structural case to their complements. If the NP *this story* were to stay in the object position, it would violate the case filter, as seen in (2c):

2c *There is believed this story by the villagers.

In (2b), *this story* occupies the subject position, where it is assigned NOMINATIVE case by INFL. Our analysis implies that the case filter must apply at S-structure (2b). At the level of D-structure (2a) the NP *this story* is in its base-position where it cannot be assigned case.

When discussing the syntactic structure of a sentence we shall from now on assume that there are two levels of **syntactic representation**: D-structure and S-structure. Both levels of representation encode syntactic properties of the sentence. D-structure encodes the predicate-argument relations and the thematic properties of the sentence. The S-structure representation accounts for the surface ordering of the constituents. We return to the relation between the two levels in section 4.

1.2 Questions

1.2.1 SURVEY

In this section we briefly discuss the representation of the sentences in (3), concentrating on the questions (3b)–(3f).

- 3a Lord Emsworth will invite Hercule Poirot.
- 3b Will Lord Emsworth invite Hercule Poirot?
- 3c Lord Emsworth will invite whom?
- 3d Whom will Lord Emsworth invite?

3e I wonder [whether Lord Emsworth will invite Hercule Poirot].

3f I wonder [whom Lord Emsworth will invite].

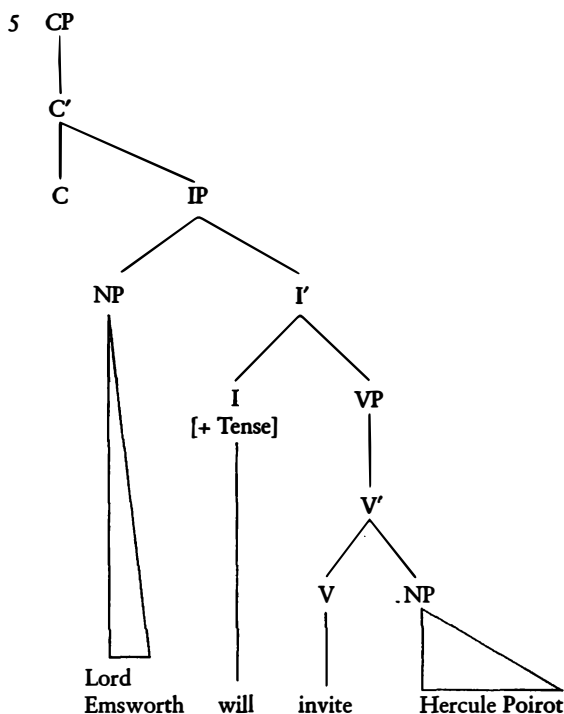
(3a) is a declarative sentence. (3b) is a direct *yes-no* question (to be discussed in 1.2.2), (3c) is an *echo* question (to be discussed in 1.2.3), (3d) is a direct *wh*-question also referred to as a *constituent* question (to be discussed in 1.2.4). For completeness' sake (3e) and (3f) have been added. The bracketed strings in these examples are *indirect* questions: (3e) contains an indirect *yes-no* question; (3f) an indirect *wh*-question. Indirect questions will be discussed in chapter 7, where we return to a full discussion of questions.

From (3a) we infer the argument structure of the verb *invite*:

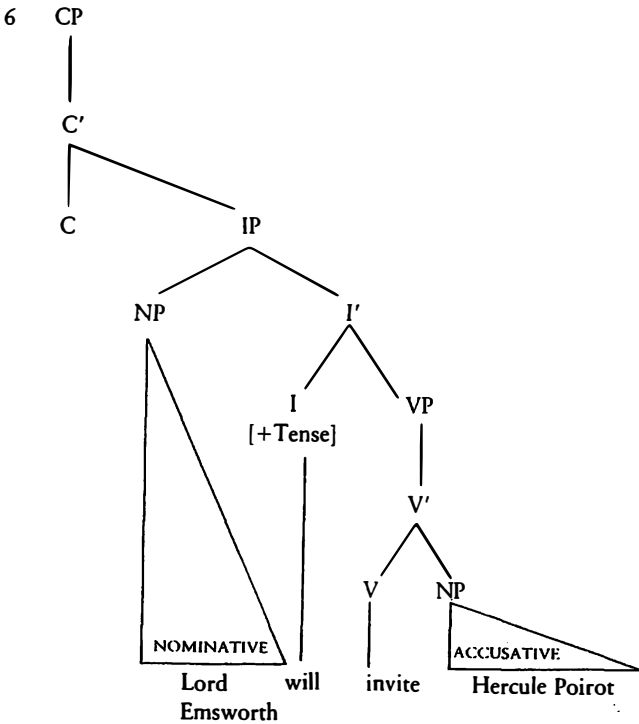
4 *invite*: verb

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In (3a) the external argument of *invite* is realized by the NP *Lord Emsworth* and the internal argument is realized by the NP *Hercule Poirot*. The D-structure of (3a) is given in tree diagram format in (5). The external argument of *invite* is syntactically represented by the NP in the subject position of the clause; the internal argument is syntactically represented by the direct object of the V, the NP dominated by *V'*.



The S-structure representation of example (3a) is given in (6). It does not differ substantially from its D-structure (5). Recall that S-structure is the level at which structural case is assigned: I assigns NOMINATIVE to the subject NP and the verb assigns ACCUSATIVE to the direct object NP.

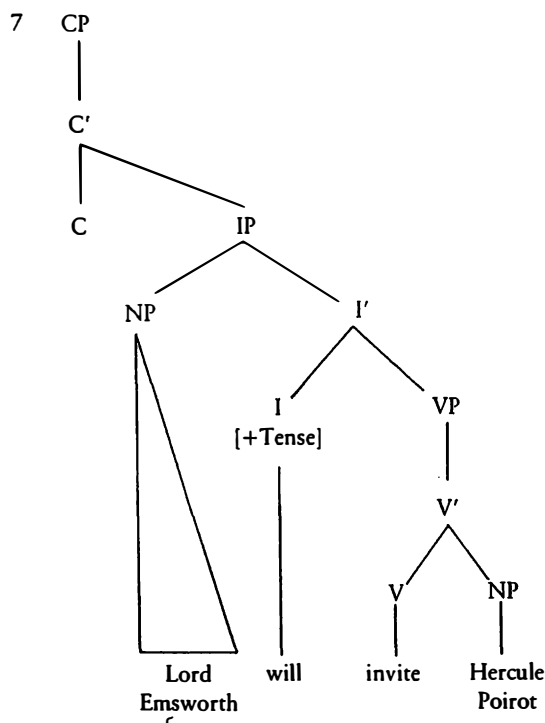


A word of caution is in order at this point. We assume that ALL sentences have two levels of syntactic representation: D-structure and S-structure. In passive sentences such as (1a) discussed above, the D-structure (2a) differs clearly from the S-structure (2b): a constituent has been moved. But, as indicated in (5) and (6), the difference between D-structure and S-structure may be minimal: in this example no movement has taken place and the two levels of representation will not differ in word-order.

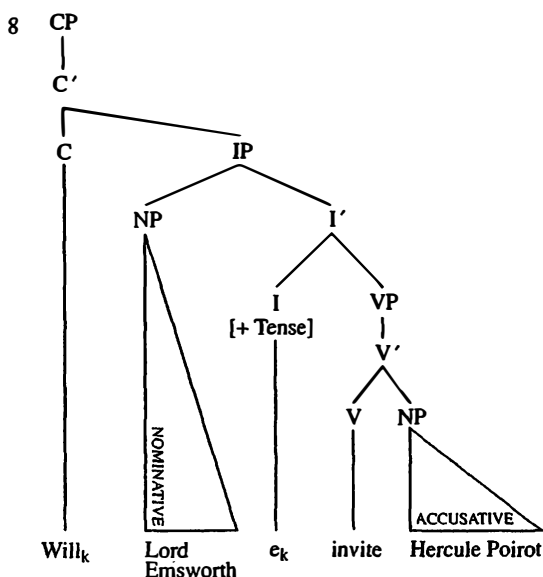
1.2.2 YES-NO QUESTIONS

Questions such as (3b) are called *yes-no* questions for the obvious reason that one expects an answer such as 'Yes' or 'No'. Let us try to work out the syntactic representation of this question, bearing in mind that we need to consider both D-structure and S-structure.

In chapter 2 we saw that sentences are projections of I which in turn are complements of C. Because they are always specified for tense we assume that modal auxiliaries like *will* are base-generated in the position dominated by I, as illustrated in (5) and (6) above (cf. chapter 11). One potential problem for the representation of (3b) concerns the surface position of the modal auxiliary *will*, which in our example precedes the subject NP. We assume that the order exhibited in (3b) is not the underlying order of the sentence but a derived order, an order obtained as the result of moving an element. The D-structure position of *will* in (3b) will be as in (7). *Will* is dominated by I, the position which it also occupies in (5):



In our discussion in chapter 2 we proposed that the inverted order auxiliary – subject (cf. (3b)) arises from the fact that the modal auxiliary has been moved out of the base-position, where it is dominated by I, to the vacant position dominated by C. Under this analysis, the S-structure of (3b) is as in (8).



In (8) the gap resulting from moving $will_k$ is indicated by e_k . The link between the position vacated by *will* and the moved element is again indicated by coindexation. We discuss verb movement in chapter 11.

1.2.3 ECHO QUESTIONS

(3c) is an echo question. It will be used as a reaction to a sentence such as (3a) by a speaker who wishes the interlocutor to repeat (part of) (3a). Echo questions are formed by simply substituting a question word (here *whom*) for a constituent. Interrogative constituents such as *whom* are called *wh*-constituents. *Whom* realizes the internal argument of *invite*. The D-structure of (3c) is as follows:

9 [CP [IP Lord Emsworth will [VP invite [NP whom]]]]?

Given that there is no reordering of constituents in echo questions the S-structure of (3c) will be like its D-structure:

10 [CP [IP Lord Emsworth will [VP invite [NP whom]]]]?

1.2.4 WH-QUESTIONS

Finally we turn to (3d), a *wh*-question. Unlike echo questions, which are used in the rather specific circumstances discussed above, ordinary *wh*-questions are freely used when a speaker needs some information. The *wh*-constituent *whom* questions one constituent. To (3d) one might expect answers such as 'Hercule Poirot', 'Lord Peter Wimsey', 'Bertie Wooster', 'his mother-in-law', etc. Let us again try to provide the D-structure and the S-structure representations of (3d).

The first question that we need to address here is how the arguments of *invite* are realized. As was the case in the preceding examples, the external argument is realized by the NP *Lord Emsworth*. By analogy with (3c) we would like to say that the internal argument of *invite* is the NP *whom*.

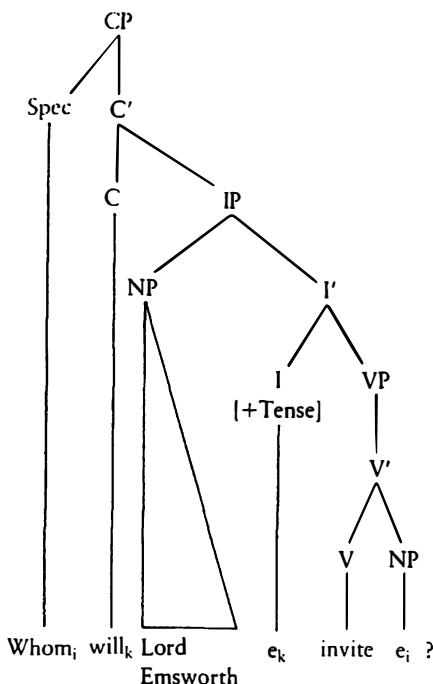
Two problems arise with respect to the internal argument NP. If internal theta roles are assigned directly under government, then, like (1a), (3d) raises the question of how *invite* assigns a theta role to *whom*, which it plainly does not govern. A second and related question concerns the form of *whom*. It is an ACCUSATIVE case. In chapter 3 we argued that ACCUSATIVE case is assigned at S-structure by a governing verb.

The D-structure of (3d) is no different from the D-structure of the echo question (3c) discussed in 1.2.3:

11 [_{CP} [_{IP} Lord Emsworth will [_{VP} invite [_{NP} whom]]]]?

At S-structure we assume that, as is the case in (3b), the modal *will* in (3d) is moved to the position dominated by C. As discussed in chapter 2, we further assume that *whom* is moved to the specifier position immediately dominated by CP, [Spec, CP]. The symbol e_i indicates the position vacated by *whom*. Coindexation establishes the link between e and the moved constituent. Movement of question words is referred to as *wh*-movement.

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The problems raised concerning the theta-marking and case-marking of *whom* can now be solved. We will assume that the verb *invite* assigns its internal theta role to the VP-internal position e_i and that it also assigns ACCUSATIVE to this position. In chapter 7 we return in detail to the properties of *wh*-movement.

1.3 Syntactic Representations

Throughout the discussion in this chapter we have been assuming that sentences have two levels of syntactic representation:

(i) D-structure

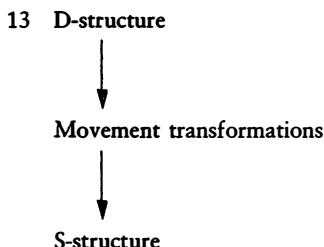
This level encodes the lexical properties of the constituents of the sentence. It represents the basic argument relations in the sentence. External arguments are base-generated in the subject position relative to their

predicate;¹ internal arguments are governed by the predicate in their base-position.

(ii) **S-structure**

This level reflects the more superficial properties of the sentence: the actual ordering of the elements in the surface string, and their case forms.

The two levels of syntactic representation are related to each other by means of movement transformations: elements which originate in some position at D-structure may be moved elsewhere at S-structure. Schematically our grammar thus looks as follows:



Section 4 considers the relation between D-structure and S-structure in more detail.

In the discussion above, we have distinguished three types of movement: (i) **head-movement**: the movement of auxiliaries from I to C; (ii) **wh-movement**: the movement of *wh*-constituents to the specifier of CP (or [Spec, CP]); and (iii) **NP-movement**: the movement associated with passive in which an NP is moved to an empty subject position.² In this chapter we discuss NP-movement in more detail. In chapter 7 we turn to *wh*-movement. Head-movement is discussed in chapters 11 and 12.

Even at this preliminary stage of the discussion the reader can see that the three types of movement have a lot in common. In each of the movements

¹ See section 5 for an alternative analysis of the NP in the canonical subject position, though.

² For different proposals concerning the levels of representation see for instance van Riemsdijk and Williams (1981), who posit a level between D-structure and S-structure, Zubizarreta (1987), who introduces a level of lexical structure; and Brödy (1993b) and Koster (1987), who argue that only one level of representation is needed. Chomsky (1992) proposes a different approach to phrase structure.

you take an element and move it somewhere else. In the literature this operation is often referred to in general terms as 'move- α ', move alpha, that is 'move something'. The types of movements discussed can be differentiated on the basis of the element which is moved, and on the basis of the landing site, the position to which an element moves. Either we move a head of a projection to another head position: in (3b) and in (3d) *will*, the head of IP, moves to C, the head of CP. Alternatively, a maximal projection is moved, as illustrated by NP-movement in (1a), and by *wh*-movement in (3d). Chomsky (1986b) argues that in fact movement must be restricted to just these types: either we move a head or we move a full phrase. We discuss landing sites of movement in the following chapters.

2 NP-movement

In this section we consider the mechanisms of NP-movement, concentrating mainly on the position vacated by movement: the trace (2.2). NP-movement is triggered not only by passive verbs but also by so-called raising verbs (2.1) and by raising adjectives (2.3).

2.1 Introduction: Passive and Raising

As a starting point let us consider the syntactic representations of passive sentences:

- 14a This story was believed by the villagers.
 14b Poirot was believed to have destroyed the evidence.

We have already discussed (14a). The D-structure of (14a) is given in (15a) and the S-structure in (15b):

- 15a [_{IP} e [_I was [_{VP} believed [_{NP} this story] by the villagers]]].
 15b [_{IP} [_{NP} This story]_i] [_I was [_{VP} believed [_{e_j}] by the villagers]]].

In (15a) the NP *this story* is theta-marked directly by the verb *believed*. The subject position is empty since passive verbs do not assign an external theta role. In (15b) *this story* is moved to the subject position and case-marked by the finite inflection.

Let us consider (14b) which also contains passive *believed*. (14b) can be paraphrased by means of (16):

16 It was believed [_{CP} that [_{IP} Poirot had destroyed the evidence]].

In (16) the subject position of the main clause is occupied by an expletive, *it*, which is not assigned a theta role. Passive *believed* takes a sentential complement (the bracketed CP) as its internal argument.

Inside the subordinate clause, the verb *destroy* assigns an internal theta role to the NP *the evidence* and the NP *Poirot* is the external argument which is assigned the AGENT role: 'Poirot is the person who is engaged in the activity of destroying.' Note specifically that the verb in the main clause, *believed*, does not have a thematic relation with *Poirot*, the subject of the subordinate clause.

The thematic relations in (14b) are identical to those in (16). *Believed* takes as its internal argument a clausal complement, here infinitival. *Poirot*, the surface subject of the main clause, has a thematic relation (AGENT) with the predicate *destroy* in the lower infinitival clause. Again, *Poirot* has no thematic relationship with *believed*. We conclude that in (14b) *Poirot* is a derived subject which is assigned the external theta role of the lower verb *destroy*. On this assumption, the D-structure of (14b) will be (17a), where *Poirot* is base-generated as the subject NP of the infinitival clause:

17a [_{IP} e [_{I'} was [_{VP} believed [_{IP} Poirot to have destroyed the evidence]]]]].

Believed directly theta-marks the lower IP. *Poirot* is the external argument of *destroy*, the predicate of the lower infinitival clause. *Believed*, being passive, fails to assign structural case. If the NP *Poirot* were left in the subject position of the lower clause at S-structure it would not be case-marked. This explains the ungrammaticality of (17b) and (17c):

17b *It was believed this story.

17c *It was believed Poirot to have destroyed the evidence.

A way of enabling the NP *Poirot* to pass the case filter in (17a) is by moving it from the subject position of the lower clause to the subject position of the higher clause, leaving a coindexed gap:

17d [_{IP} Poirot_i [_{I'} was [_{VP} believed [_{IP} e_i to have destroyed the evidence]]]]].

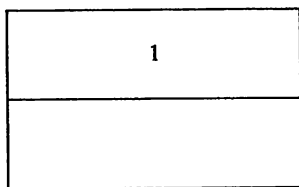
Consider now (18). The relation between (18a) and (18b) is exactly parallel to the relation between (16) and (14b).

18a It seems [that [Poirot has destroyed the evidence]].

18b Poirot seems to have destroyed the evidence.

(18a) shows that *seem* is like passive *believe*: it is a one-place predicate which takes a clausal complement. The subject position is not assigned a theta role and it is filled by the expletive *it*. We infer from (18a) that the thematic structure of *seem* is (18c):³

18c *seem*: V



In the complement clause, the NP *Poirot* in (18a) is the external argument of *destroy*.

The thematic relations in (18b) are identical to those in (18a). Again *seem* has the argument structure in (18c). The NP *Poirot* is the external argument of *destroy*. At D-structure *Poirot* is the subject of *destroy*, and the subject position of *seem*, which receives no theta role, is empty. (19a) is parallel to (17a) the underlying structure of (14b).

19a [_{IP} e seems [_{IP} Poirot to have destroyed the evidence]].

Apart from its argument structure, *seem* shares another property with passive *believe*: it cannot assign structural case:

19b *It/*There seems Poirot to have destroyed the evidence.

(19b) is ungrammatical for the same reason that (17b) is ungrammatical: the external argument of the verb *destroy* is caseless. In order to be able to be

³ To indicate that 1 is an internal argument it is not underlined. Recall that we adopted the convention that the external argument is underlined.

theta-marked by *destroy* the NP must be visible, and in order to be visible *Poirot* needs to be case-marked. Movement to the subject position of the main clause brings rescue. (19c) is the S-structure representation of (18b): *Poirot* is a derived subject. (19c) is again parallel to (17c).

19c [_{IP} Poirot_i [_{I'} -s [_{VP} seem [_{IP} e_i to have destroyed the evidence]]]].

(19c) is another example of NP-movement. Because the subject of the lower clause is raised out of the clause and moved into a higher clause, this movement is sometimes referred to as NP-raising or raising. Verbs such as *seem* which induce raising are called raising verbs.⁴

2.2 Traces

We have now discussed three examples of NP-movement. The relevant S-structures are given in (20):

20a [_{IP} This story_i [_{I'} was [_{VP} believed [_{e_i}] by the villagers]]]].

20b [_{IP} Poirot_i [_{I'} was [_{VP} believed [_{IP} [_{e_i}] to have destroyed the evidence]]]]]].

20c [_{IP} Poirot_i [_{I'} -s [_{VP} seem [_{IP} [_{e_i}] to have destroyed the evidence]]]]]].

In each of these examples we assume that there is a null element in the position vacated by the NP. Coindexation is used to indicate that the null element and the NP in the matrix subject position are linked. In chapter 3 we introduced the term *chain* to refer to this link and we shall return to this notion in 4.6. An empty category which encodes the base-position of a moved constituent is referred to as a *trace* and will be indicated from now on by *t*:

21a [_{IP} This story_i [_{I'} was [_{VP} believed t_i by everyone]]]].

21b [_{IP} Poirot_i [_{I'} was [_{VP} believed [_{IP} t_i to have destroyed the evidence]]]]]].

21c [_{IP} Poirot_i [_{I'} -s [_{VP} seem [_{IP} t_i to have destroyed the evidence]]]]]].

The moved element is called the *antecedent* of the trace. In the remainder of this section we go through the arguments for positing traces in syntactic representations.⁵

⁴ For an early discussion of raising, see Postal (1974).

⁵ The reader will no doubt observe that the argumentation used in 2.2 is similar to that used to justify the presence of PRO in chapter 5, section 1. However, note that PRO does not result from movement. We return to a comparison of PRO and trace in section 4.6 and in chapter 8.