

4 Refining Structures: From One Subject Position to Many

Discussion

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0 Introduction

This chapter returns to the representation we have elaborated for the structure of the sentence. We will try to refine the representation in order to capture the mapping of form to meaning. In a way this chapter is like a discovery trail through sentence structure. We start out from known territory and we go out into unknown territory. We will first look at some empirical and theoretical evidence to suggest that sentences must have more articulated structures than we had thought. In particular, we will take up the conclusion reached in Chapter 3, section 3.3. Up until that point we had been assuming that the subject occupies the specifier position of IP or SpecIP for short. As subjects typically occupy that position, SpecIP is the canonical subject position in English.

In the discussion in Chapter 3 we observed that while we had been identifying one position, SpecIP, as the subject position, it turns out that there are theoretical reasons for assuming that we need to also provide for a subject position in the VP. We will pursue this hypothesis here and take it to its consequences. While doing this, we will keep constant the basic principles of structure building that we have elaborated. Throughout the chapter, we will follow the same methodology: on the basis of the premises we start out with, and coupled with new empirical discoveries, we will formulate a hypothesis, test it, find problems with it, reformulate it, etc.

We will find arguments to introduce more subject positions. It is important to bear in mind, though, that our theory as such will remain unchanged. What changes is the implementation of the theory. This chapter provides an illustration of how linguistic theories develop through the interplay of two components: evidence from empirical data is one factor in the elaboration of a theory, but we also use conceptual arguments, that is, arguments driven by the kind of theory we have already developed.

We are trying to illustrate as precisely as possible the concrete process of elaborating a theoretical proposal. The hypotheses we will be elaborating are compatible with current thinking about syntax but they do not exhaustively represent the most recent developments of the theory. Our goal is to examine how a certain conclusion is arrived at using some specific analytic devices, but if we were to pursue the same strategy of thinking yet further we would see that what we propose here can again be challenged and must be modified. So even at the end of the discussion, there is still work to be done. This is an inevitable component of scientific research. Even if we were to present the results of the most recent work in syntax, we would still have to evaluate them and test them and we would discover that modifications are needed. Throughout all scientific work, an attitude of constructive criticism prevails. That is the nature of scientific research: it is never really “finished.” We repeat the quotation given in the exercise section of Chapter 1:

In any branch of science there are only two possibilities. There is either nothing left to discover, in which case why work on it, or there are big discoveries yet to be made, in which case, what the scientists say now is likely to be false. (Nigel Calder, author of *Magic Universe: The Oxford Guide to Modern Science*. Cited in the *Guardian*, 3.6.2004, p. 6, col. 2)

This chapter will be different from the previous ones in that it is more of a “narrative.” The idea is to trace step by step the reasoning that guides the construction of a theory. While doing this, we will point out the advantages and disadvantages of each modification as we go along.

The chapter is organized as follows: Section 1 is a recapitulation of the theory we have elaborated so far. Section 2 discusses the mapping of the form of the sentence to its meaning, that is, the fit between the structure elaborated and the interpretation associated with that structure. In particular, we raise the question why the subject, which is thematically related to the verb, is located strictly outside the VP. Section 3 provides a solution to the mapping problem and proposes that the subject is inserted in the specifier of the VP and that it is subsequently moved to the specifier of IP. Thus, the subject has a close link to V as well as being seen to occupy a VP-external position. Section 4 ties in the discussion in the preceding section with the discussion of sentences with multiple auxiliaries in Chapter 3, section 4. Section 5 is a summary.

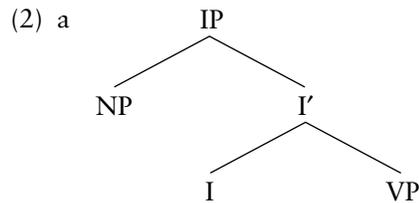
1 Recapitulation

Discuss how the examples in (1) can be argued to offer support for the claim that the underlined strings of words are constituents:¹

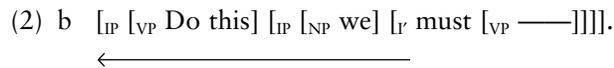
- (1) a Two decades of financial squeeze has eroded academic standards and seriously damaged common-room morale. (*Guardian*, 26.10.2002, p. 13, col. 1)
- b You could study this pattern for years and still not wholly understand it. (Ian Rankin, *The Falls*, 2001: 240)
- c “They must talk about it, and talk about it they must,” he said. Food for thought, there! It’s a phrase that could add a measure of gravity to any press conference. “We must do this, and do this we must.” (Simon Hoggart, *Guardian*, 29.1.2003, p. 2, col. 5)
- d Lawyers who’ve handled arbitration claims for years . . . are getting very busy; lawyers who never have are joining the fray. (*Washington Post*, 29.4.2003, p. C2, col. 1)

¹ For diagnostics of structure see Chapter 2, section 1.

In these examples, the underlined strings of words can be seen to be affected by a number of operations: in (1a–b), for instance, the relevant constituent is co-ordinated with another constituent, in (1c) VPs are fronted, and in (1d) the underlined string corresponds to the constituent omitted after the auxiliary *have* in the second sentence. The underlined constituents are all verb phrases: their head is a verb. On the basis of the data discussed in Chapter 3 we arrived at the conclusion that sentences are put together by merging pairs of constituents, according to the following schema:



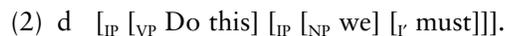
As illustrated by (1c), the structures formed according to the schema in (2a) can be modified by movement operations: in (1c) VPs are fronted, they are moved to a position to the left of the subject. We might provisionally say that such VPs are adjoined to IP.²



The position in which a constituent is merged is called its **base position**. The position that it attains after movement is called its **landing site**. In (2b) we show that originally the VP *do this* is the complement of the modal *must* by means of the arrow which links the base position $[_{VP} \text{---}]$ with the landing site of the moved element, a position adjoined to IP. To represent the relation between the fronted VP and its base position, we could also use an alternative representation in which we actually show the VP in two positions: its base position, where it is merged as the complement of the modal auxiliary *must*, and the moved position adjoined to IP, in which it is pronounced or **spelt out**. To show that the VP is not pronounced in its base position we use the notational device of **strikethrough**: *do this*.



We might ask ourselves if it wouldn't be simpler to just use a representation in which all of the original VP in the base position disappears?



² See discussion in Chapter 2, Exercise 15, and in Chapter 3, section 1.2.3.4.

(2d) suggests a radical change in the structure of the sentence. So far we had been assuming that the core of the sentence is the VP and that on top of this we construct a functional projection, IP. The original structure is fully preserved in representation (2c): notably, VP is still the starting point of the construction and it remains the complement of the modal. In representation (2d) the relationship between *must* and the VP has been irretrievably destroyed: according to (2d), the sentence is simply a projection of the modal in I, with the VP *do this* as an adjunct. (2d) does not preserve the format of the sentence before the movement; the strikethrough representation in (2c) does allow us to trace back the initial structure at the basis of the sentence. (2c) gives us the full information on the derivation of the sentence: how it has been built up by a combination of the operations Merge and Move. In this chapter and in Chapter 5 we will discuss a number of instances of movement and we will show the advantages of preserving the pre-movement structure.

2 Mapping Form onto Meaning: A Problem

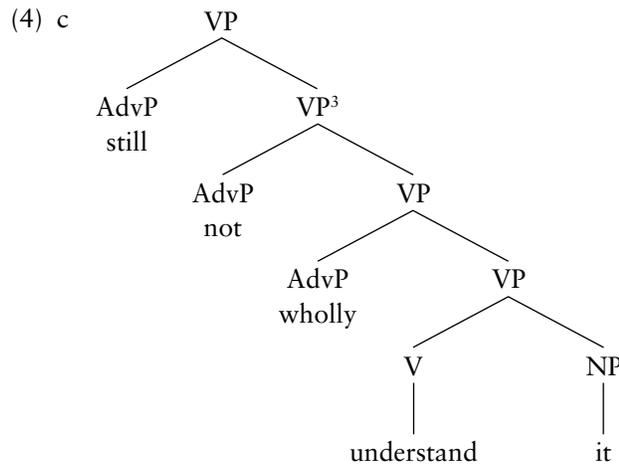
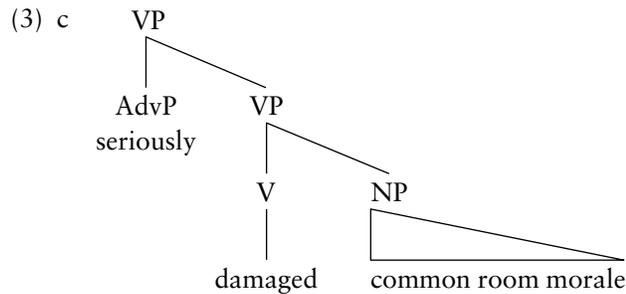
2.1 Mapping form to meaning: Core constituent and periphery

Consider examples (1a) and (1b) above. The co-ordinated VPs in these examples are:

- (3) a [VP eroded academic standards]
 b + [VP seriously damaged common-room morale]

- (4) a [VP study this pattern for years]
 b + [VP still not wholly understand it]

In (3b) the adjunct *seriously* is part of the co-ordinated constituent, hence it is taken to be part of the VP. We assume that *seriously* is left-adjoined to the VP. Similarly, in (4b) the adjunct *still*, the negative marker *not*, and the degree adverb phrase *wholly* are left-adjoined to VP. We have been working on the assumption that adjoined constituents are less central to a phrase than the core constituents of that phrase, i.e. the head (here the verb) and its complement (here the direct object NP). A maximal projection is fully formed even if it lacks any adjuncts. The internal layering of the components of a projection is mapped onto the interpretation: the action described by the VP is defined by the verb and the complement, while the adjuncts provide additional fine-tuning.



In (4c) the core VP *understand it* is “augmented” with three peripheral adjuncts, *still*, *not*, *wholly*. The interpretation of the VP can be read off from the tree: in (4c), the core meaning of the VP is encoded by the core VP, *understand it*, which denotes a psychological state. The adjunct *wholly* signifies that the state of the understanding covers the complete extent of the object *it*. The negation marker *not* is added to the unit *wholly understand it* and it denies that complete understanding. The adjunct *still* specifies a temporal interval. Observe that *not* negates the content of the VP *wholly understand it* and that *still* indicates the time interval of the content of the augmented VP *not wholly understand it*. We say that an adjoined constituent has **scope** over the constituent it adjoins to. *Still* has scope over the VP *not wholly understand it*; *not* has scope over the VP *wholly understand it*. If you compare the scope of the words *still* and *not*, the scope of *still* is **wider** than that of *not*. Or conversely, the scope of *not* is **narrower**. We can represent scope relations as in (4d):⁴

(4) d *still* > *not*

³ This representation of negation is a simplification. See Chapter 3, Exercise 5. For more careful analysis see Pollock (1989), Haegeman (1995), Rowlett (1998), Zanuttini (1997a, b).

⁴ Exercise 3 of Chapter 3 also illustrates how structure expresses scope relations.

Similarly *not* takes scope over the VP *wholly understand it* while *wholly* only takes scope over the VP *understand it*. The scope of *not* is wider than that of *wholly*.

(4) e *not* > *wholly*

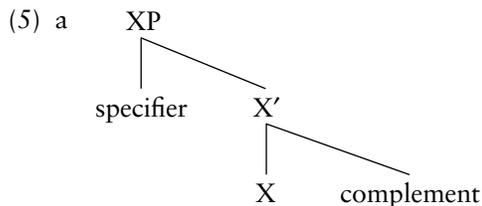
We can combine (4d) and (4e) to show the relative scope of the stacked VP-adjuncts:

(4) f *still* > *not* > *wholly*

The syntactic structure we have postulated can be seen as the input to the interpretive mechanisms that map linguistic forms into the corresponding interpretations. The structure allows us to assign scope to the adjuncts.⁵

2.2 Specifiers

Recall that in the preceding chapter⁶ we came across a number of theoretical questions with respect to the representations of VP structures such as those in (3c) and (4c). In fact, when elaborating the structure for the NP in Chapter 2 we ended up with a structure in which, for instance, a prenominal genitive NP occupied a specifier position. We assumed that there is one such specifier position per NP, and that the same position also hosts the determiner, thus accounting for the complementary distribution of prenominal genitive and determiner. We abbreviate “specifier of NP” as **SpecNP**. As discussed in Chapter 3, the subject NP is the specifier of the sentence, IP. “Specifier of IP” is abbreviated as **SpecIP**. Again there is just one SpecIP: there is one subject per sentence. (5a) shows the position of the specifier in a maximal projection: the specifier is the constituent immediately dominated by the maximal projection, XP.⁷ The specifier combines with the intermediate constituent X'.⁸ (5b) is the representation of the structure of an NP, (5c) that of a sentence. The boldfaced NPs in (5b) and in (5c) occupy the specifier positions.

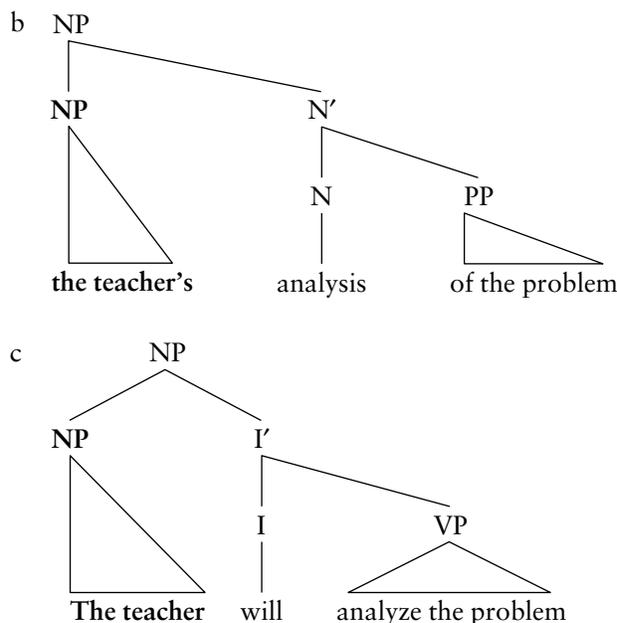


⁵ Exercise 22 concerns scope relations. However, the exercise is very speculative and it takes us well beyond the discussion. It should only be tackled at the end of the chapter.

⁶ Chapter 3, sections 2.1 and 3.3.

⁷ See the discussion of the format of the structure in Chapter 2, section 2.

⁸ The component of syntactic theory that sums up the format for syntactic structure is often referred to as X-bar theory.



If both NPs and sentences (“IPs”) have a specifier, the question arises whether the VP also has such a specifier position. In the discussion of the structure of the VP in Chapter 2,⁹ we did not have any clear empirical reason for postulating a specifier for the VP. However, simply stating that the VP does not have a specifier because our data had not led us to postulate such a position is not sufficient. If the VP did indeed not have a specifier position at all, we would have to explain why this is. We would have to account for the asymmetry across categories: NPs have specifiers, IPs have specifiers, but VPs would not have them. Indeed, given the need to postulate specifiers in at least two constituents, the simplest theory will be the one in which no such additional stipulation is needed and in which all constituents, including VP, have a specifier. We have also seen that the simplest theory is preferred.¹⁰ So let us examine whether the generalization of specifier positions to all maximal projections is workable. Taking a sentence such as (6a), what could be the filler of the specifier position of the VP?

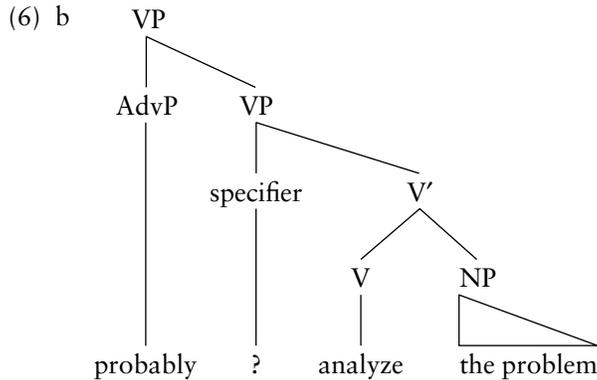
(6) a The teacher will [_{VP} probably [_{VP} analyze the problem]].

It is not plausible that the adjoined adverbial *probably* is the specifier of the VP. Recall that we assume that a maximal projection has just one specifier. But we have seen that adjunction is not restricted to just one constituent: a VP may have more than one adjunct (see (4c)). We also assume that adjoined elements are outside the core of the projection. The specifier, though, was taken to be part of the core of the

⁹ Chapter 2, sections 1 and 2.

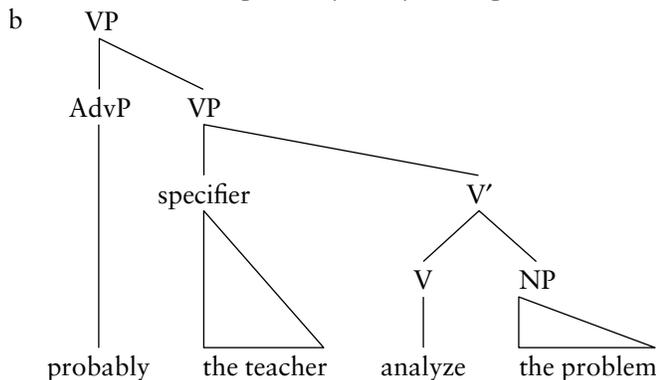
¹⁰ Chapter 1, section 1.2.3.

NP and of the clause. Following this line of thinking, we would assume that the specifier of VP is not an adjunct. Based on the models in (5) for the projection of NP and IP, we would locate the specifier position in VP lower than left-adjoined VP-adjuncts, as shown in (6b):



Specifier positions typically can host subjects. So we could make a bold move here and propose that the specifier of the VP is the subject. This move has some interesting consequences. In the preceding chapter,¹¹ we had come to the conclusion that we wanted to bring the subject closer to the verb because the subject usually receives a thematic role from the verb. If thematic relations are symptomatic of there being a close structural relationship between the assigner of the role (here the verb) and the receiver of the role (here the subject), then it would seem reasonable to expect the subject to be located somewhere in the VP. Suppose we merge the subject NP with V'. This means that the subject of a sentence occupies the specifier position of the VP, abbreviated as **SpecVP**. This is done in (7b). How would (7b) be spelt out or pronounced? Does (7b) provide the basis for the correct linearization of the sentence?

(7) a The teacher will probably analyze the problem.



¹¹ Chapter 3, section 3.3.

(7b) does not lead to the correct linear order or **spell out**: (7b) corresponds to the bracketing representation in (7c), which is spelt out as (7d).

- (7) c [IP [I' will [VP probably [VP the teacher analyze the problem]]]].
 d *Will probably the teacher analyze the problem.

(7b/c) cannot be the ultimate structure for the sentence we are aiming for. Compared with the intended sentence, (7a), the subject NP *the teacher* occupies the wrong position.

There is also a theoretical objection to (7b). Recall that we postulate that I, occupied by the inflection or by the auxiliary, serves as a linker between subject and predicate, and that the content of I validates/qualifies this link.¹² In (7c) the I position would not be able to perform its linking function: there is no constituent in the specifier of IP that could be linked up with the VP. (7c) is “unbalanced” because I does not have its anchor.¹³

2.3 Interpretation

The semantic organization of the structure in (7b) is quite appealing.¹⁴ The VP is hierarchically organized and the complement, which has the closest semantic connection to V, is situated closer to V than adjoined elements, whose relation to V is looser. Similarly, as we have seen, adjoined elements themselves are stacked so that the closer the adjoined element is to the verb the closer its connection to the VP.¹⁵ For instance, in (4c) *wholly* encodes the degree of understanding; *not* denies the content of *wholly understand it* and *still* encodes a time span during which ‘not wholly understanding it’ holds. *Wholly* is more closely connected to *understand it* than *still*.

The subject must be more closely connected to V than any of the adjoined constituents. After all, in (7a) the core information of the sentence is essentially ‘who analyzes what’, and the ‘probability’ of this event is in a sense secondary and additional to that core information. Before qualifying the likelihood of an event, we want to convey the nature of that event; specifically we want to identify the entities involved in the event. So we would expect that the subject is part of the core VP, that it is closer to V than an adjoined constituent such as *probably* in (6a). This relative closeness of the subject to the verb is encoded by representation (7b). The question is how to reconcile the linearization of the sentence in (7a), with the intuition expressed by (7b) that the subject is closely related to VP, and with the proposal that I links the subject and the VP.

¹² Exercise 23 introduces sentences in which the predicate seems to precede the subject. However, this exercise should not be tackled until you have reached the end of the chapter.

¹³ See also Chapter 3, sections 1.2.1 and 1.2.2.

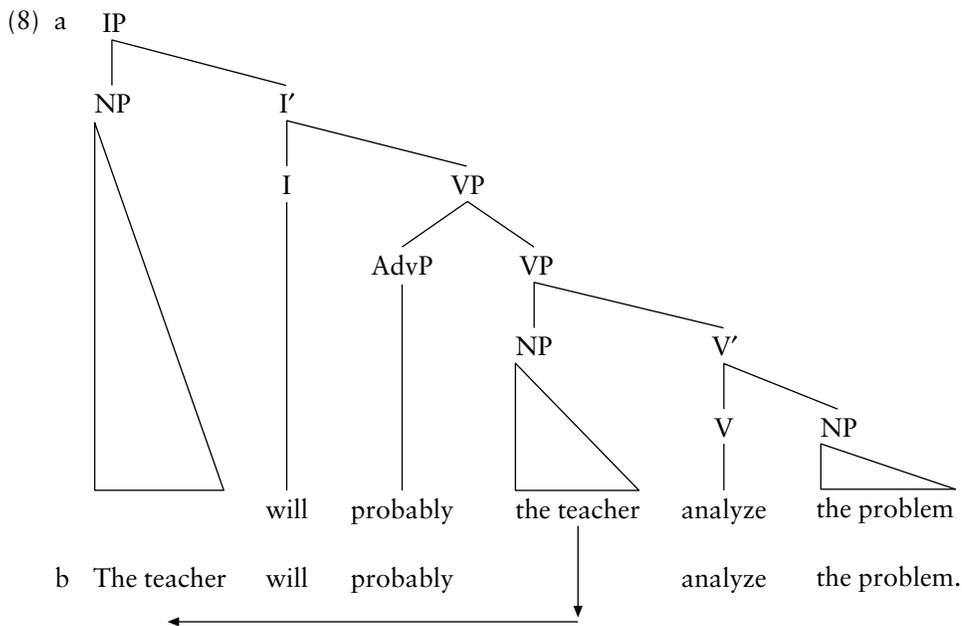
¹⁴ See the discussion in Chapter 3, section 3.3.

¹⁵ For illustrations see also Chapter 3, Exercise 3.

3 The VP-Internal Subject Hypothesis

3.1 Displaced constituents: Movement and copies

So far, when dealing with integrating the subject into the sentence we have only used the operation Merge. But recall¹⁶ that we also need the operation Move, if only to allow for the fronting of constituents such as the VPs in our example (1c). Given that this operation must be independently available in our theory, let us apply it to the subject and at the same time refine the operation somewhat. We start from (7b), in which the subject has been merged VP-internally. We motivated this merger on a theoretical basis, namely by invoking the close semantic connection between subject and VP. We can now propose that in order to arrive at its position in (7a), the subject moves leftward and merges again with I', forming IP. Thus the subject becomes the specifier of IP as a result of movement:



Recall that we suggested in Chapter 3 that the subject in SpecIP functions as anchor for the information in the sentence. The subject satisfies the linking function of I: I validates the link between subject and predicate. The operation Move as proposed above enables us to achieve the correct linear order and enables the subject to anchor the sentence. It is important, however, that the movement should not undo the semantic relation we postulated between the subject *the teacher* and the verb *analyze*. In (8b) the subject NP continues to express the entity that carries out the

¹⁶ From Chapter 2, sections 1.4, 2.3.4, and also from Chapter 3, section 2.3.

activity. The subject realizes the thematic role *AGENT*, to use the technical term.¹⁷ We conclude that the subject should somehow be represented twice in the sentence: it originates in the VP and it occupies the canonical subject position, SpecIP. To express the double affiliation of the subject in the sentence various technical devices are available.

One approach, the one we will adopt here, is to say that we merge the subject in the VP and that we move it to the specifier of IP. The result of the movement operation is that we leave a **copy** of the moved constituent in its original position. The original position at which a constituent is merged is also called the **base** position. The position that a constituent occupies after movement is called a **derived** position. As a result of the Move + Copy operation, the sentence contains two copies of the subject, one in the SpecVP and one in SpecIP. For reasons of economy,¹⁸ when a sentence contains multiple copies of the same constituent, we pronounce (“spell out”) only one such copy, in our example the one in the canonical position. We represent non-pronounced copies of a constituent by strikethrough: [_{NP} ~~the teacher~~].

(8) c [_{IP} [_{NP} The teacher] [_{I'} will [_{VP} probably [_{VP} [_{NP} ~~the teacher~~] analyze [_{NP} the problem]]]]].¹⁹

It is important to underline once more that the motivations for this representation remain at this point theoretical: (i) the representation allows us to generalize specifiers across categories, thus keeping our theory of structure as simple as possible; (ii) it allows us to match form and meaning hierarchies in the structure of the VP; (iii) it allows the subject NP to be related to two positions in the structure. In the next section we examine whether this proposal can be supported by empirical data.

In the discussion we present the subject as being merged in one position and then moved upwards, with a copy left in the base position. We pronounce the subject at its derived position; the copy in the base position remains unpronounced, though it is still available for interpretation. This representation allows us to relate the subject NP to two environments in the sentence. A slightly different way of presenting the same analysis would be to propose that we merge the subject NP twice: once in the

¹⁷ For thematic roles see Chapter 3, section 3.

¹⁸ In the sense of linguistic economy as discussed in Chapter 1, section 2.2.3.

¹⁹ An alternative and older notation is that in which the original position of the moved constituent is marked with “t” for **trace** (ia). **Coindexation** (NP_i, t_i) is often used to link a trace to a moved constituent (ib).

- (i) a [_{IP} [_{NP} The teacher] [_{I'} will [_{VP} probably [_{VP} [_{NP} t] analyze [_{NP} the problem]]]]].
 b [_{IP} [_{NP_i} The teacher] [_{I'} will [_{VP} probably [_{VP} [_{NP} t_i] analyze [_{NP} the problem]]]]].

Instead of strikethrough, one can also use angled brackets < . . . > to surround non-pronounced copies:

- (ii) [_{IP} [_{NP} The teacher] [_{I'} will [_{VP} probably [_{VP} [_{NP} <the teacher>] analyze [_{NP} the problem]]]]].

specifier of VP and once in the specifier of IP. In other words, the sentence could be argued to simply contain two identical **copies** of the subject, one merged in the VP specifier and one “re-merged” in the IP specifier. In the course of the derivation of the sentence, we first merge an NP VP-internally, which allows V to establish a thematic relation with the NP. (For instance, in (8) the NP *the teacher* is the AGENT of the verb *analyze*.) Then we insert a copy of that NP higher, in the specifier of IP, which allows I to accomplish its linking function between subject and VP. For reasons of economy, when a sentence contains multiple copies of the same constituent, we pronounce (“spell out”) only one such copy, in our example that in the subject position. We can again represent non-pronounced copies of a constituent by strikethrough.

(8) d [IP [NP The teacher] [I' will [VP probably [VP [NP ~~the teacher~~] analyze [NP the problem]]]]].²⁰

Representation (8d) is identical to (8c), except that we do not derive it by movement. What we do is merge the same NP twice; that is we insert one copy in SpecVP and one copy in SpecIP. This procedure is sometimes referred to as **multiple Merge**. The two proposals are very close, and it would probably be difficult to find empirical differences between them. Still, it is conceivable that one might propose that the multiple Merge proposal is “simpler” in that it invokes the application of an operation “Merge” without requiring movement. Both theories need to postulate copies. In what follows, we will continue to refer to “Move” operations because this gives us a way to track the sequencing of the various positions of a constituent. It is plausible though that whatever we say can be replaced by a theory that has multiple Merge.

A further point that comes out of our analysis is more general. So far we have been using the term “subject” as if it had a clear and unique reference. However, having proposed two subject positions in the sentence, the concept “subject” is now no longer a unitary phenomenon: whereas, before, we had postulated just one position for the subject in the sentence, now we postulate two positions. The VP-internal subject position encodes the semantic relation of the subject to the situation expressed by the VP; in the IP specifier position, the subject NP serves as the anchoring point for the sentence. The constituent that we label “subject” has a complex set of properties related to the semantics of the verb and to the informational structure of the clause. Our representation enables us to identify the different properties of the subject and associate them with different positions in the tree.²¹

²⁰ The “trace” notation illustrated in the preceding footnote appeals to an approach in terms of movement and copying. Strikethrough and angled brackets are neutral between a Move approach or an approach in terms of multiple Merge.

²¹ See McCloskey (1997) for a comprehensive and thorough discussion of the concept of “subject” in linguistic theory. For discussion of subjects in Japanese and in English see Kuroda (1986) and Kitagawa (1994).

3.2 Empirical support for the VP-internal subject hypothesis?

We have now elaborated a theory in which a sentence contains two positions for the subject: SpecVP, in which the subject is merged, and SpecIP, into which the subject moves, leaving a copy in SpecVP. It is important to observe that our theory has not been made more complex: we need the operations Merge and Move independently.²² We have simply made use of the same operations to refine the structure. The elaboration of the structure itself was motivated theoretically.

The question arises whether there are any indications in the language facts to corroborate the hypothesis that the subject is merged VP-internally. That the subject is in SpecIP is empirically founded: we literally “see” the subject in that position. SpecIP is the spell-out position of the subject. But do we have any evidence that the subject is merged in a lower position, i.e. in SpecVP? In this section we look at some data that bear on this issue.

3.2.1 FLOATING QUANTIFIERS

Compare the form and the interpretation of the sentences in (9). Identify the subject of each of the sentences. What is the category of the subject? Discuss how (9a) can be derived using the Merge and Move technique elaborated above.

- (9) a All astronauts don't speak the same language.
 b Astronauts don't all speak the same language. (*Washington Post*, 29.4.2003, p. A10, col. 3)

The two sentences in (9) have a similar interpretation, but their form is different in that in (9a), *all* is part of the subject and in (9b), it appears somewhere to the right of the subject. Still, in (9b), the quantifier *all* bears on the subject NP, *astronauts*. There is what we could call a **discontinuous** constituent: the subject of (9b) is a quantified NP *all astronauts*, but the quantifier is not adjacent to the NP which it quantifies over. When a quantifier is not adjacent to the constituent which it quantifies over it is called a **floating** quantifier.²³

The constituents in the canonical subject positions in the sentences in (9) are NPs: their most important element is the N *astronauts*. The quantifier *all* is NP-adjoined in (10a).

- (10) a [_{NP} all [_{NP} astronauts]]
 b [_{NP} astronauts]

Remember that there is no contradiction in calling *astronauts* an NP, even though it contains just one word. The unit *astronauts* is a constituent whose main (and only)

²² Recall that as an alternative to movement we could appeal to multiple Merge.

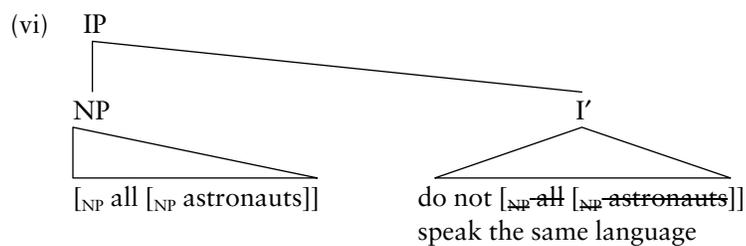
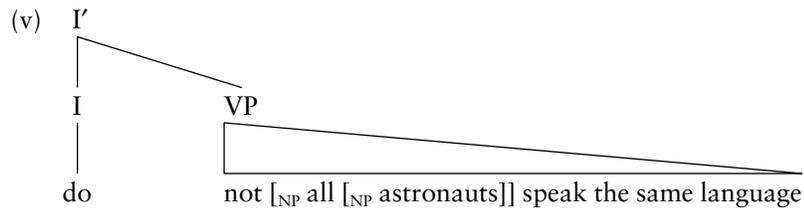
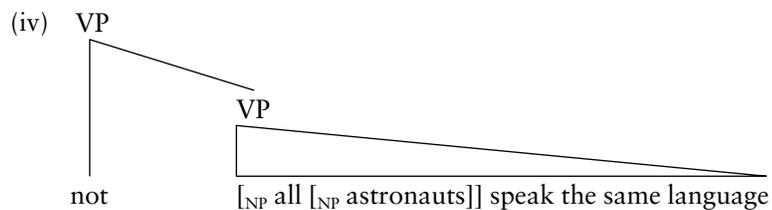
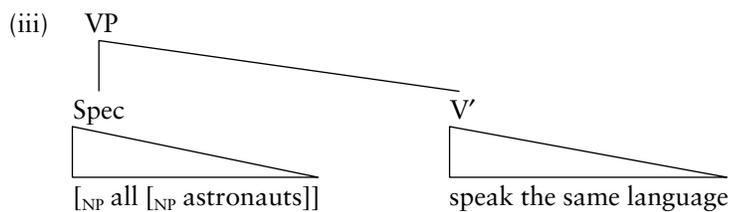
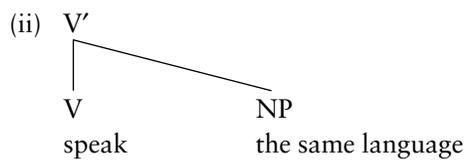
²³ See also Sportiche (1988) and Koopman and Sportiche (1991). For an alternative view see also Doetjes (1992).

component is a noun. Both the NP *all astronauts* in (9a) and *astronauts* in (9b) can be substituted for by a pronoun:

- (9) c They don't speak the same language.
 d They don't all speak the same language.

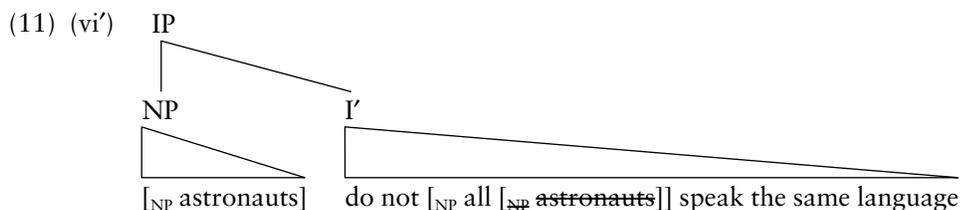
Along the lines sketched in the preceding section we derive (9a) as illustrated in (11):

- (11) (i) V = *speak*



We assume that *don't* results from contracting *do* and the negative marker *not* into one word.

Consider step (vi): we merge the NP [_{NP} *all* [_{NP} *astronauts*]] first as SpecVP and then we move it to SpecIP, leaving a copy in SpecVP. This copy will be unpronounced. How could we derive the alternative pattern in (9b)? Starting from (11v): observe that in order to derive (11vi), we move the subject NP *all astronauts*. But *astronauts* itself is also an NP, so we could have decided not to move the outer NP but rather to move the inner NP, the core NP *astronauts*. As a result, we would leave the outer layer, containing *all*, behind in SpecVP. This derivation will yield the pattern in (9b). The quantifier *all* remains in the specifier of VP. It is sometimes said that the quantifier is **stranded**. The stranded quantifier signals the original merger site of the subject:



The examples in (12) are based on the test sentence we were working on in the earlier chapters. Paraphrase them using a pattern with a floating quantifier.

- (12) a All the customers in the corner will order their drinks before the meal.
 b All the customers in the corner have ordered their drinks before the meal.
 c All the customers in the corner are ordering their drinks before the meal.

The result of floating the quantifiers in (12) is given in (12'):

- (12') a The customers in the corner will all order their drinks before the meal.
 b The customers in the corner have all ordered their drinks before the meal.
 c The customers in the corner are all ordering their drinks before the meal.

Identify the subject NP and the floating quantifier associated with it in the following examples. Describe the relative position of auxiliary and quantifier.

- (13) a They've all worked so hard. (Ian Rankin, *The Falls*, 2001: 418)
 b They will all give us lower prices, better ranges and more jobs. (*Guardian*, 1.5.2003, p. 12, col. 1)
 c We cannot all drive into a city. (*Guardian*, 22.7.2002, p. 5, col. 3)

Each of the above examples contains an auxiliary; in each, the linear order is subject – auxiliary – floating quantifier – V. This sequencing is as expected given that our assumption is that the floating quantifier (abbreviated as FQ) occupies SpecVP.

- (13') a They 've all worked so hard.
 subject FQ
 b They will all give us lower prices, better ranges and more jobs.
 subject FQ
 c We cannot all drive into a city.
 subject FQ

We conclude that sentences with floating quantifiers related to their subjects offer empirical support for the proposal that the subject originates in the specifier of VP. The floating quantifier is like a residue in the base position of the subject.²⁴

3.2.2 EXISTENTIAL SENTENCES

3.2.2.1 Thematic subject and grammatical subject

Identify the lexical verb in the following example. What is the subject NP?²⁵ Motivate your answer.

- (14) a Three students are now working on this project.

The subject in (14a) is *three students*, and the lexical verb is *working*. When we form a direct question based on (14a), SAI affects the relative order of the NP *three students* and the finite auxiliary *are*.²⁶

- (14) b Are three students now working on this project?

The NP *three students* determines the agreement of the inflection of the auxiliary: *three students* is plural.

Let us insert *are* in I and assume that the progressive form *working* is inserted as one word under V.²⁷ Using the Merge and Move technique, and assuming that the subject NP originates in the VP, show how we derive sentence (14a). What is the position of the unpronounced copy of the subject? Following the derivation outlined above we should proceed as in (15):

- (15) a derivation of (14a)

(i) V = *working*

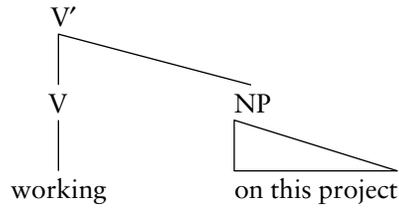
²⁴ Exercises 3, 5, 8, and 9 are straight applications of the discussion. In Exercises 10, 11, and 12 we raise some problems. Exercise 21 looks at the agreement relation between a quantifier and the related NP in Hebrew.

²⁵ Exercise 17 of Chapter 3 introduced data similar to the data which we are dealing with here.

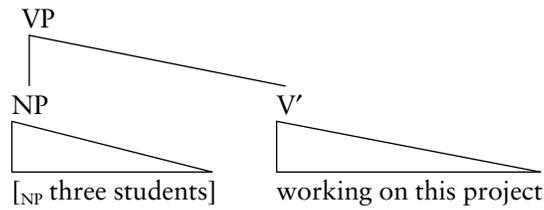
²⁶ We turn to the position of the inverted auxiliary in Chapter 5.

²⁷ Cf. Chapter 3, Exercise 14 for reservations concerning this proposal.

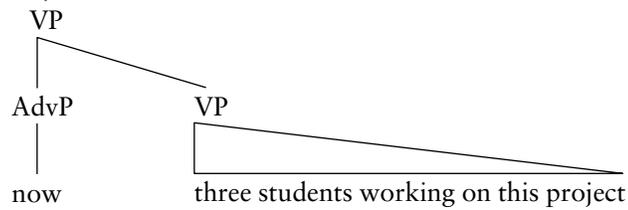
(ii) Merge V and its complement:



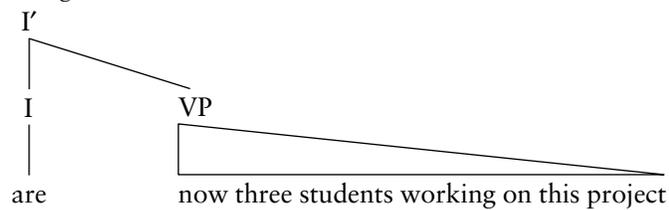
(iii) Merge V' and the subject:



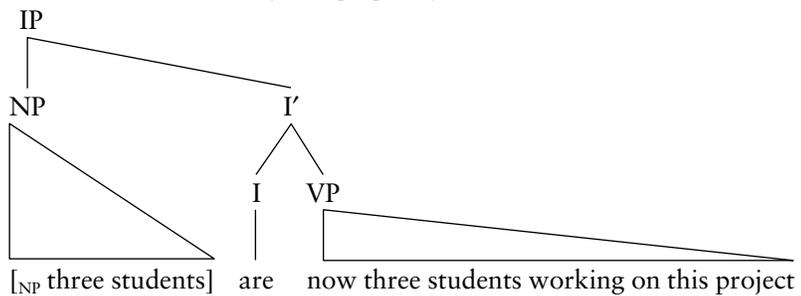
(iv) Adjoin *now* to the core VP:



(v) Merge VP and I:



(vi) Provide anchor for I by merging subject NP and I':



(15) b Spell out higher copy of subject NP:

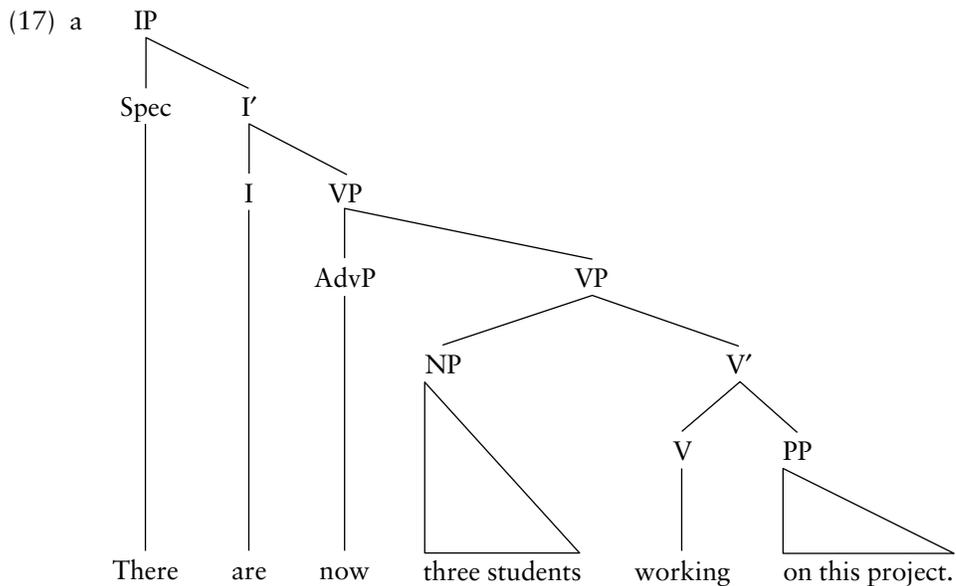
[_{IP}[_{NP} Three students] [_I are [_{VP} now [_{VP} ~~three students~~ working on this project]]]].

In derivation (15a) we merge the subject NP *three students* in SpecVP and subsequently we move it up to SpecIP, leaving a copy in the original position.

Arrived at stage (v) of derivation (15a), could we have proceeded differently? Suppose we had not moved the subject up to SpecIP: what would happen? We cannot just leave the specifier of IP empty, because the head I must link two components, the VP and what will be the specifier of IP, which, among other things, we designated as the “informational” anchor of the sentence.²⁸

- (16) a [IP — [I' Are [VP now [VP three students working on this project]]]].
 b *Are now three students working on this project.

Can we spell out (16a), but without moving the NP *three students* into SpecIP? To maintain the linking function of I, we could try filling SpecIP with a different constituent. We insert the element *there* in SpecIP:



In (17a) *there* acts as a filler for the canonical subject position, SpecIP. The NP *three students* remains in its base position, SpecVP. (17a) spells out as (17b).

- (17) b There are now three students working on this project.

Observe that the auxiliary *are* is plural. If the VP-internal subject had been singular, we would have found singular agreement on the auxiliary. In these examples agreement is not realized in a specifier – head relation.

- (17) c There is now one student working on this project.

²⁸ In Chapter 3, section 1.1.

Recall that in direct questions the auxiliary typically inverts with the subject. If *there* occupies the canonical subject position, then we predict that SAI will invert the auxiliary with *there*. This prediction is borne out:

(18) Are there now three students working on this project?

In (17b) two properties normally associated with the unitary subject of a sentence are split over two constituents. The auxiliary inverts with *there* in a question (18); the auxiliary agrees with the NP *three students*.²⁹ In addition, the NP *three students* in (17b) refers to the entity engaged in the activity denoted by the verb *working*, *three students* denotes the AGENT. *There* does not denote an entity, it is mere a filler for SpecIP. Observe that the word *there* as used here is not the place indication used in opposition to *here*: to show this we may note that locative *there* can be added to this sentence without creating redundancy; *here* can also be added without creating a contradiction:

(19) a There, there are now three students working on this project.
 b Here, there are now three students working on this project.

Apparently, *there* is not inserted in the subject position in (17b) to denote a place but rather because the head I is a linking element which serves to anchor the sentence. In the absence of a referential anchoring NP, we insert *there*. *There* is sometimes called a **dummy** element. Its role is to stand in for the subject. Another term is **expletive *there***.³⁰

We conclude that if we do not move the NP *three students* into SpecIP, we can merge *there* in SpecIP. As a result, subjecthood is split over two constituents, and over two positions. The NP *three students* denotes the entity that carries out the action expressed by the verb *working*. In this way, we may say that it is the subject. The NP *three students* also determines the agreement of the inflectional element, the head of the sentence. On the other hand, with respect to grammatical operations such as SAI, *there* functions as the subject. Sometimes it is said that *three students* is the **notional subject** or the **logical subject** and that *there* is the **grammatical subject**, the **provisional subject** or the **expletive subject**. Using terminology elaborated in Chapter 3³¹ we can add that *three students* is the **thematic subject**.

We may wonder whether *there*-sentences are associated with a specific interpretive effect. One effect of inserting *there* in the canonical subject position of the sentence is that the thematic subject does not move to the canonical subject position. We have postulated that the subject NP is inserted in SpecVP. This is its base position.

²⁹ For some discussion of agreement patterns in *there* sentences see also Sobin (1997) and Schütze (1999). For a different pattern see also the examples in (6) of Exercise 2.

³⁰ Exercise 2.

³¹ Section 3.

In sentences introduced by expletive *there*, the subject remains in its base position.³² Hierarchically, the thematic subject remains “lower” in the structure. Linearly, the thematic subject remains in a position to the right of the canonical subject position. In a *there* sentence, the thematic subject is expressed later in the sentence than if it were to occupy the canonical subject position; when we hear or read such sentences the thematic subject comes later.

In general when communicating information we tend to organize that information in a particular way. We start on the basis of familiar information and we lead up to new information.³³ By locating a constituent toward the end of the sentence we signal it is relatively new information. In (17b) we present as new the information that three students work on the project. New information may also concern the very existence of an entity whose existence we did not know about, an entity that has recently come into existence, or at least of whose existence we have only recently been made aware. In (17b) we draw attention to the existence of the students and their participation in the action. Sentences with expletive *there* in the subject position and with a thematic subject in SpecVP are sometimes called **existential** sentences.

3.2.2.2 A note on determiner choice

Describe the difference in the realization of the subject NPs in the following sentences. When could we use such sentences? How could we describe the differences in the realizations of the subjects?

- (20) a A French student has arrived.
 b The French student has arrived.

In (20a) the subject NP *a French student* is introduced by an indefinite determiner, the indefinite article *a*. In (20b) it is introduced by a definite article (*the*). The choice of the determiner is associated with a difference in meaning. In (20a) we signal that the entity denoted by the NP (‘a French student’) is new to the cognitive environment; we have not discussed this referent yet; we introduce the entity to be discussed by means of the sentence. In (20b) the entity denoted by the subject is presented as being already accessible somewhere in our cognitive environment: perhaps we have already mentioned the French student in the current discussion or perhaps we have a certain expectation given our knowledge of the situation. In English (as in fact in many languages), the definite article and the indefinite article are linguistic devices to indicate the discourse status of the entity referred to. When we wish to introduce a novel entity into the discourse we use the indefinite article for a singular NP. For plural NPs, we either do not find an article at all or we may use the quantifier *some* (unstressed and pronounced as [sm]).

³² For a complication see Exercise 14.

³³ For instance, in this chapter we first recapitulate what we know already and then move on to new material. See Prince (1981).

- (20) c French students have arrived.
Some French students have arrived.

If the existential sentence pattern serves to introduce the subject as novel then we predict that in existential patterns, subjects will typically be indefinite. If you go over the examples discussed so far once again, you will see that this prediction is borne out.³⁴

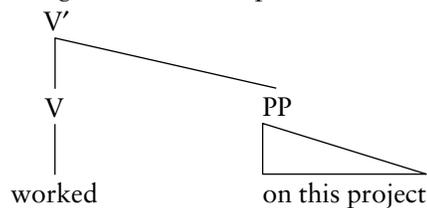
3.2.2.3 A note on verb choices and existential patterns

In the derivation of the English existential sentences above we saw that we can leave a subject in its base position and insert *there* in the canonical subject position. However, the account might wrongly lead us to expect that we can simply leave every subject in the base position and insert the expletive *there*. We noted in the preceding section that the application of this strategy is restricted to sentences with indefinite subjects. If we were to assume that the existential strategy generalizes to all English sentences, however, we would wildly **overgenerate**: we would produce lots of unacceptable sentences. Consider (21). Using the step-by-step derivation discussed above to derive (17b), construct the sentences that would arise if we (i) left the subject in the base position, and (ii) merged *there* in the canonical subject position.³⁵

- (21) a Three students have worked on this project.
b Three students worked on this project.

In (22) we outline the derivation of (21a):

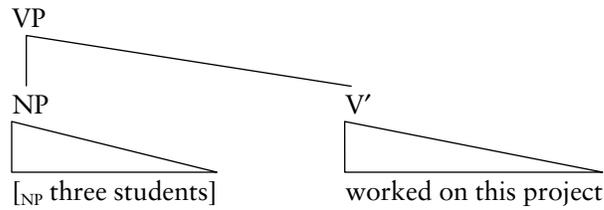
- (22) a Derivation of (21a).
(i) V = *worked*
(ii) Merge V and its complement:



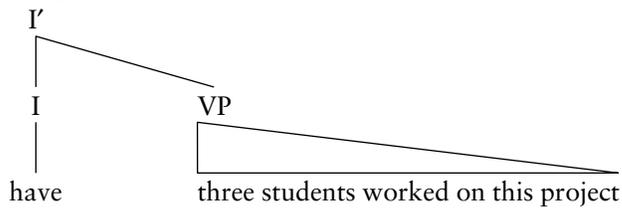
³⁴ That subjects of existential sentences are usually indefinite is referred to as the **definiteness effect**. For discussion of the existential pattern see also Milsark (1974, 1979), Safir (1985), Lumsden (1988), Belletti (1988), Law (1999).

³⁵ You may insert inflected *have* under I and the past participle *worked* under V.

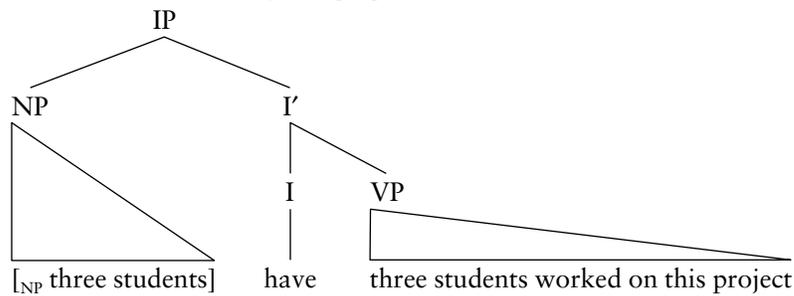
- (iii) Merge V' and the subject NP:



- (iv) Merge VP and I (see note 35):



- (v) Provide anchor for I by merging subject NP and I':

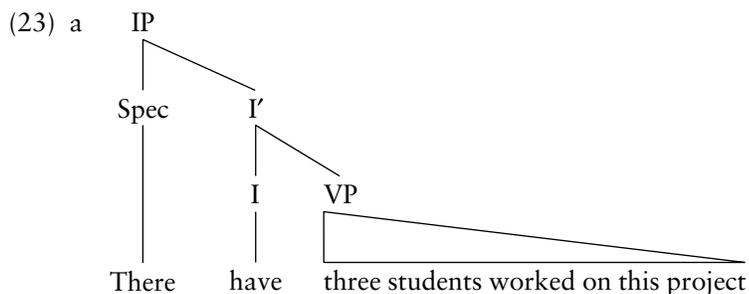


- b Spell out higher copy of subject NP:

[_{IP} Three students [_{I'} have [_{VP} ~~three students~~ worked on this project]]].

We have merged the subject NP *three students* in SpecVP and moved it up to SpecIP, leaving a lower (non-pronounced) copy.

Arrived at step (iii) of (22a), could we have proceeded differently? Suppose we had decided not to move the subject from SpecVP to SpecIP. As before, we cannot just leave the specifier of IP empty, because the head I must link two components, the VP and the specifier of IP, which serves as the anchor of the sentence. To spell out this sentence without moving the NP *three students*, we might once again try filling SpecIP with existential *there*:



In (23a) *there* fills the position SpecIP, the NP *three students* remains in SpecVP. (23a) would spell out as an unacceptable sentence (23b):

(23) b *There have three students worked on this project.

Though we have faithfully followed the steps of derivation (17a), the result is not acceptable. The same problem will arise if we try to create existential sentences on the basis of the second example in (21).

(23) c *There three students worked on this project.

This is a problem. It could mean that we need to reconsider our analysis of existential sentences entirely, and discard derivation (17). However, before throwing out the analysis (and losing the insights it had given us), let us look a little further afield. In Belfast English, sentences resembling (23b) are attested, though not those corresponding to (23c).³⁶

- (24) Belfast English (Henry, 2001):
- a % There have hundreds of people phoned us.
 - b % There has something come in about this.

but

- c % *There hundreds of people phoned us.
- d % *There something came in about this.³⁷

Belfast English allows the derivation of existential sentences with the auxiliary *have*, though it does not allow the pattern in the absence of an auxiliary. (24e) and (24f) give a partial representation of (24a) and (24b):

- (24) e % [_{IP} There [_{I'} have [_{VP} hundreds of people phoned us]]].
- f % [_{IP} There [_{I'} has [_{VP} something come in about this]]].

³⁶ The percentage symbol, %, indicates that only a subsection of speakers accept the example. When a percentage symbol is followed by an asterisk * this means that even for the relevant subsection of speakers the sentence is ungrammatical.

³⁷ See also Henry (2001) and Cottell and Henry (2004).

In other languages, existential sentences can be fairly freely derived even in the absence of an auxiliary. Icelandic, for instance, allows sentences such as the following:³⁸

- (25) a að það hefur einhver borðað epli.
 that there has someone eaten (an) apple (Vikner, 1995: 189)
 ‘that someone has eaten an apple.’
 b að það borðaði einhver epli.
 that there ate someone (an) apple (Vikner, 1995: 219)
 ‘that someone ate an apple.’

In (25a) the canonical subject position is occupied by expletive *það*, and the AGENT of the action, the indefinite NP *einhver* (‘someone’), follows the finite auxiliary *hefur* (‘have’). Using our structures elaborated so far the sentence would have the partial structure in (25c):

- (25) c að [_{IP} það [_I hefur [_{VP} einhver borðað epli]]].³⁹

(25b) lacks an auxiliary but the existential pattern is possible. The finite lexical verb *borðaði* precedes the subject. Recall that depending on the strength of the inflection the lexical verb will either remain in the position V and I will lower onto V, or, alternatively, the lexical verb will raise to finite I.⁴⁰ If the subject *einhver* (‘someone’) occupies SpecVP then the position of the verb to its left suggests that V moves to I in Icelandic.

- (25) d að [_{IP} það [_I borðaði [_{VP} einhver borðaði epli]]].

This would mean that the inflectional paradigm of Icelandic is strong, that is, that it contains many distinct forms. Table 1 contains the paradigms for the present tense and for the past tense of the verb *hear*.⁴¹ For some reason, which we won’t explore here,⁴² Modern English does not allow the general application of the existential pattern. If you go over all the acceptable sentences in the preceding text you will find that they have in common the presence of *be*.⁴³ We assume then that there must be a special property in English that will mainly restrict the existential pattern to sentences with *be*.⁴⁴

³⁸ Examples such as (25a) and (25b) in which a transitive sentence is used in the existential pattern are referred to as **transitive expletive constructions**. See Exercise 14 of this chapter for complications.

³⁹ For the position of the subordinating conjunction *að* (‘that’) see Chapter 5, section 2.3.

⁴⁰ See Chapter 3, sections 1.2.3.3 and 1.2.4. See also Chapter 3, Exercise 6.

⁴¹ See Chapter 3, Exercise 6.

⁴² See Bobaljik and Jonas (1996), Vikner (1995).

⁴³ This is a simplification. See Milsark (1974, 1979), Safir (1985), Belletti (1988), and for introductory discussion also Haegeman and Guéron (1999: chapter 2, section 3).

⁴⁴ Exercises 6, 7, 13, and 16 offer additional empirical support for the hypothesis that the subject originates in the VP. Exercises 14, 15, and 16 raise complications.

Table 1 Inflectional patterns in Icelandic

| | PRESENT | PAST |
|-----|---------------|----------------|
| 1sg | <i>heyri</i> | <i>heyrdi</i> |
| 2sg | <i>heyrir</i> | <i>heyrdir</i> |
| 3sg | <i>heyri</i> | <i>heyrdi</i> |
| 1pl | <i>heyrum</i> | <i>heyrdum</i> |
| 2pl | <i>heyrið</i> | <i>heyrdud</i> |
| 3pl | <i>heyra</i> | <i>heyrdu</i> |

4 Subject Positions and Auxiliaries

4.1 Auxiliaries and step-by-step movement of the subject

When discussing the structural properties of sentences containing auxiliaries in Chapter 3,⁴⁵ we had not yet introduced the VP-internal subject hypothesis. In order to ensure that our theory remains internally coherent, we need to make sure that our different proposals for the structure of the sentence are consistent with each other. Recall from Chapter 1 that the knowledge acquired by scientists is cumulative and is part of a system. We cannot simply present unrelated insights, however interesting they may be. Let us return to the hypothesis that the subject originates in the specifier of VP and that it moves up to the canonical position, the specifier of IP, leaving a copy in the original position. Let us examine how this hypothesis ties in with the representations that we elaborated for sentences with multiple auxiliaries.

The auxiliaries *have* and *be* are verbs which head their own projection, VP. Following our theory about structure, these VPs can also have a specifier position. Consider a sentence containing an auxiliary that takes as its complement a VP headed by a lexical verb. The lexical verb assigns a thematic role to the subject; the auxiliary does not assign any thematic role.⁴⁶ By hypothesis, though, the VP headed by the auxiliary can have a specifier position.

Let us examine the movement of the subject from its VP-internal base position to the canonical subject position, SpecIP. What happens if the sentence contains more than one auxiliary? Sentences relevant for the discussion are (26a) and (26b).⁴⁷

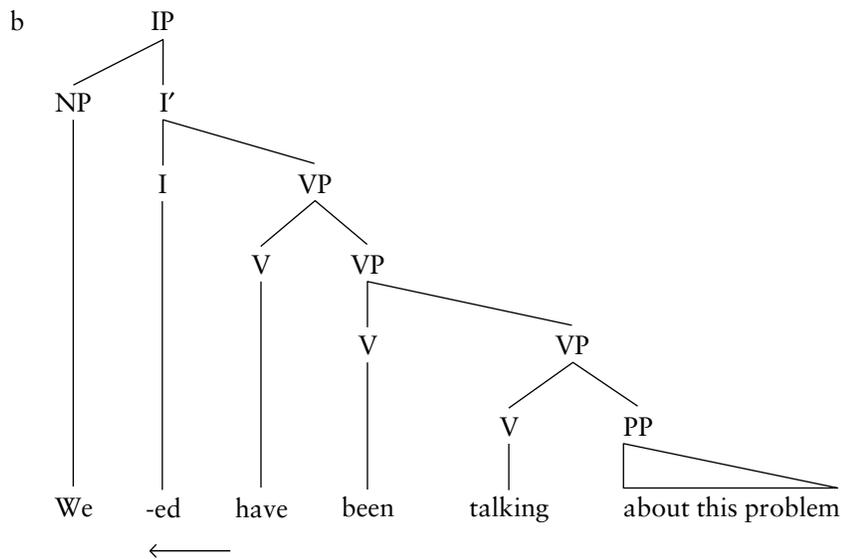
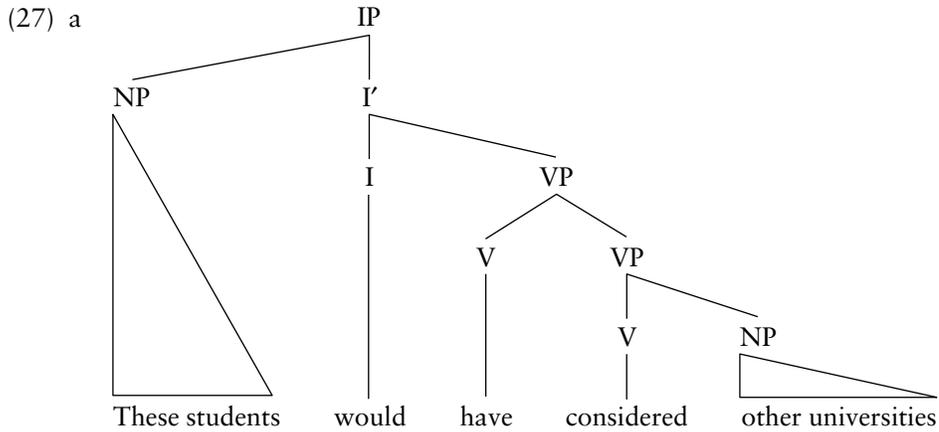
⁴⁵ Section 4.

⁴⁶ See discussion in Chapter 3, sections 3.3 and 3.4.

⁴⁷ These sentences are discussed as (68) and (69) in Chapter 3, section 4.4.

- (26) a These students would have considered other universities.
 b We had been talking about this problem.

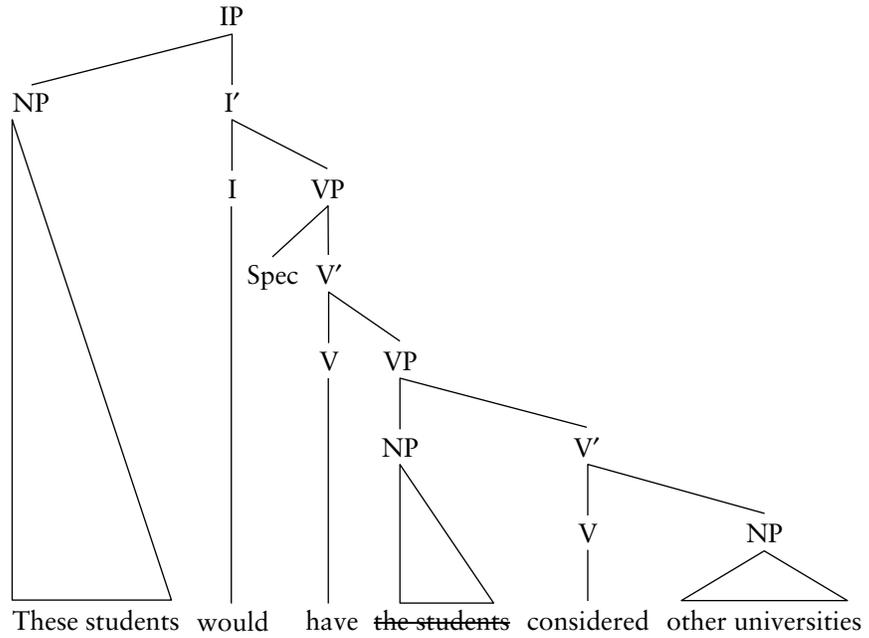
The question arises whether, starting from the specifier position of the lexical VP, the subject moves directly into SpecIP, or whether it transits via the intermediate specifier of the VP headed by the auxiliary. Consider the representations in (27), which we elaborated in Chapter 3.⁴⁸



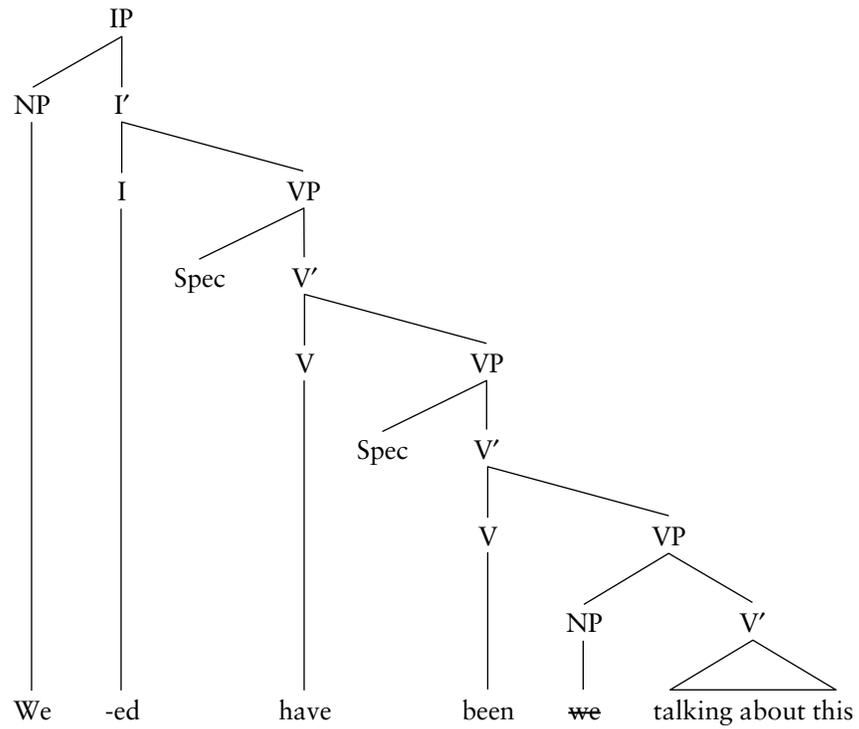
Revise representations (27a) and (27b), signaling the copy of the subject in its base position using the strikethrough notation. Also add in the specifier positions for the projections headed by the auxiliaries. Once you have done this, check the result with the representations below.

⁴⁸ (27a) and (27b) correspond to representations (68c) and (69b) in Chapter 3.

(28) a



b



How does the subject NP move from the lower SpecVP to SpecIP? Does it move in one step? Or does it move step by step via the **intermediate** specifiers? In the latter case, we could assume that the subject leaves an unpronounced copy in the intermediate specifiers. This would mean that in a sense, the subject NP is the subject of the lexical VP but also of the VPs headed by the auxiliaries.

4.2 Empirical support for step-by-step movement

We cannot decide on the precise execution of the movement of the subject by simply looking at the tree diagram or at a random sentence. The relevant intermediate specifier positions, which are located between the auxiliaries and which would correspond to the specifiers of the VPs headed by auxiliaries, do not contain any overt elements, but this is also expected if the subject moves through them because the intermediate copies left by the subject would not be spelt out.

- (29) a [IP These students would [VP ~~these students~~ have [VP ~~these students~~ considered other universities]]].
 = These students would have considered other universities.
 b [IP We [I -ed] [VP ~~we~~ have [VP ~~we~~ been [VP ~~we~~ talking about this]]]].
 = We had been talking about this.

What kind of evidence could we invoke in support of the step-by-step movement hypothesis? The evidence we are looking for has to show that in addition to SpecIP and SpecVP there are intermediate subject positions that contain unpronounced copies of the moved subject. Earlier sections in this chapter introduced empirical material to deal precisely with the issue of moved constituents and their residues. We postulated two subject positions in the sentence: SpecVP and SpecIP. The empirical support for the VP-internal subject position, SpecVP, was drawn from, among other things, the distribution of floating quantifiers (section 3.2.1). In this light, consider sentence (30a):⁴⁹

- (30) a All the students must have been sleeping.

In this example, the quantifier *all* has moved with the subject. Try stranding the quantifier in a lower position. McCawley (1988: 90) gives the following examples:⁵⁰

- (30) b The students must all have been sleeping.
 c The students must have all been sleeping.
 d The students must have been all sleeping.

⁴⁹ These data are from McCawley (1988: 92).

⁵⁰ Exercise 1.

In these examples, the quantifier *all* is stranded in intermediate positions. The positions occupied by the quantifier correspond exactly to the intermediate specifier position that we postulated above.⁵¹

- (30) b' [_{IP} The students must [_{VP} ~~all the students~~ have [_{VP} ~~all the students~~ been [_{VP} ~~all the students~~ sleeping]]]].
 c' [_{IP} The students must [_{VP} ~~the students~~ have [_{VP} all ~~the students~~ been [_{VP} ~~all the students~~ sleeping]]]].
 d' [_{IP} The students must [_{VP} ~~the students~~ have [_{VP} ~~the students~~ been [_{VP} all ~~the students~~ sleeping]]]].

The following attested examples illustrate the stranding of a quantifier in various positions:⁵²

- (31) a They would have all loved to come. (Mick Jagger, interview, BBC4, 12.12.2003, 7 o'clock news)
 b They'd all have gladly murdered Brooks. (Colin Dexter, *The Daughters of Cain*, 1995: 266).
 c Those leisured or flexi-working people who have the chance to go to the cinemas in the afternoon must all have wondered at some time if multiplexes are a front for something else. (*Guardian*, 24.5.2003, p. 17, col. 7)

5 Summary

This chapter reassesses the representation of the structure of the sentence in terms of the question of how well the structure we had elaborated so far can be mapped onto its interpretation. In English, SpecIP is the canonical subject position; subjects typically occupy that position. However, there are a number of theoretical reasons for assuming that we must also provide for a VP-internal subject position. These theoretical arguments are twofold. Firstly, there is an argument to be made for generalizing the specifier position to all maximal projections, thus eliminating the exceptional status of the VP (which lacks a specifier) as compared to NP and IP (which have a specifier). Secondly, there is a semantic argument that comes out of our attempt to have structure match meaning. In particular, if the subject were really located entirely outside the VP, it would come as a surprise that it can receive a thematic role from the verb, while VP-adjoined constituents, which are structurally closer to V, do not receive a thematic role.

In this chapter we elaborate the VP-internal subject hypothesis. We propose that the subject is first merged with *V'*. It is the specifier of VP. Then, when *I'* has been

⁵¹ Exercise 4.

⁵² Exercises 17, 18, and 19 examine the structure of passive sentences.

built, the subject leaves the specifier of VP and moves to merge with *I'*, thus becoming the specifier of IP. The subject has a double affiliation in the sentence: it is both the subject of the sentence and that of the VP.⁵³

The chapter provides empirical support for the hypothesis that the subject originates in the VP. That support comes from the distribution of floating quantifiers associated with the subject and from the distribution of the subject NP in existential sentences. Floating quantifiers associated with the subject can be seen to occupy a position adjacent to the lexical verb. We propose that such floating quantifiers are stranded in the base position of the subject, SpecVP. In existential sentences introduced by expletive *there*, the logical subject of the sentence is adjacent to the verb. Again we assume that it occupies its base position, SpecVP.⁵⁴

If auxiliaries head independent VPs, their projections will also have a specifier position. Auxiliaries do not assign a thematic role, so there is no obvious filler for their specifier position. We assume that on its way from the specifier position of the lexical VP to the canonical subject position, SpecIP, the subject, which receives a thematic role from the lexical verb, moves through the intermediate specifier positions of the projections headed by the auxiliaries. Evidence for this step-by-step movement is provided by the fact that quantifiers associated with the subject may be found in the intermediate specifier positions.

⁵³ Exercise 23 introduces an additional word order pattern.

⁵⁴ For a general discussion of the traditional terms “subject” and “object” in relation to sentence structure see also the introduction and the papers in Davies and Dubinsky (2001b).

Exercises

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Exercise 1 Floating quantifiers (T)

Consider the distribution of the floating quantifiers in the following examples (from Cottell and Henry, 2004). Does the discussion in the chapter allow us to derive the position of the quantifiers?

- (1) The students should have been all doing the exam at that time.
- (2) The students should have all been doing the exam at that time.
- (3) The students should all have been doing the exam at that time.

Exercise 2 Existential patterns (T, E)

Identify the existential sentences in the following examples. Discuss the derivation of the existential sentences.

- (1) There was nothing happening and the market just drifted. No business was going through. (*Guardian*, 22.6.2002, p. 4, col. 3)
- (2) William Ostrom admits there is a "bomb" waiting to go off in consumers' pockets. (*Guardian*, 6.5.2003, p. 14, col. 4)
- (3) There are probably fewer than a dozen major agencies in North America handling bookings for language schools world-wide. (*New York Times*, 1.8.2004, Travel section, p. 4, col. 4)
- (4) When I came out there were men selling special editions of the evening paper. (*Guardian*, Review, 31.5.2003, p. 5, cols 3–4)
- (5) If you are staying with a family there are a lot of things going on around you. (*New York Times*, 1.8.2004, Travel section, p. 4, col. 5)

Comment on the agreement patterns of *be* in the following examples:¹

- (6) a There's no permanent jobs going, are there? (Josie Lloyd and Emlyn Rees, *Come Together*, 1999: 164)

¹ For some discussion of agreement patterns in *there* sentences see also Sobin (1997) and Schütze (1999). See also Exercise 6 for comparative data on subject verb agreement.

- b A lot more people are going out, there's been a load of new clubs opening and the music scene has really come together. (*Observer Magazine*, 21.11.2004, p. 35, col. 3)

Exercise 3 Floating quantifiers and *to* infinitives (T)

In Chapter 3² we briefly examined the structure of infinitival clauses. In which position did we insert the infinitival marker *to*? Assuming that infinitival clauses also allow quantifier floating, what should be the relative order of *to* and the floating quantifier? Consider the underlined sequences in (1) and (2). Is the distribution of the floating quantifier predicted by the analysis of *to* elaborated in Chapter 3?

- (1) It is not exceptional for experts to disagree among themselves. In fact, it would be exceptional if they were to all agree. (*Guardian*, 17.3.2004, p. 3, col. 4)
- (2) We believe it is crucial for communities to each have their own beat officer. (*Independent*, Review, 30.7.2004, p. 2, col. 2)

Exercise 4 Existential patterns in Belfast English (T)

Recall that in Belfast English the existential pattern generalizes to all types of sentences with auxiliaries. In particular, transitive sentences with the auxiliary *have* also allow the pattern:³

- (1) a Some students should have passed the tests.
 b %There should have some students passed the tests. (Cottell and Henry, 2004 (4))

Draw a tree diagram for (1b). Use the derivation in (15) in the text as your model and remember that auxiliaries head independent V-projections.

Consider example (2). Discuss how it provides empirical support for the step-by-step movement of the subject:

- (2) %There should some students have passed the tests. (Cottell and Henry, 2004 (4))

² Section 1.3.

³ Section 3.2.2.3, example (24).

Exercise 5 Floating quantifiers (T)

Discuss the distribution of the underlined quantifiers in the following examples. How would we derive their positions? Do these examples give rise to any problems?

- (1) We all want to take part but we don't necessarily all know how and where. (BBC radio 4, phone-in listener, 29.10.2002, 13.45)
- (2) Four of the five – Andrew Acred, Richard Blues, James Munk and James Spooner – all celebrated as they picked up their results from the school yesterday. (*Independent*, 23.8.2002, p. 9, col. 1)
- (3) But it has not all been easy. (*Guardian*, G2, 22.11.2002, p. 10, col. 3)
- (4) We cannot all drive into a city. (*Guardian*, 22.7.2002, p. 5, col. 3)
- (5) There is certainly a perception that it doesn't all filter through. (*Guardian*, G2, 2.10.2001, p. 13, col. 1)

Exercise 6 Verb-Subject-Object (VSO) languages (T, E)

Consider the following example, taken from Shlonsky (1997: 70). It illustrates the neutral word order of Standard Arabic:

- (1) Katab-at Mona risaalat-an.
wrote-3_{FS} Mona a letter
'Mona wrote a letter.'

As you can see, Standard Arabic displays VSO word order: the lexical verb *katabat* ('wrote') precedes the subject *Mona*. The canonical subject position is here postverbal. Assuming that an Arabic sentence is assembled in a way similar to an English sentence, how could we derive (1)?

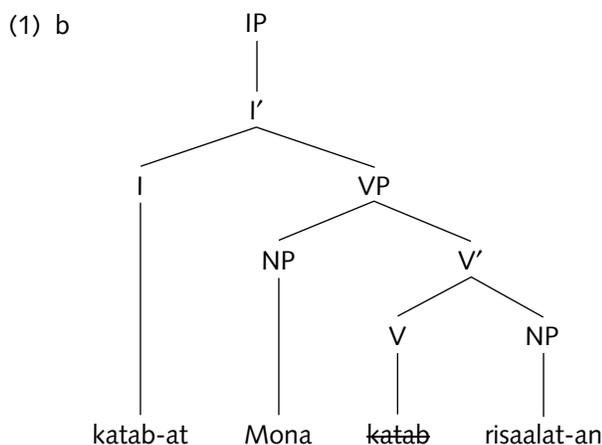
In Standard Arabic, VSO patterns alternate with SVO patterns, as illustrated in (2) and in (3). As the examples show, the alternation in word order is not free. Examine the glosses of the examples carefully. Discuss the correlation between verb morphology and its relative distribution with respect to the subject. (Examples from Ouhalla & Shlonsky, 2002: 13.)

- (2) a Katab-a l-?awlaad-u l-risaalat-a.
write(PERF)-3_{MS} the boys-NOM the letter-ACC
'The boys wrote the letter.'

- b *L-ʔawlaad-u katab-a I-risaalat-a.
the boys-NOM wrote(PERF)-3MS the letter-ACC
- (3) a L-ʔawlaad-u katab-uu I-risaalat-a.
the boys-NOM wrote(PERF)-3MPL the letter-ACC
'The boys wrote the letter.'
- b *Katab-uu I-ʔawlaad-u I-risaalat-a.
wrote(PERF)-3MPL the boys-NOM the letter-ACC

KEY AND COMMENTS

For reasons of economy, the simplest theory is one according to which, cross-linguistically, sentences are assembled in the same way, whether they be Arabic or English. If we assume that the Arabic sentence is derived in the same way that the English sentence is derived, then we start with the merger of the components of the VP. V (*katab* 'write') first combines with its complement (*risaalat-an*, 'a letter'), and then with its subject (*Mona*). Then the VP is merged with I. In order to derive the VSO order we can propose that the verb moves to I, while the subject remains in the specifier of the VP. As before, to preserve the semantic contribution of V in the VP and to preserve the structure of the sentence we use strikethrough to indicate the unpronounced copy of the verb.

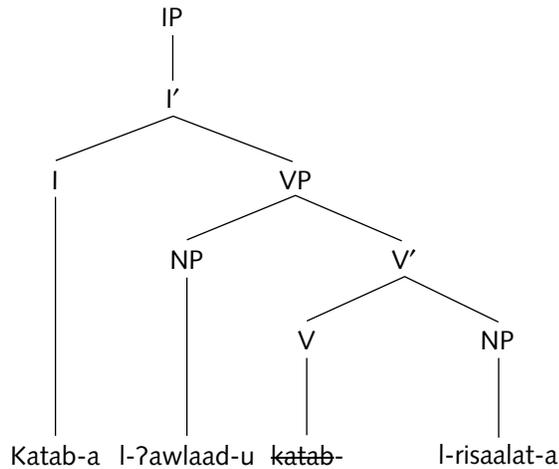


In (2) and (3) the subject is plural: *I-ʔawlaad-u* ('the boys'). In (2) the lexical verb does not agree in number with the subject: *katab-a* is singular and the subject *I-ʔawlaad-u* ('the boys') is plural. In this example, the lexical verb moves out of VP to I, but the subject remains in the specifier of the VP. We obtain the VSO order.⁴

⁴ One point that remains unclear in this representation is why the specifier position of I is not filled. It could be the case that perhaps I is not universally a "linker" and that in some languages it does not require a specifier (see Goodall, 2001; McCloskey, 2001).

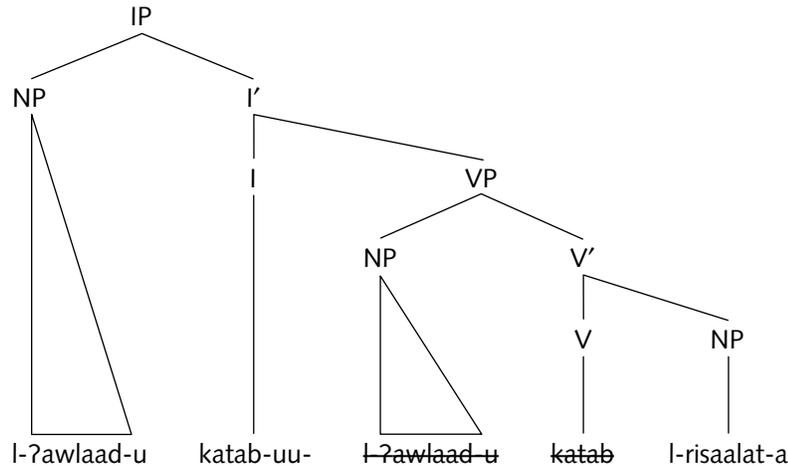
To preserve the semantic contribution of V in the VP and to preserve the structure of the sentence we use strikethrough to indicate the unpronounced copy of the verb.

- (2) c $[_{IP} [_I \text{ katab-a}] [_{VP} \text{ I-}\cancel{\text{?awlaad-u}} \text{ katab-} \text{ I-risaalat-a}]]$.
 d



In (3) the lexical verb (*katab-uu*) is plural: it agrees in number with the subject (*I-?awlaad-u*, 'the boys'). In this case, the subject itself also has to leave the VP. We assume that it moves to the specifier of IP.

- (3) c $[_{IP} \text{ I-}\cancel{\text{?awlaad-u}} [_I \text{ katab-uu}] [_{VP} \text{ I-}\cancel{\text{?awlaad-u}} \text{ katab-} \text{ I-risaalat-a}]]$.
 d



Recall that we had been proposing that the specifier – head relation in IP is the typical configuration for agreement. We can conclude from the data in (2) and (3) that for the verb in I to agree with the subject in Standard Arabic, the subject must occupy SpecIP. Or, putting it differently, moving the subject into the specifier of IP

triggers agreement on the verb in I. The patterns in (2) and (3) confirm our hypothesis that agreement can be realized in a specifier – head relation.

Consider (4) and (5) from Moroccan Arabic (Ouhalla and Shlonsky, 2002: 13). Compare these data with the Standard Arabic data. What would you conclude concerning the correlation between subject agreement and subject movement in this language?

- (4) a Kətb-u l-wlad l-bra.
 write(PERF)-3_{PL} the children(PL) the letter
 ‘The children have written the letter.’
 b *Kətb- l-wlad l-bra.
 write(PERF)-3_{MSG} the children(PL) the letter

- (5) a L-wlad kətb-u l-bra.
 the children(PL) write(PERF)-3_{PL} the letter
 ‘The children have written the letter.’
 b *L-wlad kətb- l-bra.
 the children(PL) write(PERF)-3_{MSG} the letter

KEY AND COMMENTS

In Standard Arabic there is a correlation between movement of the subject to SpecIP and the realization of agreement morphology on the verb. For a verb to agree in number with its subject, the subject must move to specifier position of I. This pattern cannot be generalized to Moroccan Arabic. In Moroccan Arabic, the verb always agrees for number with the subject: with a plural subject *l-wlad* (‘the children’), only plural *kətb-u* (‘write’) is possible. Subject movement to the specifier of IP is, however, not obligatory.

To allow for number agreement in the VSO pattern in (4a) we have to conclude that in some cases agreement morphology in I can also be realized in a matching relation between a head, I, and a lower NP. In our example the relevant head is I and the relevant NP occupies the specifier of the VP. We conclude that agreement does not always require a specifier – head relation.

- (4) d [_{IP} [_I Kətb-**u**] [_{VP} l-wlad kətb l-bra]].
 write(PERF)-3_{PL} the children(PL) ~~write~~ the letter



We came across a similar agreement relation between a higher inflectional element and a lower NP in our text examples (17b) and (17c), repeated here in (6). Could we say that the higher inflected element and the subject NP must be adjacent?

- (6) a There are now three students working on this project.



- b There is now one student working on this project.



For proposals concerning the relation between agreement and movement see Chomsky (1995).

Exercise 7 VP ellipsis and Verb-Subject-Object (VSO) languages (E, presupposes Exercise 6)

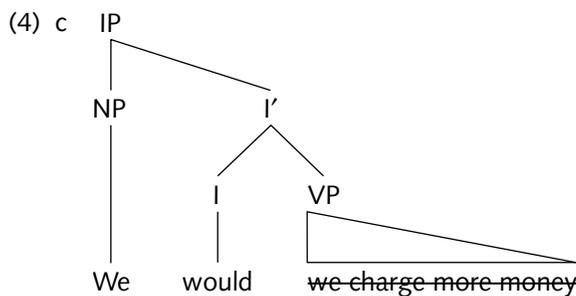
Recall that the English VP can sometimes be omitted. Indicate VP ellipsis in the following examples by means of the symbol \emptyset . Reconstruct the deleted material.

- (1) Only those who were in the room know the absolute truth of this story. No one else probably ever will. (*Washington Post*, 25.3.2004, p. D3, col. 5)
- (2) If we could charge more money, we would. (*Wall Street Journal*, 29.3.2004, p. A6, col. 6)
- (3) Everyone says you can't be scientific and fun, but we think you can. (*New York Times*, 8.3.2004, p. C5, col. 2)

VP ellipsis is typically used in answers to *yes/no* questions (4a). If the context supplies sufficient information we may even omit the VP both in the question and in the reply (4b).

- (4) a Speaker A: Would you charge more money?
Speaker B: We would [_{VP} \emptyset].
- b Speaker A: Would you [_{VP} \emptyset]?
Speaker B: We would [_{VP} \emptyset].

In (4b) both the lexical verb and its object have been omitted in the question and in the answer. Let us also represent VP ellipsis by means of strikethrough:



Consider the Irish examples in (5) (McCloskey, 2001: 161 his (4a), (5)). Using the English glosses provided, describe the position of the lexical verb in relation to the subject and the object.

- (5) a Thóg sí teach dófa ar an Mhullach Dubh.
 raised she house for them on the Mullaghduff
 'She built a house for them in Mullaghduff.'
- b D'ól sí deaoch uisce.
 PAST drink she drink water
 'She drank a drink of water.'

Using the discussion of Arabic in Exercise 6 as a model, how could we derive the VSO pattern in Irish?

Discuss ellipsis in the Irish question answer pair (6b, c). How does the pattern in (6) differ from VP ellipsis in English (4)? Can we account for this difference?

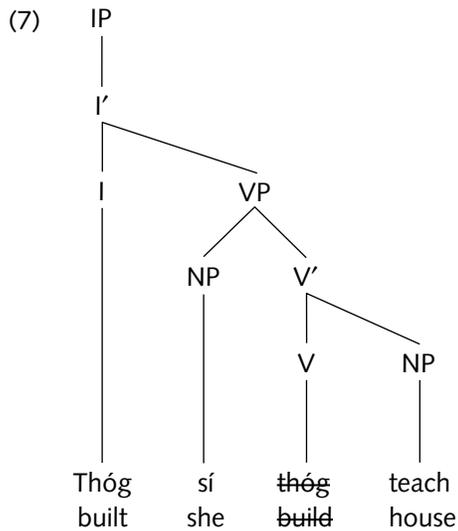
- (6) a Thóg sí teach.
 raised she house
 'She built a house.'
- b A-r thóg?
 INTERROG-PAST raised
 'Did she?'
- c Creidim gu-r thóg.
 believe-1SG that-PAST raised.
 'I believe she did.'

KEY AND COMMENTS

In English VP ellipsis deletes the content of VP. That is it affects V', the unpronounced copy of the subject and VP adjuncts. VP ellipsis obviously leaves the subject in SpecIP intact. In the Irish examples of ellipsis in (6), what seems to correspond to English VP ellipsis paradoxically does not affect the verb while it does affect the subject. In (6b) and in (6c) the verb *thóg* ('raised') is maintained; the subject pronoun *sí* ('she') has been omitted. Let us examine how we can account for this difference between English and Irish.

Irish is a VSO language. The canonical subject position is postverbal. If we try to derive the VSO order in the way suggested in Exercise 6 for Arabic, this means that in Irish the lexical verb evacuates the VP; it moves to I. On the other hand, the subject remains in the specifier of VP. The representation in (7) is based on representation (1b) for the Arabic example (1a).⁵

⁵ As before, the question arises why the specifier position of I apparently need not be filled. It could be the case that I is not universally a "linker" and that in some languages it does not require a specifier (see Goodall, 2001; McCloskey, 2001).



Applied to (7), “VP ellipsis” will delete the content of VP. As the lexical verb *thóg* (‘built’) has “escaped” to I, VP deletion will not affect it. On the other hand, the subject *sí* (‘she’) remains in VP, there is no movement to SpecIP. Thus the subject will be affected by the ellipsis.⁶

Exercise 8 Verb positions, floating quantifiers, and comparative syntax (T)

In this chapter we assume that floating quantifiers are stranded in the specifier of the VP. We saw in Chapter 3, section 1.2.4.2, that languages vary with respect to the distribution of the lexical verb. In English the lexical verb remains in VP; in French it moves to I. Using these theoretical assumptions, which would you predict to be the acceptable word order in English: (1a) or (1b)? Is your prediction correct?

- (1) a The students prepare all the text.
b The students all prepare the text.

Which would you predict to be the acceptable word order in French: (2a) or (2b)?⁷

- (2) a Les étudiants préparent tous le texte.
the students-MPL prepare all-MPL the text

⁶ For complications see also Exercise 15.

⁷ For some discussion of French see the comments section in Exercise 11.

- b Les étudiants tous préparent le texte.
the students _{MPL} all _{MPL} prepare the text.

KEY

While in English the floating quantifier precedes the inflected lexical verb, in French it follows it:

- (3) a The students all prepare the text.
*The students prepare all the text.
- b Les étudiants préparent tous le texte.
the students prepare all the text
*Les étudiants tous préparent le texte.

Exercise 9 Floating quantifiers and adjuncts (T, E)

Discuss the positions of the underlined quantifiers in the following examples. Discuss any problems that you encounter for our approach to the distribution of floating quantifiers.

- (1) We should all not criminalise something, in ignorance of the facts. (*Independent*, 13.3.2001, p. 8, col. 3)
- (2) We're all still waiting. (*Guardian*, 29.5.2002, p. 6, col. 8)
- (3) We're all just scraping by. (*Guardian*, 15.9.2003, p. 14, col. 1)
- (4) Brand managers are all now trying to establish an emotional connection with their target markets. (*Guardian*, 4.1.2001, p. 7, col. 1)
- (5) Supermarket wines may all soon taste the same. (*Times*, 25.10.2001, p. 19, col. 8)

KEY AND COMMENTS

The data above are problematic if we assume that the quantifier must be stranded in the specifier of the VP and if the negation marker *not* and the adverbial adjuncts *still* (2), *just* (3), *now* (4), and *soon* (5) are left-adjoined to VP. The order which is predicted by our theory would be adjunct/*not* – floating quantifier – verb.⁸

⁸ For discussion of the position of floating quantifiers see also Bobaljik (1995, 2003), Bowers (2001, 2002), and Boskovic (2004). See also Exercises 10, 11, and 12 for comparative data.

Exercise 10 Floating quantifiers and manner adjuncts (T, E)

Provide the bracketed representation for the structure of sentence in (1), indicating unpronounced copies of moved constituents by strikethrough:

(1) The girls will all wait for the teacher.

Now suppose we want to augment the VP in (1) with a left-adjoined manner adjunct *very patiently*. Based on your structure for (1) and on the discussion in the chapter, where would you predict that the manner adjunct will be located? Would you expect (2a) or (2b) to be the resulting word order? Is the prediction correct?

- (2) a The girls will all very patiently wait for the teacher.
 b The girls will very patiently all wait for the teacher.

KEY AND COMMENTS

In (1) the subject is separated from the floating quantifier by the modal *will*. Following the discussion in the chapter we would represent the structure of (1) as in (3).

(3) a [_{IP} The girls [_{I'} [_I will] [_{VP} all ~~the girls~~ [_V wait] for the teacher]]].

In (3a) we signal the base position of the subject by strikethrough (~~the girls~~). In (3b) we show the position of left-adjoined VP adjuncts.

(3) b [_{IP} The girls [_{I'} [_I will] [_{VP} _____ [_{VP} all ~~the girls~~ [_V wait] for the teacher]]]].

If we insert the adjunct *very patiently* in this position, we would expect that this adjunct would precede the floating quantifier.

(3) c Inserting the adjunct:
 [_{IP} The girls [_{I'} [_I will] [_{VP} very patiently [_{VP} all ~~the girls~~ [_V wait] for the teacher]]]].

So we would predict that (2b) is the acceptable word order, contrary to fact: (2a) is acceptable, (2b) is not:

- (4) a The girls will all very patiently wait for the teacher.
 b *The girls will very patiently all wait for the teacher.

These data are obviously problematic for our analysis.

Exercise 11 Floating quantifiers and adjuncts in French (T, E)

Using the glosses provided, represent the structure of the French sentence in (1) by means of labeled brackets, indicating unpronounced copies of moved constituents by strikethrough:

- (1) Les étudiants préparent tous le texte.
 the students prepare-3PL all the text
 'The students all prepare the text.'

Now suppose we want to augment the VP in (1a) with a left-adjoined manner adjunct *très soigneusement* ('very carefully'). Based on your structure for (1) and on the discussion in the chapter, where would you predict that the manner adjunct will be located? Would you expect (2a) or (2b) to be the acceptable word order? Is the prediction correct?

- (2) a Les étudiants préparent tous très soigneusement le texte.
 the students prepare all very carefully the text.
 b Les étudiants préparent très soigneusement tous le texte.
 the students prepare very carefully all the text.

KEY AND COMMENTS

In (1) the subject is separated from the floating quantifier by the finite lexical verb *préparent* ('prepare'). The floating quantifier is stranded in the specifier position of the VP. We derive this order by assuming that the verb has raised leftward to I.⁹ Following the discussion in the chapter we would represent the structure of (1) as in (3a).

- (3) a [_{IP} Les étudiants [_{I'} [_I prépare-nt] [_{VP} tous ~~les étudiants~~ [_V prépare] le texte]]].

In (3a) we signal the base position of the subject by strikethrough (~~les étudiants~~). Using (3a) as a starting point, we adjoin the adjunct *très soigneusement* to VP. In (3b) we show the position of left-adjoined VP adjuncts. We would predict that this adjunct will precede the floating quantifier.

- (3) b [_{IP} Les étudiants [_{I'} [_I prépare-nt] [_{VP} _____ [_{VP} tous ~~les étudiants~~ [_V prépare] le texte]]]].

⁹ See Chapter 3, section 1.2.4.2.

If we insert the adjunct *very patiently* in this position, it will precede the floating quantifier.

(3) c Inserting the adjunct:

[_{IP} Les étudiants [_{I'} [_I prépare-nt] [_{VP} très soigneusement [_{VP} tous les étudiants [_V prépare] le texte]]]].

So we would expect (2b) to be the word order of the sentence, contrary to fact: (2a) is acceptable, (2b) is not:

(4) a Les étudiants préparent tous très soigneusement le texte.
the students prepare all very carefully the text
'The students all prepare the text very carefully.'

b *Les étudiants préparent très soigneusement tous le texte.

These data are obviously problematic for our analysis. Observe that we encountered exactly the same problem for English in Exercise 10.

Exercise 12 Floating quantifiers and adjuncts in Hebrew (T, E)

Consider the Hebrew examples in (1).¹⁰ Using the English glosses provided as your guideline locate the subject, the floating quantifier associated with the subject, and the verb. Do you think that Hebrew has V-movement to I? Motivate your answer.

(1) a Ha-yeladim hiku kul-am ?et ha-mora.
the-children hit all-3_{MPL} the-teacher
'The children all hit the teacher.'

b Ha-banot hadfu kul-an ?et ha-kadur.
the-girls hit-back all-3_{FPL} the-ball
'The girls all hit back the ball.'

Using labeled brackets, represent the structure of (1a) in order to show the position of the subject *ha-yeladim*, of the verb *hiku*, and of the floating quantifier *kul-am*. In our examples we note that the Hebrew quantifier shows overt agreement with the NP to its left.¹¹

¹⁰ All the Hebrew data in this exercise are from Shlonsky (1991: 172, his (21)).

¹¹ For related examples see Chapter 2, Exercise 19.

Now suppose we want to augment the VP in (1a) with a left-adjoined manner adjunct, *be-ʔaxzariyut* ('with cruelty'). Based on your structure for (1a) and on the discussion in the chapter, where would you predict that this adjunct will be found? Would you expect (2a) or (2b) to be the acceptable order?

- (2) a Ha-yeladim hiku be-ʔaxzariyut kul-am ʔet ha-mora.
 the-children hit with cruelty all-3_{MPL} the-teacher
- b Ha-yeladim hiku kul-am be-ʔaxzariyut ʔet ha-mora.
 the-children hit all-3_{MPL} with cruelty the-teacher

KEY AND COMMENTS

In (1a) the subject is separated from the floating quantifier by the lexical verb *hiku* ('hit'). If the floating quantifier is stranded in the specifier position of VP, we conclude that the verb has raised leftward to I. Following the discussion in the chapter we would provisionally represent the structure of (1a) as in (3a).

- (3) a First hypothesis:
 $[_{IP} \text{Ha-yeladim } [_{I'} [I \text{ hiku}] [_{VP} \text{ha-yeladim kul-am } [_{V'} \text{hiku}] \text{ʔet ha-mora}]]]$.

In (3a) we signal the base position of the subject by strikethrough (~~ha-yeladim~~). As mentioned above, NPs precede the associated (inflected) quantifiers in Hebrew. We signal the base position of the verb by strikethrough (~~hiku~~). If we use the structure in (3a) as a starting point and we adjoin an adjunct to VP, we predict that this adjunct will occupy the slot indicated in (3b):

- (3) b $[_{IP} \text{Ha-yeladim } [_{I'} [I \text{ hiku}] [_{VP} \text{_____} [_{VP} \text{ha-yeladim kul-am } [_{V'} \text{hiku}] \text{ʔet ha-mora}]]]]]$.

If we insert the adjunct *with cruelty* in this position, we predict that this adjunct will precede the floating quantifier:

- (3) c Inserting the adjunct:
 $[_{IP} \text{Ha-yeladim } [_{I'} [I \text{ hiku}] [_{VP} \text{be-ʔaxzariyut } [_{VP} \text{ha-yeladim kul-am } [_{V'} \text{hiku}] \text{ʔet ha-mora}]]]]]$.

So we would expect (2a), repeated as (4a), to be the acceptable word order of the sentence, contrary to fact: (4a) is ungrammatical. The adjunct should follow the floating quantifier as in (2b), repeated as (4b):

- (4) a *Ha-yeladim hiku be-ʔaxzariyut kul-am ʔet ha-mora.
 the-children hit with cruelty all-3_{MPL} the-teacher
- b Ha-yeladim hiku kul-am be-ʔaxzariyut ʔet ha-mora.
 the-children hit all-3_{MPL} with cruelty the-teacher
 'The children all cruelly hit the teacher.'

These data are obviously problematic for our hypothesis. We were confronted with exactly the same problem for English in Exercise 10 and for French in Exercise 11.

Exercise 13 VSO patterns in Welsh (E)

In Exercise 7 we discussed word order in Irish, a Celtic VSO language. Based on the analysis for Irish, how could we account for the position of the verb and the subject in Welsh, another Celtic language?

- (1) Darllen-ais i y llyfr.
 read 1_{SG} I the book
 'I read the book.' (Harlow, 1981: 219)
- (2) Soni-ais i am y dyn.
 talked 1_{SG} I about the man.
 'I talked about the man.' (Harlow, 1981: 219)
- (3) a Gwelodd y plentyn ceffyl.
 saw the child horse
 'The child saw a horse.'
- b Gwnaeth y plentyn weld ceffyl.
 did the child see horse
 'The child did see a horse.' (Holmberg & Platzack, 1995: 57)
- (4) a Ennill -odd John.
 win-past John
 'John won.'
- b Gwnaeth John ennill.
 did John win
 'John won.' (Harlow, 1981: 223)

For complications see also Exercise 15. For a detailed discussion of Welsh see Roberts (2005).

Exercise 14 Subject position(s) in Icelandic transitive expletive constructions (T, E)

Exercises 9–12 have shown that the proposals according to which a floating quantifier related to the subject occupies SpecVP is not without its problems. In particular, the distribution of VP-adjoined adjuncts suggests that this hypothesis may have to be revised. The problem illustrated in the exercises was that while we would predict that the floating quantifiers follow VP-adjoined adjuncts, they actually precede them.

In section 3.2.2 of the chapter we discussed evidence for the hypothesis that there is a subject position in SpecVP based on so-called transitive expletive constructions. First try to reconstruct the argumentation on the basis of the Icelandic examples in (25) in the chapter, repeated here in (1).

- (1) a að það hefur einhver borðað epli.¹²
 that there has someone eaten (an) apple (Vikner, 1995: 189)
 'that someone has eaten an apple.'
- b að það borðaði einhver epli.
 that there ate someone (an) apple (Vikner, 1995: 219)
 'that someone ate an apple.'

Using the discussion in the chapter as our basis, how would we analyze the Icelandic example (2)?

- (2) það klaruðu margar mýs ostinn.
 there finished many mice the cheese
 'Many mice finished the cheese.'
 (Alexiadou & Anagnostopoulou, 2001: 198, their (14b))

Now consider the following Icelandic examples. What problems do they raise for the analysis we elaborated?

- (3) a það klaruðu margar mýs alveg ostinn.
 there finished many mice completely the cheese
 'Many mice finished the cheese completely.'
- b *það klaruðu alveg margar mýs ostinn
 there finished completely many mice the cheese
 (Alexiadou & Anagnostopoulou, 2001: 198, their (15))

¹² For the position of the subordinating conjunction *að* ('that') see Chapter 5, section 2.3.

KEY AND COMMENTS

If the subject of the existential pattern is stranded in the specifier position of VP in the Icelandic examples above, we deduce that the verb *klaruðu* ('finished') in (2) has moved leftward. We can assume it has raised to I. We would represent the structure of (2) as in (4a). We signal the base position of the verb by strikethrough (~~klaruðu~~).

(4) a $[_{IP} \text{ það } [_r [_i \text{ klaruðu}]] [_{VP} \text{ margar mýs } [_v \text{ ~~klaruðu}]] \text{ ostinn}]]]~~$.

If we use (4a) as a starting point and we adjoin the adjunct *a/veg* ('completely') to VP, we predict that this adjunct will precede the subject in SpecVP.

(4) b $*[_{IP} \text{ það } [_r [_i \text{ klaruðu}]] [_{VP} \text{ a/veg } [_{VP} \text{ margar mýs } [_v \text{ ~~klaruðu}]] \text{ ostinn}]]]]]~~$.

So we would expect (3b) to be the correct word order of the sentence, contrary to fact: (3b)/(4b) is ungrammatical. The VP-adjoined adjunct has to precede the preverbal subject as in (3a). Since (3b) is ungrammatical, the postverbal subject apparently does not remain in the specifier of VP after all: it must move leftward to a position which is itself lower than the position occupied by the verb. Since the subject is a full projection its landing site will either be an adjoined position or a specifier position.

(4) c $[_{IP} \text{ það } [_r [_i \text{ klaruðu}]] [_{??} \text{ margar mýs } [_{VP} \text{ a/veg } [_{VP} \text{ margar mýs } [_v \text{ ~~klaruðu}]] \text{ ostinn}]]]]]]]~~$.

Obviously these data raise a problem for our analysis, and the problem raised is similar to that which we encountered in the preceding exercises.¹³

Exercise 15 VSO orders and subject positions (E, presupposes Exercises 6, 7, and 13)

In Exercises 6 and 7 we discussed VSO languages. To account for Irish ellipsis data in Exercise 7, we proposed that, in the examples in (5), repeated here as (1), the postverbal subject occupies the specifier of VP.

(1) a Thóg sí teach dófa ar an Mhullach Dubh.
raised she house for them on the Mullaghduff
'She built a house for them in Mullaghduff.'

¹³ For a first tentative analysis see Exercise 22 (10a) below. For discussion see Alexiadou and Anagnostopoulou (2001), Roberts (2005: 7–46), and the references cited there.

- b D'ól sí deaoch uisce.
PAST drink she drink water
 'She drank a drink of water.'

How would we represent the structure of (2)?

- (2) Chuala Róise an t-amhrán sin.
heard Róise that song
 'Rosie heard that song.'
 (Based on Alexiadou & Anagnostopoulou, 2001: 200, their (20))

Discuss the problems raised for the analysis by the Irish data in (3):

- (3) a Chuala Róise go mini roimhe an t-amhrán sin.
heard Róise often before it that song
- b *Chuala go mini Róise an t-amhrán sin.
heard often Róise that song
 (McCloskey, 1996; in Alexiadou & Anagnostopoulou, 2001: 200, their (20))

Discuss the consequences of these data for the analysis of the ellipsis pattern in Irish in Exercise 7.

KEY AND COMMENTS

If the postverbal subject is stranded in the specifier position of VP in the Irish examples in (1) and in (2), we infer that the verb *chuala* ('heard') in (2) has moved leftward. We can assume it has raised to I. Following the discussion in the chapter we would represent the structure of (2) as in (4a).

- (4) a $[_{IP} [_{I'} [_{I} \text{Chuala}] [_{VP} \text{Róise } \del{\text{chuala}} \text{ an t-amhrán sin}]]]$.

In (4a) we signal the base position of the verb by strikethrough (~~chuala~~). If we use the structure in (4a) as a starting point and we adjoin the adjunct *go mini roimhe* ('often before it') to VP, we predict that the adjuncts precede the postverbal subject in the specifier of VP.

- (4) b $*[_{IP} [_{I'} [_{I} \text{Chuala}] [_{VP} \text{go mini roimhe } [_{VP} \text{Róise } \del{\text{chuala}} \text{ an t-amhrán sin}]]]]]$.

So we expect (3b) to be the correct word order of the sentence, contrary to fact: (3b)/(4b) is ungrammatical. The adjuncts precede the subject as in (3a). Since (4b) is actually ungrammatical, we conclude that the subject cannot remain in SpecVP after all. Apparently, it must move leftward to a position which is lower than the position occupied by the verb. Since the subject is a full projection, its landing site will either be an adjoined position or a specifier position.

(4) c [IP [I' [I Chuala] [??] Róise [VP go mini roimhe [VP Róise chuala an t-amhrán sin]]]]].

This conclusion also raises a problem for the formulation of the ellipsis pattern in Exercise 7. If the postverbal subject in Irish occupied a higher VP-external specifier, then ellipsis would have to target a more comprehensive constituent. If on the other hand, the subject is adjoined to VP, then we can maintain the analysis proposed in Exercise 7.

Once again, the Irish data discussed here raise a problem for our analysis, and the problem raised is also similar to that which we encountered in the preceding exercises.¹⁴

Exercise 16 VSO orders and subjects in Modern Greek (E, presupposes Exercises 7, 13, 14, and 15)

In Exercise 18 of Chapter 3 we already introduced the examples in (1)–(2) below. We concluded there that the fact that the inflected verb is separated from its direct object by an adjunct suggests that V moves to I in Modern Greek.

- (1) O Petros egrafe panda megala grammata.
 the Peter-NOM write-IMP-3SG always long letters
 'Peter always wrote long letters.' (Alexiadou, 1997: 91 (17b))
- (2) O Peter etroge sinithos sika.
 the Peter-NOM ate-IMP-3SG usually figs
 'Peter usually ate figs.' (Alexiadou, 1997: 93 (23a))

In the light of the discussion of Exercises 6 and 7 above, can we account for the patterns in (3) and (4), given as (7) and (8) in Exercise 18 in Chapter 3?

- (3) Diavaze sihna o Janis to vivlio.
 read-3SG usually the John-NOM the book-ACC
 'John was usually reading the book.' (Alexiadou, 1997: 62 (29))
- (4) Efage kala o Janis.
 ate-3SG well the John
 'John ate well.' (Alexiadou, 1997: 131 (13a))

Do these examples raise the problems for the VSO analysis that we were confronted with in Exercises 14 and 15 above?

¹⁴ For discussion see Alexiadou and Anagnostopoulou (2001) and the references cited there. For a first tentative analysis see Exercise 22 (10b) below.

KEY AND COMMENT

The postverbal subject in Modern Greek can be argued to occupy the specifier of VP. The Greek VSO patterns do not give rise to the problems encountered before. Unlike the transitive expletive patterns in Icelandic discussed in Exercise 14, or the VSO patterns in Irish discussed in Exercise 15, the postverbal subject in Greek follows VP-adjoined adjuncts:

- (5) [_{IP} [_I Diavaze] [_{VP} sihna [_{VP} o Janis ~~diavaze~~ to vivlio]]].
 read usually the John-NOM the book-ACC
 'John was usually reading the book.' (Alexiadou, 1997: 62 (29))
- (6) [_{IP} [_I Efage] [_{VP} kala [_{VP} o Janis ~~efage~~]]].
 ate-3SG well the John
 'John ate well.' (Alexiadou, 1997: 131 (13a))

Exercise 17 Passivization and floating quantifiers (E)

Once again this exercise is longer and more discursive than the preceding exercises. Its purpose is to carry further the type of argumentation elaborated in the chapter and to see where that leads us. The exercise takes up the discussion of passivization in Exercises 9, 10, 11, and 12 of Chapter 3. These exercises are presupposed for the current exercise.

Describe the differences between sentences (1) and (2) below in terms of the realization of the arguments of the verb *arrest*. Specifically, identify the subject of each sentence.

- (1) The police officer will arrest the burglar.
 (2) The burglar will be arrested.

(1) is an active sentence; (2) is its passive counterpart. Informally put, the passive version in (2) is characterized by the fact that the AGENT role assigned by the verb *arrest* is not overtly realized, and that the argument which is assigned the THEME role is realized by the NP *the burglar* in the canonical subject position, SpecIP.

What sort of evidence could we invoke to say that in (1) the NP *the police officer* is the subject, while in (2) it is the NP *the burglar* that is the subject? For one thing, the NP *the police officer* agrees with the verb in (1). This is not easy to see in a sentence with a modal auxiliary because, typically, such auxiliaries do not show overt agreement, but if we replace the modal auxiliary by the auxiliary *have* to form the present perfect, then agreement is overt.

- (3) a The police officer has arrested the burglar.
 b The police officers have arrested the burglar.
- (4) a The burglar has been arrested.
 b The burglars have been arrested.

Intuitively, we want to say that the THEME argument of the passivized verb becomes the subject.

For the derivation of the active sentence, we assume that the THEME argument is realized by the NP *the burglar*. The verb *arrest* is merged with that NP to form V' . The meaning of a passive verb is closely similar to that of its active counterpart, and in particular, the verb assigns the same thematic roles. We might try to capture the semantic parallelism between an active verb and its passive counterpart by proposing that the thematic role THEME of a passive verb is also assigned in the complement position of the verb. In other words, the NP which realizes the THEME argument of a passive verb is merged with V to form V' .

If the THEME argument of a passive verb is first merged in V' , we would have to conclude that it subsequently moves to the specifier of IP, the canonical subject position. In a passive sentence, the AGENT of the verb need not be overtly expressed (cf. (2)). Let us provisionally assume that in the passive sentence the NP that expresses the AGENT argument is not merged as the specifier of the VP. Consequently, the specifier of the VP is not filled.¹⁵

In the passive sentence, the NP which realizes the THEME argument ends up in the canonical subject position, SpecIP. If the specifier of the VP remains unfilled, the question arises whether the NP moves directly from the complement position dominated by V' to the canonical subject position, SpecIP, as shown in (5a), or whether it moves via the specifier of the VP, a position which, by hypothesis, has remained empty (5b).

- (5) a [_{IP} The burglar [_I will] [_{VP} be [_{VP} arrested ~~the burglar~~]]].
 ←—————
 b [_{IP} The burglar [_I will] [_{VP} be [_{VP} ~~the burglar~~ arrested ~~the burglar~~]]].
 ←————— ←—————

Recall that, based on the discussion in Chapter 3, section 4, we assume that the passive auxiliary *be* projects its own VP. This raises an additional question. If the auxiliary *be* projects its own VP, this VP will also have a specifier position, through which the THEME NP *the burglar* might also transit on its way to SpecIP. This is shown in representation (5c):

¹⁵ See Chapter 3, Exercises 10–13.

(5) c $[_{IP} \text{The burglar } [_i \text{ will}] [_{VP} \text{the burglar be } [_{VP} \text{the burglar arrested the burglar}]]]$.

The spell-out of the representations in (5) will not differ, since the non-overt copies of the moved NP (~~the burglar~~) are not pronounced. All three representations spell out as (5d).

(5) d The burglar will be arrested.

What kind of arguments could we use to choose between (5a), (5b), and (5c)? What would a theoretical argument in favor of one of the representations be like? What type of empirical evidence could be invoked in support of one analysis or the other?

Consider the data in (6) and (7) from McCawley (1988: 90). Do they provide any arguments for choosing between (5a), (5b), and (5c). Why?

(6) a ?The children have been all vaccinated.
b The children have all been vaccinated.

(7) a We have been all robbed many times.
b We have all been robbed many times.

KEY AND COMMENTS

The sentences in (6) and in (7) provide empirical support for the hypothesis represented in (5c), namely that the subject of a passive sentence can move via the intermediate specifier positions. For (6), we could postulate that the floating quantifier *all* is stranded in one of the two intermediate landing sites. In representation (8), we assume that auxiliary *have* projects its own VP and moves to I.¹⁶ Write out the sentences in their spell-out form:

(8) a ? $[_{IP} \text{The children } [_i \text{ have}] [_{VP} \text{the children have } [_{VP} \text{the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
b $[_{IP} \text{The children } [_i \text{ have}] [_{VP} \text{the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
c $[_{IP} \text{The children } [_i \text{ have}] [_{VP} \text{all the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.

As you can see: if you spell out (8b) and (8c), the resulting strings will be identical and correspond to (7b): this is because there is no overt element in the V position in which *have* is first merged: the auxiliary *have* moves to I. What kind of data

¹⁶ For the position of auxiliaries see the discussion in Chapter 3, section 4.

might be able to distinguish between the pattern in (8b) and that in (8c)? What we would need is for *have* to occupy the V-position in which it is first merged, so that we can see whether the floating quantifier *all* is in the specifier of the VP headed by *all* or in that of the VP headed by *be*. How could we ensure that *have* remains in V? We could prevent *have* from moving to I if we inserted an element in I. Let us represent this element as X. In (9a) *all* will be found to the right of *have*, in (9b) it will be to the left of *have*:

- (9) a $[_{IP} \text{The children } [_I \text{X}] [_{VP} \text{the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
 = The children X have all been vaccinated.
- b $[_{IP} \text{The children } [_I \text{X}] [_{VP} \text{all the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
 = The children X all have been vaccinated.

Which element could be inserted as X? If we were to insert a modal auxiliary under I, then *have* would remain in the position V and the floating quantifier appears either to its right or to its left:

- (10) a $[_{IP} \text{The children } [_I \text{will}] [_{VP} \text{the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
 = The children will have all been vaccinated.
- b $[_{IP} \text{The children } [_I \text{will}] [_{VP} \text{all the children have } [_{VP} \text{all the children been } [_{VP} \text{all the children vaccinated all the children}]]]]]$.
 = The children will all have been vaccinated.

We tentatively conclude that there is some empirical support for postulating that passive sentences involve step-by-step movement of a constituent from the “complement position” in V’ to the canonical subject position, SpecIP.

The argumentation used here is analogous to that developed in section 4 of Chapter 4. In that discussion, we argued that in a sentence with multiple auxiliaries the subject NP moves from the specifier of the lexical verb via the intermediate specifiers of the VPs projected by the auxiliaries. Recall that in the discussion we used the data in (11) as evidence (McCawley, 1988: 90):

- (11) a The students must all have been sleeping.
 b The students must have all been sleeping.
 c The students must have been all sleeping.

We might also address the choice between representations (5a), (5b), and (5c) from a theoretical point of view. Given that (11) offers evidence that the subject moves step by step from its base position to its landing site, we may propose a general hypothesis that movement always proceeds step by step.

Exercise 18 Passivization and floating quantifiers (E, presupposes Exercise 17)

Discuss the relevance of the position of the underlined floating quantifier in the following examples for the derivation of passive sentences.

- (1) It's too bad they couldn't have all been tried together. (*Guardian*, 10.9.2002, p. 6, col. 2)
- (2) This is no doubt all being facilitated by what British ministers have hailed as the restrained behaviour of the Northern Alliance. (*Guardian*, 27.11.2001, p. 7, col. 1)
- (3) 'Can they really all be so misled?' (*Guardian*, 6.2.2002, p. 4, col. 6)
- (4) These have now both been announced ahead of schedule and the company says this is why Sir Peter has called it a day. (*Guardian*, 1.11.2001, p. 3, col. 3)
- (5) The sums will only all be awarded if BT does better than its rivals over the next three years in a league table based on a financial metric known as total shareholder return (TSR). (based on *Guardian*, 1.11.2001, p. 3, col. 8)

Exercise 19 Floating quantifiers and the base position of the subject in passive sentences (T, presupposes Exercise 17)

This exercise is again more discursive than some of the preceding exercises. Our purpose is once again to carry further the type of argumentation elaborated in the chapter and see where that would lead us. The exercise presupposes Exercise 17.

Return once more to the data in (6) discussed in Exercise 17, and the representations in (8). The examples and their representations are repeated here in (1) and (2):

- (1) a ?The children have been all vaccinated. (McCawley, 1988: 90)
b The children have all been vaccinated. (McCawley, 1988: 90)
- (2) a ?<sub>[_{IP} The children [_i have] [_{VP} ~~the children have~~ [_{VP} ~~the children~~ been [_{VP} all the children vaccinated all the children]]]]].
b [_{IP} The children [_i have] [_{VP} ~~the children have~~ [_{VP} all the children been [_{VP} all the children vaccinated all the children]]]]].</sub>

- c [_{IP} The children [_I have] [_{VP} ~~all the children~~ have [_{VP} ~~all the children~~ been [_{VP} ~~all the children~~ vaccinated ~~all the children~~]]]]].

Though consistent with the hypothesis of stepwise movement, the sentences in (1) raise a problem. Throughout the discussion of passive sentences we have been assuming that the subject of a passive sentence originates as the complement of V: it first merges with V to form V'.

We also assume that floating quantifiers allow us to trace the route taken by the moved constituent. In the discussion of the two subject positions in Chapter 4, we proposed that the floating quantifier signals the base position of the subject, SpecVP. In the discussion of sentences with auxiliaries we concluded that a floating quantifier was to be found in each of the positions containing a non-pronounced copy of the subject.

In line with our analysis of the relation of a floating quantifier and the subject and using representations such as those in (2), which would you expect to be the lowest possible position of the quantifier associated with the subject of the passive sentence? If the floating quantifier could be found in literally all the positions that host a non-pronounced copy of the subject, we would also expect it to be available in the thematic position of the subject. In passive sentences, the thematic position of the subject is the complement position in V', that is a position to the right of the verb. Construct the appropriate sentence and check whether it is grammatical.

- (2) d [_{IP} The children [_I have] [_{VP} ~~all the children~~ have [_{VP} ~~all the children~~ been [_{VP} ~~all the children~~ vaccinated ~~all the children~~]]]]].
= *The children have been vaccinated all.

Surprisingly, a floating quantifier associated with the subject of a passive sentence can apparently never occur in the base position of that subject, that is, the position in which the NP is first merged with V and in which its thematic role is assigned. This obviously requires further investigation since we have been assuming that in active sentences a floating quantifier can signal the thematic position of the subject.¹⁷

Exercise 20 Passivization and existential patterns (E, presupposes Exercises 17, 18, and 19)

Consider the underlined strings in (1a). Identify the lexical verbs. What is the subject of the first underlined string (i)? Motivate your answer. What is the subject of the second string (ii)? Using the concepts elaborated in Chapter 4, how could we relate the two patterns?

¹⁷ For discussion see, for instance, Sportiche (1988) and Koopman and Sportiche (1991).

- (1) There have been changes in trends and (i) there's a lot less pesticide being used in the countryside these days than a decade ago. The problem is that, although (ii) a lot less is being used, what is being used is a lot more effective – so there're less insects and seeds for birds to eat. (*Guardian*, 2.12.2003, p. 6, col. 6)

Clearly, it is tempting to relate the underlined patterns in (1) along the lines of the discussion of existential structures in section 3.2.2 in this chapter. (1a) is a simplified version of (i) and can be compared to (2a), (1b) is a simplified version of (ii) and can be compared to (2b).¹⁸

- (1) a A lot less pesticide is being used.
 (2) a Three students are working on the project.
- (1) b There is a lot less pesticide being used.
 (2) b There are three students working on the project.

We could argue that (1b) supports the proposal that the subject of a passive sentence originates in a lower position and moves to the specifier of IP. This example would illustrate the pattern in which the NP *a lot less pesticide*, the THEME argument of the verb *use*, has been moved to the specifier of the VP headed by the passive auxiliary *be*, while the expletive *there* is inserted in SpecIP. In (1a), the THEME is moved to SpecIP. In the representations below strikethrough shows the copies of the moved NP *a lot less pesticide*. We insert *is* in I to simplify the representation.

- (3) a (= 1b) [_{IP} There is [_{VP} a lot less pesticide being [_{VP} ~~a lot less pesticide~~ used a ~~lot less pesticide~~]]].
 b (= 1a) [_{IP} A lot less pesticide is [_{VP} ~~a lot less pesticides~~ being [_{VP} ~~a lot less pesticide~~ used a ~~lot less pesticide~~]]].

Discuss the derivation of the passive sentences in (4).

- (4) a There has been some work presented in this workshop that really inspired me and made me perhaps rethink what I want to do in my own work, she said. (*New York Times*, 28.11.2002, p. B6, col. 1)
 b There have been nearly two dozen people kidnapped since Nicholas E. Berg, a radio-tower builder from Pennsylvania, was taken captive in Iraq in April and later beheaded. (*New York Times*, 1.8.2004, p. 1, section 4, col. 4)
 c There were already around 18,000 new titles a year being published in 1960. (*Guardian*, Review, 13.3.2004, p. 10, col. 2)

¹⁸ See section 3.2.2.1.

See also Basilico (1998) for more careful discussion of passive and existential sentences, Caponigro and Schütze (2003) for extension to other sentence types and to Italian passivization. See Law (1999) for critical discussion.

Exercise 21 Floating quantifiers in Hebrew (E)

Consider the examples in (1),¹⁹ which we discussed in Exercise 19 of Chapter 2. We showed in that exercise that both the string *kol ya-yeladim* ('all the children'), and the string *ha yeladim kul-am* ('the children all') are constituents. Using the glosses as a basis, describe the difference between the underlined NPs in (1a) and (1b).

- (1) a Kol ha-yeladim zarku ?avanim.
 all the children threw stones
 'All the children threw stones.'
- b Ha-yeladim kul-am zarku ?avanim.
 the children all-3_{MPL} threw stones
 'The children all threw stones.'

Exercise 12 of the current chapter showed that quantifiers can be floated in Hebrew. Consider the following examples: what restrictions on quantifier floating do these data reveal?

- (2) a Ha-yeladim hiku kul-am ?et ha-mora.
 the-children hit all-3_{MPL} the-teacher
 'The children all hit the teacher.'
- a' *Ha-yeladim hiku kol ?et ha-mora.
 the-children hit all the-teacher
- b Ha-banot hadfu kul-an ?et ha-kadur.
 the-girls hit-back all-3_{FPL} the-ball
 'The girls all hit back the ball.'
- b' *Ha-banot hadfu kol ?et ha-kadur.
 the-girls hit-back all the-ball

KEY AND COMMENTS

The quantifier *all* has two forms in Hebrew: it either precedes the NP and then it is invariant and takes the form *kol* or it follows the noun and then it is inflected for

¹⁹ The data in this exercise are based on Shlonsky (1991: 163–4). Thanks to Ur Shlonsky for help with (1).

person, gender, and number. Based on the primed examples in (2) we conclude that the invariant form of the quantifier, *kol*, cannot be stranded. Only the inflected postnominal quantifier can be stranded. This suggests that for an NP to be able to strand an associated quantifier it must appear to its left, the position at which it triggers the agreeing form.²⁰

Exercise 22 Refining structures: From one functional head to many (T, E)

This is yet another long and discursive exercise. Its purpose is once again to explore one line of argumentation and see where that leads us. The goal of the discussion is not to provide a complete answer for the problem raised. Rather, the exercise tries to show how new hypotheses come about through the interplay of data and theory. The analysis elaborated in this exercise is not necessarily the definitive one. It is one way of handling the data in terms of the theory we have been elaborating.

In this exercise we explore the implications of the hypothesis that syntactic structure determines interpretation. We first examine the problems of interpretation raised by one example and try to provide an analysis. After the discussion further examples are given as an additional exercise. Consider example (1a).

- (1) a Turkey could until very recently privately congratulate itself on narrowly escaping a place in the front line. (*Guardian*, 21.11.2003, p. 16, col. 3)

We are interested in the underlined section of the example. Before we start the discussion, we will simplify the example by removing distracting elements that are not relevant to the point at issue. Such a modification of the data is not “cheating.” Simplifying the data is a perfectly legitimate operation in scientific work: we are like the scientist who isolates the relevant data in the raw material he or she has collected, removing material that is not relevant for the enquiry. The simplified example we will be working on is (1b).

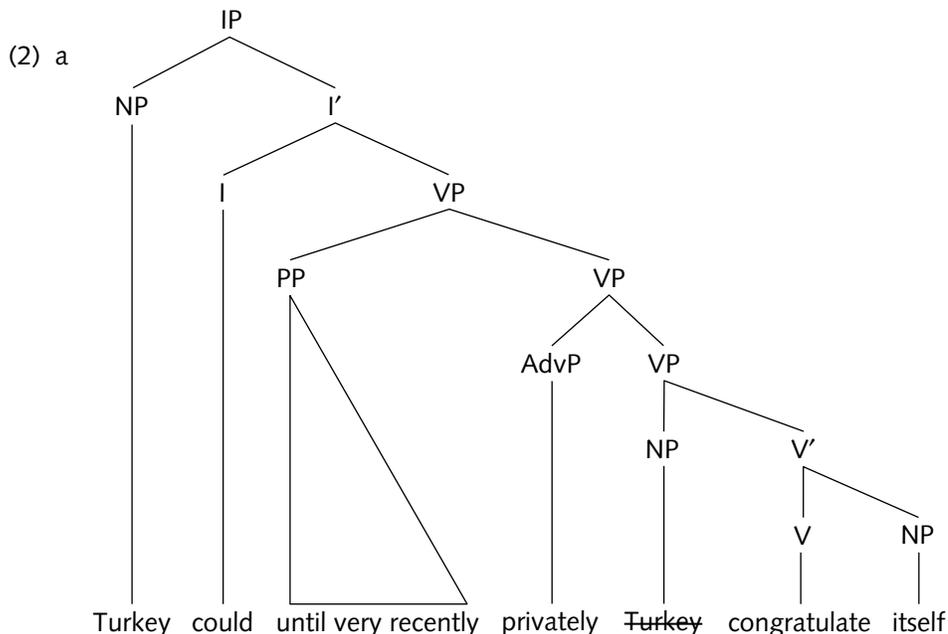
- (1) b Turkey could until very recently privately congratulate itself.

Draw a tree diagram for (1b). Represent the base position of the subject by means of the strikethrough notation. Consider the resulting structure in the light of the discussion of adjunct scope in section 2.1 of the chapter. Do the positions of the adjuncts correspond to their relative scope? What would be the scope domain of the modal *could*?

²⁰ See Shlonsky (1991) for an account.

KEY AND COMMENTS

The structure of (1b) can be represented as in (2a):



The positions of the adjuncts *until very recently* and *privately* reflect their relative scope. *Privately* modifies the VP domain; it specifies the manner in which 'Turkey congratulated itself'. As a first approximation we could say that the temporal PP *until very recently* delimits the period in which 'Turkey privately congratulated itself'. The PP *until very recently* has wider scope than the adverb phrase *privately*.

(2) b *until very recently* > *privately*

We can read off the scope of these two adjuncts directly from the structure.

While the adjuncts occupy positions that mirror their scope, this is not true for the modal auxiliary *could* in I. In this example the modal *could* expressed an ability. If we read the scope of an element off from the structure then the modal *could* would have to have scope over both adjuncts. However, we will naturally paraphrase (1) as in (3), where *until very recently* in fact modifies the period in which Turkey had the ability to congratulate itself in private. So *until very recently* should not just have scope over VP, it should also have scope over *could*.

(3) Until very recently it was the case that Turkey was able to privately congratulate itself.
until very recently > *could* > *privately*

This means that the scope relations of *until very recently* and *could* cannot be directly read off from the structure. The modal auxiliary *could* occupies the position in I. What we would really need is for *could* to be represented in a lower position than the adjunct *until very recently*. That lower position would determine its scope.

The problem that arises for our representation is not new. It is similar to that encountered in the discussion of the position of the subject NP in Chapters 3 and 4. At some point we were faced with a situation in which the subject was seen to occupy a position in the string, SpecIP, but for reasons of interpretation we also wanted it to be associated with another, lower, position. As a result of the movement analysis elaborated in Chapter 4, subject properties are split over two positions: SpecIP and SpecVP. Both positions are input to semantic interpretation: in SpecVP the subject is thematically related to V; in SpecIP it serves as the anchor of the information in the sentence.

If we want the representation of (1b) to represent the relative scope of the adjuncts and the modal *could* we have to associate the modal also with a lower position. Let us pursue this point and see what happens. We elaborate an alternative representation that includes a position X to represent the lower position of the modal auxiliary. A first very approximate representation is given in (4). We propose that the modal be inserted in X as in (4a). To attain the position it occupies in the spell-out of the sentence (that is, the way the sentence is pronounced), the modal moves up to the position I. As always, we assume that a moved constituent leaves an unpronounced copy in its base position (4b). We cannot yet detail the brackets here as we will first have to determine which constituents they are.

(4) Provisional representations:

- a [_{IP} Turkey [_I] until very recently [_X could] [_{VP} privately [_{VP} Turkey congratulate itself]]].
- b [_{IP} Turkey [_I could] until very recently [_X could] [_{VP} privately [_{VP} Turkey congratulate itself]]].

In its lower position (X), *could* is in the scope of the PP *until very recently*. We propose that the modal moves from X to I, which is a head position. So far, we have been assuming that heads (auxiliaries, verbs in French) move to I. Let us generalize this idea and assume that the modal in X is a head and that X is a head position. If X is a head then we expect it to project a phrase, "XP."

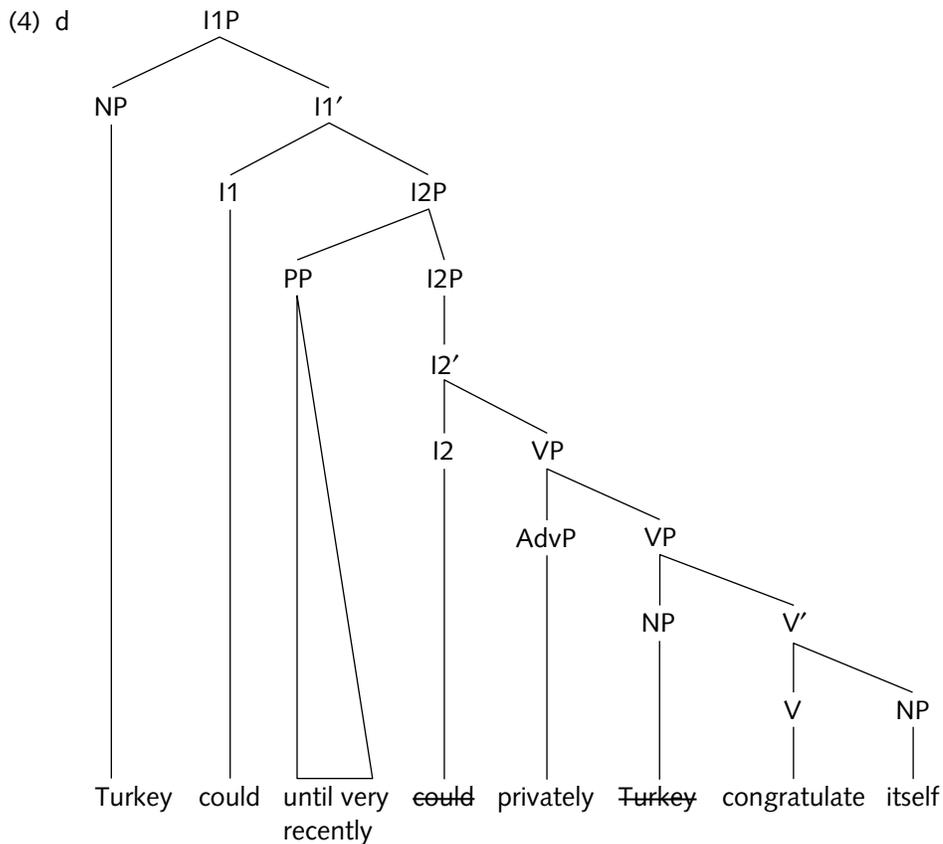
In our earlier representation (2a) the PP *until very recently* was VP-adjoined. But in the new representation, the PP *until very recently* can no longer be left-adjoined to VP. The head X intervenes and it heads its own projection, XP. As a result, we propose that the adjunct *until very recently* is adjoined to the projection XP. (4c) completes the provisional representation above:

- (4) c [_{IP} Turkey [_I could] [_{XP} until very recently [_{XP} [_X could] [_{VP} privately [_{VP} Turkey congratulate itself]]]]].

We have to determine the category of the new head X. Is X a head of the category V? This would mean that we treat the modal *could* as another auxiliary with its own VP-projection.²¹ However, one objection to this is that English modals do not have any non-finite forms: *could* cannot be found as a participle, for instance:²²

- (5) a *He has so far *could* finish the book.
 b *Turkey has until very recently *could* privately congratulate itself.

Another proposal is to say that X is functional head in the IP domain. Recall that the content of I encodes the link between subject and VP in terms of tense, modality, etc. On the basis of the preceding discussion we could tentatively “decompose” I and postulate that there are two “inflectional heads” in the sentence: I1 and I2. We might, for example, specify that I2 encodes modality and that I1 encodes Tense, though we would obviously have to look at many more examples to substantiate this analysis.



²¹ See Chapter 3, section 4.3.

²² See the discussion of (67) in section 4.3 of Chapter 3.

The PP *until very recently* is now adjoined to the projection of I2, meaning it delimits the duration of the 'ability'. *Privately* continues to have scope only over the VP *congratulate itself*. *Privately* does not restrict the ability. The relative scope of the two adjuncts as represented in (3) is retained in our new representation: *until very recently* has scope over a larger constituent (I2P) than *privately*.

That modals may be associated with a lower position is confirmed by those dialects of English that allow double modals:²³

(5) He'll can get you one. (Brown, 1992: 75)

We might object that our representations are becoming more and more complicated. This is not obviously the case, though. Though the structures we have are definitely more articulated, it is not necessarily true that the theory we are elaborating is itself becoming more complex. In order to arrive at the articulated structure above, we have merely implemented the argumentation that we had developed throughout. To use a metaphor: we have only used the tools that we have in our toolbox.

In the light of the preceding discussion, comment on the relative scope of the modal auxiliaries and the underlined adverbs in the following examples:

- (6) a TB can usually successfully be treated with a course of antibiotics. (*Guardian*, 13.8.2004, p. 6, col. 8)
 b There are a few technical things the president could probably learn. (*New York Times*, 1.8.2004, Section 4, p. 4, col. 2)

Below we repeat some of the examples from Exercise 15 in Chapter 3. Could the discussion above help us to account for the unexpected position of the underlined adjunct?

- (7) Michigan coach Lloyd Carr says sorry, but he simply can't go against the coaching association's policy and vote for Southern California as college football's No 1 team. (*Chicago Tribune*, 3.1.2004, S3, p. 1, col. 1)
- (8) I never could make out what those damned dots meant. (*Independent*, 14.04.2001, p. 20, col. 6)
- (9) Today Gulliver still can barely stand to be among the Yahoos. (*Guardian*, G2, 31.8.2004, p. 12, col. 1)

²³ For double modals in Scots see Brown (1992) and Miller (1993). For American varieties see for instance Battistella (1995). For modals in earlier stages of English see Lightfoot (1979) and Roberts (1985).

The hypothesis that a functional head such as I can be decomposed into a more articulated structure is due to Pollock (1989) and has become known as the **Split Infl Hypothesis**.²⁴

The Split Infl hypothesis has further consequences. Recall that in previous exercises we discovered the need for an additional position for the subject. This was the case for instance, with respect to the transitive expletive construction in Exercise 14 and with respect to the Irish VSO patterns in Exercise 15. Pursuing the Split Infl hypothesis we might postulate that the lower subject positions identified in the earlier exercises correspond to the specifier positions of lower functional heads.

- (10) a $[_{I_1P} \text{það } [_r \text{ } [_I \text{ klaruðu}]] [_{I_2P} \text{ margar mýs } [_{VP} \text{ alveg } [_{VP} \text{ margar mýs } [_V \text{ klaruðu}]] \text{ostinn}]]]]]$.
 b $[_{I_1P} [_r \text{ } [_I \text{ Chuala}]] [_{I_2P} \text{ Róise } [_{VP} \text{ go mini roimhe } [_{VP} \text{ Róise chuala}]] \text{ an t-amhrán sin}]]]]]$.

Exercise 23 Predicate inversion in English (E)

Consider the following examples:²⁵ they illustrate a construction type referred to as **predicate inversion** or “inversion around *be*” (Emonds, 1976; Birner, 1992, 1994; Birner & Ward, 1992).

- (1) a Complicating matters is cost. (*Washington Post*, 10.12.2002, p. A16, col. 1)
 b Helping to run the house were a cook, a housemaid and a manservant. (Carol Shields, *Jane Austin*, 2001: 123)
 c (The thieves paid the £6 entrance fee and made their way to the staircase hall, where they overpowered the guide and took the painting from the wall.) Waiting for them outside were the Volkswagen and at least one other, but probably two, accomplices. (*Guardian*, G2, 28.8.2003, p. 6, col. 2)

These examples can be contrasted with the more neutral word order patterns in (2).²⁶

- (2) a Cost is complicating matters.
 b A cook, a housemaid and a manservant were helping to run the house.
 c The Volkswagen and at least one other, but probably two, accomplices were waiting for them outside.

²⁴ Pollock’s own analysis was based on other empirical material. See also Cormack and Smith (2002) for the scope of modals. See Svenonius (2002), Ernst (2002, 2004), Alexiadou (2004b), Cinque (1999, 2004a), and Nilsen (2004), among others for the distribution of adverbials. See Cinque (1999) for further decomposition of I.

²⁵ Examples (1a) and (1b) were discussed in Exercise 12 of Chapter 1.

²⁶ For the discourse function of the predicate inversion construction see Birner (1992, 1994), Birner and Ward (1992).

How do we derive the sentences in (2)? Assuming that the sentences in (1) have a similar underlying structure, how could we derive them?

KEY AND COMMENTS

Following the analysis elaborated we could assume that (2a) is derived in the by now familiar way, with the subject NP *cost* being merged as the specifier of the VP and moving out to the specifier position of IP. The auxiliary *was* is merged as the head of a VP and moves to I, the subject NP *cost* undergoes step-by-step movement to the specifier of IP:²⁷

(3) a $[_{IP} [_{NP} \text{Cost}] [_I \text{was}] [_{VP} \text{cost be } [_{VP} \text{cost } [_{V'} \text{complicating matters}]]]]]$.

To derive the predicate inversion pattern in (1a), we might propose that the constituent containing the verb *complicating* and the object *matters* moves, while the subject NP *cost* is stranded in the specifier of the VP:

(3) b **Hypothesis**

$[_{IP} [_{V'} \text{Complicating matters}] [_I \text{was}] [_{VP} [_{V'} \text{complicating matters}] \text{be } [_{VP} \text{cost } [_{V'} \text{complicating matters}]]]]]$.

Observe that in this case we have to move an intermediate projection (V'). This is potentially worrying, as we have not really used such a projection for any movement operation yet.

TWO MORE COMPLICATIONS

Assuming the analysis in (3b), we would predict that there is relatively free variation between the two patterns discussed here, i.e., that, depending on the informational organization of the sentence we want to put forward, we can either front the subject to SpecIP (as in the examples in (2)) or we can front V' (as in the examples in (1)). Is this prediction correct?

(4) a I wonder whether three students from Romania will be waiting in the corridor.
b *I wonder whether waiting in the corridor will be three students from Romania.

(5) a I expect the candidates for the exam to be waiting in the corridor.
b *I expect waiting in the corridor to be the candidates for the exam.

Discuss the problem raised for the analysis in (3b) by the application of predicate inversion in the following examples. Could we claim that V' has been fronted, stranding the subject in the specifier of VP?

²⁷ See section 4 of this chapter.

- (6) Still peeking through the attitudes of Labour politicians high and low are glimpses of doubt about their right to be where they are. (*Guardian*, 9.4.2002, p. 8, col. 3)
- (7) Confidently riding the horse is the beautiful, dark-haired Tamsin. (*Observer*, 24.20.2004, *Review*, p. 5, col. 2)
- (8) A recent survey of senior-class presidents in high schools around the nation has shown that 73% approve of draft registration for 18-year-old men and 51% favor prayer in public schools. Sharply dividing the class presidents was the issue of abortion – 50% supported a woman's right to terminate an unwanted pregnancy; 32.5% opposed it. (*Philadelphia Inquirer*, 3.9.1983, from Birner & Ward, 1992: 9, their (21a))
- (9) Ashenden duly distributed the Welcome Trusthouse Forte forms, already completed for the sections dealing with Company, Next Destination, Settlement of Account, Arrival, Departure and Nationality. Only remaining for the tourists to fill in were the four sections headed Home Address, Telephone, Passport Number and Signature. (Colin Dexter, *The Jewel that was Ours*, 1992: 23)
- (10) Now living with the Morrises was Janey's sister, Bessie Burden, who had joined them in the last few months at Red House, after her father died. (Fiona MacCarthy, *William Morris*, 1995: 198)

Exercise 24 Language typology (T, E, presupposes Exercises 6, 7, 13, and 16)

In this chapter we have discussed a number of different languages. We have identified two properties that determine their word order:

- (i) The verb moves to I.
- (ii) The subject moves to SpecIP.

Based on the discussion in the chapter and on the data in the preceding exercises, complete Table 1, writing + if the language displays the property and – if it does not.

The combination of two variable properties leads to four possible combinations. In the blanks in Table 2 fill in the languages that display the corresponding combination. Are all combinations attested?²⁸

²⁸ For a discussion of the typology see Baker (2002).

Table 1 Language typology

| Language | V to I | Subject to SpecIP |
|-----------------|---------------|--------------------------|
| Arabic | | |
| English | | |
| French | | |
| Irish | | |
| Modern Greek | | |
| Welsh | | |

Table 2 Inventory of languages

| | V to I | V remains in V |
|---------------------------------|---------------|-----------------------|
| Subject to SpecIP | | |
| Subject does not move to SpecIP | | |