

# 3 Lexical Projections and Functional Projections

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## Discussion

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## 0 Introduction: Scope of the Chapter

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In Chapter 2 we first established a set of diagnostic tools for identifying constituents in the sentence. Using these tools we then elaborated a representation of the structure of sentences with auxiliaries. The analysis led to the proposal that in sentences with auxiliaries the auxiliary is a pivotal element that creates the link between subject and VP.

In this chapter we complete the representation of the structure of the sentence. In particular we address the question whether sentences without auxiliaries can be argued to be formed along the lines developed in the preceding chapter. One point that will emerge is that in sentences without auxiliaries the inflectional ending of the verb is the pivotal element to relate subject and verb phrase. Based on this observation we will propose an analysis that covers both sentences with auxiliaries and those without. The structure we elaborate is one in which VP, the projection of the verb, is dominated by IP, a projection of the inflection. While the verb is a lexical head, the inflection is a functional head. VP is a lexical projection, IP is a functional projection.

We will see that the format for sentence structure elaborated for English can be extended to other languages, and we will provide an account for the difference between the position of the verb in French and in English.

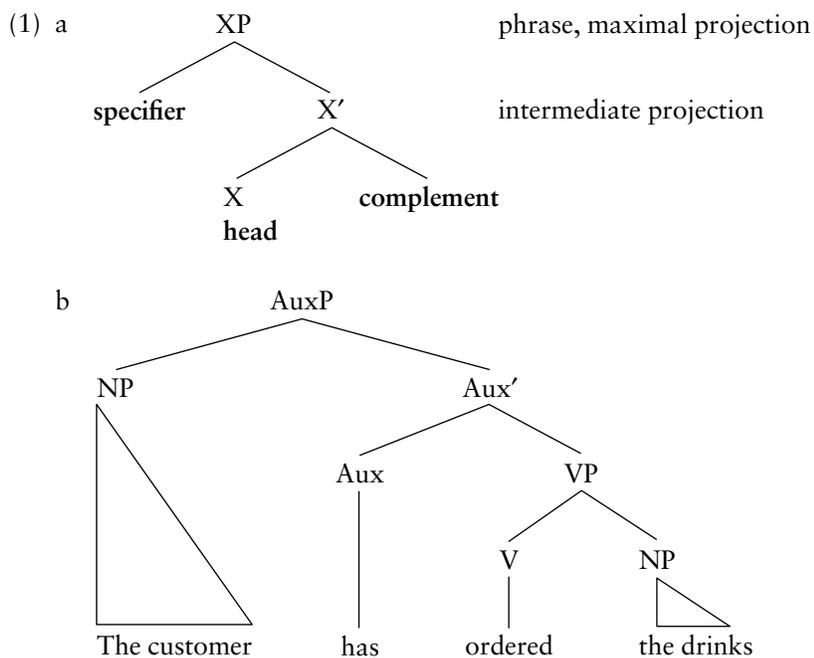
Having identified the components of the sentence, our next step will be to take the sentence apart and examine how the components are put together. That is, we will examine how we form or “generate” sentences by putting together smaller units of structure. We will see that when putting together words to form a sentence, we make use of two basic operations: the operation Merge, which combines two units, and the operation Move, which selects a constituent in an existing structure and moves it to another position. When building the sentence we start with a verb and we progressively add constituents to build a more elaborate structure. Because of its central role in the make-up of the sentence, we will briefly consider the semantic relation of the verb to the remainder of the sentence. For instance, when a verb denotes an action, this will imply that there will be one or more participants to the action. We will look at how such participants are realized in the sentence. After having discussed the structure of sentences with no auxiliary as well as those with one auxiliary, we will finally examine sentences that contain more than one auxiliary.

The chapter is organized as follows: section 1 elaborates a proposal for the representation of sentences without auxiliaries. Section 2 is an inventory of the components of the system elaborated so far. Section 3 concerns the semantic relation between the verb and some of the components of the sentence. Section 4 deals with sentences with multiple auxiliaries. Section 5 is a summary.

# 1 The Structure of the Sentence

## 1.1 The head of the sentence

Diagram (1a) reproduces the general format for syntactic structure that we elaborated by looking at the noun phrase. In diagram (70b) of Chapter 2, repeated here as (1b) we molded our previous findings for the structure of the sentence according to the format in (1a).<sup>1</sup> We tentatively proposed that the head of the sentence is the finite auxiliary. Aux selects a VP as its complement and it takes the subject as its specifier.



According to representation (1b), a sentence is a projection of an auxiliary. The auxiliary is the pivotal element of the sentence: it first combines with its complement, a VP, which denotes some action/situation. The combination of an auxiliary and a VP is not yet a sentence. Following the schema in (1a) we label it Aux'. This newly formed constituent [auxiliary + VP] combines with the subject. The auxiliary is represented as a linking device that brings together a situation (an activity, a state of affairs) and the entity to which the situation applies. In addition, the auxiliary qualifies the validation of the link in terms of time and modality, that is, it indicates whether the link is valid in the present, in the past, in the future, or whether the link is probable, possible, etc.

<sup>1</sup> See section 3.1.2.3 of Chapter 2.

If we define the auxiliary as a linker between the VP and the subject we can also account for the observation that sentences must have subjects. A sentence lacking a subject would be “unbalanced” in that the auxiliary could no longer function as a linker between its VP complement and another constituent. Metaphorically speaking, we could say that the absence of a subject creates an “imbalance,” which would cause the sentence to “topple over” and crash. Another way of looking at this idea is to say that the subject serves to anchor the content of the sentence. Very often the information provided by the subject determines what the sentence is about. If a sentence lacked a subject, the information in the sentence would be unanchored and drift along without being able to be linked to other informational units.

However, in our account one immediate problem remains. If sentences with auxiliaries are projections of Aux, then how do we deal with sentences lacking an auxiliary? Are these fundamentally different? We turn to this issue now.

## 1.2 Sentences without auxiliaries

### 1.2.1 THE LINK BETWEEN SUBJECT AND VP

Let us compare a variant of the test sentence used in the previous chapter, (2a), with a variant without an auxiliary, (2b). Bracket (2a) in order to show its structure, using the hypothesis that sentences are projections of Aux. The result is (2c).

- (2) a The customer in the corner will order the drinks.  
 b The customer in the corner ordered the drinks.

One might assume that the structure of (2b) is as in (2d): a sentence (S) combines an NP and a VP.

- (2) c [<sub>AUXP</sub> [<sub>NP</sub> The customer in the corner] [<sub>AUX'</sub> [<sub>AUX</sub> will] [<sub>VP</sub> order the drinks]]].  
 d [<sub>S??</sub> [<sub>NP</sub> The customer in the corner] [<sub>VP</sub> ordered the drinks]].

If, as postulated in this book, the structure of the sentence determines its interpretation, (2d) suggests that sentences without auxiliaries are different in interpretation from those with auxiliaries. For sentences with auxiliaries, such as (2a), representation (2c) shows that the contribution of the auxiliary is to link the VP and the subject. The auxiliary also qualifies the validation of that link. For instance the auxiliary may specify that the link is validated in the future (*will*), or that is situated in the past (*has*), etc. According to (2d), when there is no auxiliary, a sentence would simply be a juxtaposition of an NP and a VP. Crucially, there is no linker to encode the relation between the two elements. This means in turn that the relation between subject and VP cannot be modified with respect to factors such as time or modality. Compare (2a) and (2b). Do you see a way in which the relation between the subject and the VP can be said to be modified in (2b)? At first sight, (2b) is not

unlike a sentence such as (2e), in which the auxiliary *have* serves to locate the event in the past:

(2) e [AUXP [NP The customer in the corner] [AUX' [AUX has] [VP ordered the drinks]]].

The perfect auxiliary *have* and the past tense in English have a similar (though not identical) role to play: both place the event expressed in the sentence in the past time sphere. But this is not what representation (2d) shows: in this representation the expression of past time, the past tense ending *-ed*, is fully integrated as a part of the VP. To represent the linking role of the past tense, we could adopt a representation such as (2f) with a past time linker.

(2) f [S [NP The customer in the corner] [PAST] [VP order the drinks]].

Observe also that what is expressed by an auxiliary in one language may be rendered by an inflection in another and vice versa. For instance, French uses an inflectional ending to create a future tense (3a), while English uses the auxiliary *will* to express future time:

(3) a Pierre achètera le journal demain.  
 Pierre buy-FUT-3SG the newspaper tomorrow  
 'Pierre will buy the paper tomorrow.'

b Peter will buy the paper tomorrow.

Similarly, the present perfect is expressed by means of an auxiliary in English but by an affix in Latin (3c). In both cases, English is the language using auxiliaries where another language uses inflection.

(3) c ama-vi  
 love-PF-1SG  
 'I have loved'

Recall that our representations reflect how meaning is conveyed through structure. We would perhaps be missing something if we were to treat the inflectional endings of the verb as quite distinct from auxiliaries, since they convey similar interpretations.

### 1.2.2 THE SUBJECT REQUIREMENT

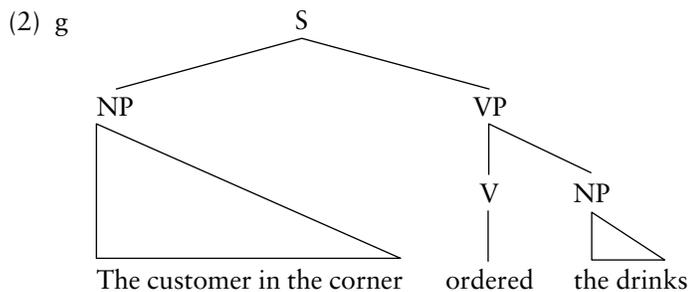
We suggested relating the fact that every sentence has a subject to the hypothesis that the auxiliary is the head of the sentence combined with the assumption that the auxiliary functions as a link between a VP and a subject. Sentences without auxiliaries and with tensed verbs also have to have subjects. However, if such sentences are not constructed around a linker, then, as things stand, we do not have any means to

predict that these sentences too have to have subjects. We could of course devise a second explanation to account for the fact that sentences without auxiliaries have to have a subject. This would mean that we end up with two different explanations for the same pattern, namely that all finite sentences need subjects. It would not seem to be in the spirit of the scientific enterprise to come up with two explanations for what seems to be one pattern. One comprehensive explanation that covers both sentences with auxiliaries and those without would be preferable for reasons of theoretical economy.<sup>2</sup>

### 1.2.3 THE RELATION BETWEEN VP AND INFLECTION

#### 1.2.3.1 INFL as the head of the sentence

In this discussion we are concerned with **finite** sentences; that is, sentences containing a lexical verb or an auxiliary in the present or past tense.<sup>3</sup> Let us examine representation (2d) in more detail, focusing on the content of the VP constituent. A tree representation for (2d) is (2g). This representation suggests that in sentences without an auxiliary and with a tensed verb we simply merge an NP with a tensed VP. What predictions do we make with respect to operations such as movement, or ellipsis, of the VP? Specifically, how do we expect such operations to affect the inflection *-ed* on the verb?



In (2d/g) the *-ed* ending of the verb is solidly fused with the V, hence it is part of the VP. We predict that whatever operation affects the VP should therefore also affect the ending on the verb, as this is fully integrated in the V and the VP. Let us see if this prediction is borne out.<sup>4</sup> Consider the underlined sentences in (4) paying particular attention to the location of the tense inflection in relation to the verb that it modifies.

- (4) a “But I couldn’t rewind time, I just had to get over it.” And get over it she did. (*Guardian*, 6.9.2001, p. 15, col. 8)

<sup>2</sup> See also the discussion in Chapter 1, section 1.2.3.

<sup>3</sup> Finiteness was discussed briefly in Chapter 1, section 2.2.2.

<sup>4</sup> Exercise 1 is a revision of constituency tests.

- b We were told journalism is a science. It didn't make sense then nor does it now. (Adapted from the *Washington Post*, 29.4.2003, p. A22, col. 4).
- c Many astronauts have a ham radio license; so does she. (*Washington Post*, 29.4.2003, p. A10, col. 3)

In (4a) the VP *get over it* is moved to an initial position.<sup>5</sup> Observe that the VP is not fronted with an inflectional ending; we do not front the string *got over it*, but rather we front the string *get over it*. Where is the tense marker whose interpretation would have to be associated with *get (over it)*? The tense ending is seen to be detached from the verb *get* itself and it is realized on *did*, an auxiliary that remains unaffected by the movement. In (4b) the VP has been omitted. But the third person inflection survives on the auxiliary *do*. In (4c) *so* replaces the VP, the third person inflection is realized on *do*.

The possible separation of the verb and its inflection can also be demonstrated on the basis of (5a), the variant of our test sentence without an auxiliary.

- (5) a The customer in the corner ordered the drinks.
- b What the customer in the corner did was [<sub>VP</sub> order the drinks].
- c Everyone expected that Bill would order the drinks. And [<sub>VP</sub> order the drinks], he did.
- d The customer in the corner ordered the drinks and so did his companion.

In the pseudo-cleft pattern in (5b) the VP is separated from the inflection. Similarly, in (5c) the fronted VP does not carry the tense inflection along, and in (5d) *so* replaces the VP but the tense ending is realized on *did*. Representation (2g) does not lead to the prediction that the verb and its inflectional ending can be separated. In order to account for the various patterns illustrated above, we need to find a way of isolating the inflectional morpheme associated with the V from the VP. This conclusion is fully in line with the conclusion based on an informal semantic analysis of the sentence represented in (2f), repeated here for convenience as (5e), in which the past tense was isolated as a constituent separate from the VP.

- (5) e [<sub>S</sub> [<sub>NP</sub> The customer in the corner] [<sub>PAST</sub>] [<sub>VP</sub> order the drinks]].

In a present tense sentence we can similarly set apart the third person singular inflection:

- (6) a The customer in the corner orders the drinks before the meal.
- b What the customer in the corner does is [<sub>VP</sub> order the drinks before the meal].

<sup>5</sup> If you would like to know which position the moved VP occupies, turn to Exercise 14 of Chapter 2 and to Exercise 3 of this chapter.

- c Everyone always expects that Bill will order the drinks before the meal. And [VP order the drinks before the meal], he invariably does.
- d The customer in the corner orders the drinks before the meal and so does his companion.
- e [<sub>S</sub> [<sub>NP</sub> The customer in the corner] [PRESENT] [<sub>VP</sub> [<sub>VP</sub> order the drinks] before the meal]].

(7a) offers a representation covering both (5e) and (6e): INFL stands for the inflection of the verb.

- (7) a [<sub>S</sub> [<sub>NP</sub> The customer in the corner] [INFL] [<sub>VP</sub> [<sub>VP</sub> order the drinks] before the meal]].<sup>6</sup>

For sentences with an auxiliary, we have proposed representation (7b):

- (7) b [<sub>AUXP</sub> [<sub>NP</sub> The customer in the corner] [<sub>AUX'</sub> [<sub>AUX</sub> will] [<sub>VP</sub> [<sub>VP</sub> order the drinks] before the meal]]].

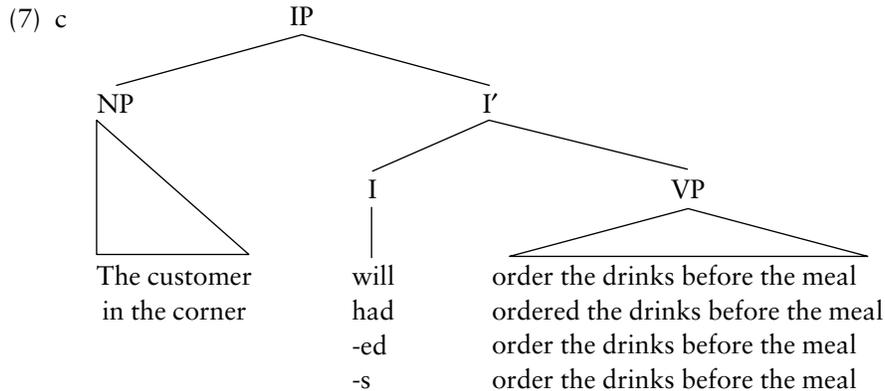
The two representations suggest that there is still a considerable difference between the two sentence types, that with and that without an auxiliary, which seems unwarranted by the observations above. Crucially, in representation (7a) the sentence splits into three immediate constituents, the subject NP, INFL, and the VP. (7a) has not been adapted to the binary branching format. Let us try to reduce the two representations to just one. Observe that in finite sentences with auxiliaries, the auxiliary is itself inflected for tense. In other words, the auxiliary carries finite inflection. The following examples illustrate this point:

- (8) a The customer in the corner is ordering the drinks now.
- b The customer in the corner was ordering the drinks later.
- c The customer in the corner has ordered the drinks already.
- d The customer in the corner had ordered the drinks already.

All finite sentences contain some form of inflection, but not all finite sentences contain an auxiliary. Pursuing this path and taking into account that in the head position labeled Aux we insert an inflected auxiliary, we can combine (7a) and (7b). Rather than labeling the head position of the sentence Aux, we could label it INFL (or I). The head position INFL will host either the inflected auxiliary or just the inflectional ending of the verb. Based on this hypothesis, the structure for the sentence is then relabeled as in (7c):

<sup>6</sup> An alternative would be to use tense as a cover label.

- (i) [<sub>NP</sub> The customer in the corner] [TENSE] [<sub>VP</sub> order the drinks before the meal].



The head of the structure is I. I combines with VP to form I'; the intermediate projection. I' combines with the subject to form IP.<sup>7</sup> The label IP stands for Inflection Projection or, in other words, a phrase headed by the inflection. We have managed to isolate both the auxiliary and the tense inflection from the verb and give them the same pivotal linking role. The resulting representation shows that:<sup>8</sup>

- (i) Sentences are centered around I.
- (ii) I is a linker: it links a VP and a subject, both components are obligatory.
- (iii) The content of I qualifies the linking, locating it in time and/or assigning some modal value to the relation.

### 1.2.3.2 Inserting *do* in I

As it stands, the structure in (7c) above does not yet allow us to form a sentence without an auxiliary. An inflectional ending of a verb cannot stand all by itself because it is a bound morpheme; it is an affix that must be hosted by a free morpheme. The past tense inflectional ending, *-ed*, must be attached to a verb. One way of saving an unattached *-ed* ending is by associating it with its own auxiliary. This is what happens when the auxiliary *do* is inserted. If we insert *do* under a head I with a past tense ending we derive (9):

- (9) a [IP [NP The customer in the corner] [I' [I do + ed] [VP order the drinks before the meal]]].  
 b [IP [NP The customer in the corner] [I' [I did] [VP order the drinks before the meal]]].

<sup>7</sup> In the alternative representation (note 6) in which we represent the core constituent of the sentences as Tense, a sentence is a projection of T: TP.

(i) [TP [NP The customer in the corner] [T' [TENSE] [VP [VP order the drinks] before the meal]]].

<sup>8</sup> Exercise 2.

In (9) *do* is not essential.<sup>9</sup> We can dispense with it if we attach the tense ending to V:

(9) c The customer in the corner ordered the drinks before the meal.

In (10a) *do* cannot be eliminated, as shown by (10b):

- (10) a And [<sub>VP</sub> get over it] she did. (cf. (4a))  
 b \*And [<sub>VP</sub> got over it] she.

In (10a) *did* combines the past tense inflection with *do*. This sentence illustrates a leftward movement of the VP, *get over it*. As a result of this movement, the VP no longer occupies its canonical position to the right of the auxiliary. Apparently, when we move the VP, insertion of *do* becomes essential in the sentence. There is no way that we can realize the tense on the verb itself (10b). If we restore the VP to its original position, though, we can dispense with *do*:

- (10) c And she did [<sub>VP</sub> get over it].  
 d And she got over it.

In our constructed example (9), *do* is also not essential. If language is guided by a principle of economy though,<sup>10</sup> the insertion of *do* should have some effect. If *do* were completely superfluous, by the principle of economy we should not insert it. To assess the possible impact of inserting *do* in a context where it could be omitted, let us look at some attested examples in which *do* could also have been absent.<sup>11</sup>

- (11) a I don't remember much of anything she said in the church foyer or what I uttered back. She had that dazzling effect on me . . . What I do recall is that she invited me to a holiday party two nights later at the mutual friend's place. (*Chicago Tribune*, 22.12.2003, section 13, p. 9, col. 1)  
 b Coleman, who describes himself as a "semi-professional punter", gave evidence at a trial in Southampton in October 2001 and his statements to the court then will form the basis of the case against him. It is still not clear if he will turn up for the 10 a.m. hearing at the club's headquarters in London, but the feeling at Portman Square yesterday was that he would indeed appear to defend himself. . . . If Coleman does appear this morning, the Jockey Club may also wish to inquire about another part of the evidence. (*Guardian*, 22.1.2003, p. 14, cols 1 + 2)  
 c On Tuesday Clarett disputed the contention of university officials that he had failed to file the proper paperwork that would have allowed him to attend the funeral . . . Each side is right, Clarett did fill out the papers but

<sup>9</sup> See Chapter 1, section 2.2.3 for this use of *do*.

<sup>10</sup> As discussed in Chapter 1, section 2.2.3.

<sup>11</sup> For more examples of this use of *do* see Chapter 1, Exercise 7.

filled them out too late to receive tickets to fly home. (*New York Times*, 2.1.2003, p. D1, col. 1)

- d Jackson is hardly a virgin forest. Like most of the state's redwood land, it has been logged intermittently since about the middle of the 19th century . . . But the forest does have thousands of acres of 80- to 100-year old redwoods. (*San Francisco Chronicle*, 28.11.2002, p. A34, col. 1)

If we eliminate the underlined occurrences of *do* in (11) we have to associate the inflectional ending of *do* with the verb itself. In (12) we reproduce the crucial parts of the contexts in which the sentences with *do* are used. Can you identify a common contextual factor for all these examples?

- (12) a I don't remember much of anything she said.  
 b It is still not clear if he will turn up for the 10 a.m. hearing at the club's headquarters in London.  
 c the contention of university officials that he had failed to file the proper paperwork  
 d Jackson is hardly a virgin forest.

By inserting *do*, the writer/speaker forcefully asserts the validity of the linking of the subject and the related event in a context in which this linking is not obvious. The contextual elements in (12) provide indications that the linking of the subject and the VP, which is emphasized by the insertion of *do*, is not self-evident and that it merits being highlighted. Inserting *do* highlights that link. This interpretation of the role of inserting *do* is in line with our proposal that the inflectional position of the sentence (I) encodes the linking between the subject and the VP. By inserting *do* in that position, we highlight the validation of that link.

### 1.2.3.3 Associating V and I

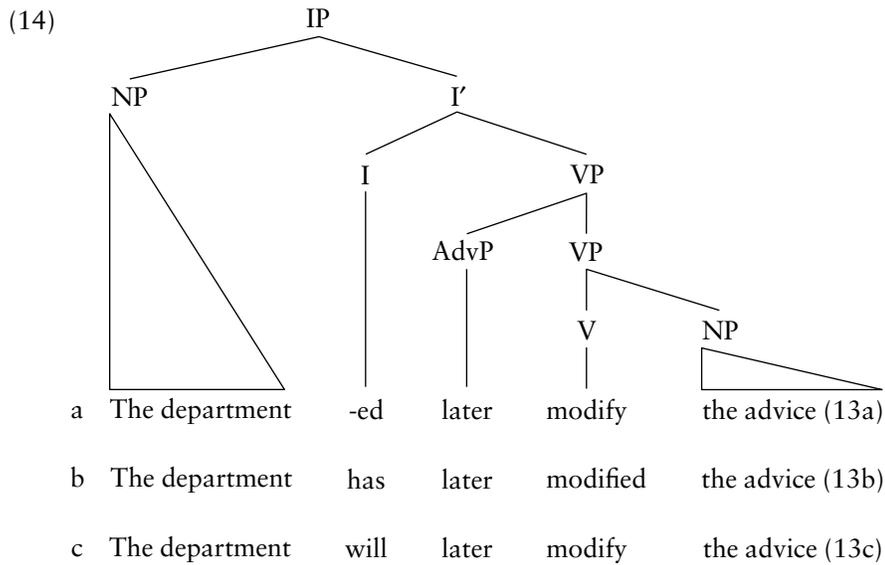
In (13a) identify the subject NP, the VP, the verb, and any VP-adjunct(s). Rephrase the sentence (i) by replacing the past tense form of the verb first by a combination of the auxiliary *have* + past participle, then (ii) by reorienting the sentence toward the future, using the auxiliary *will* with the infinitive.

- (13) a The department later modified the advice.

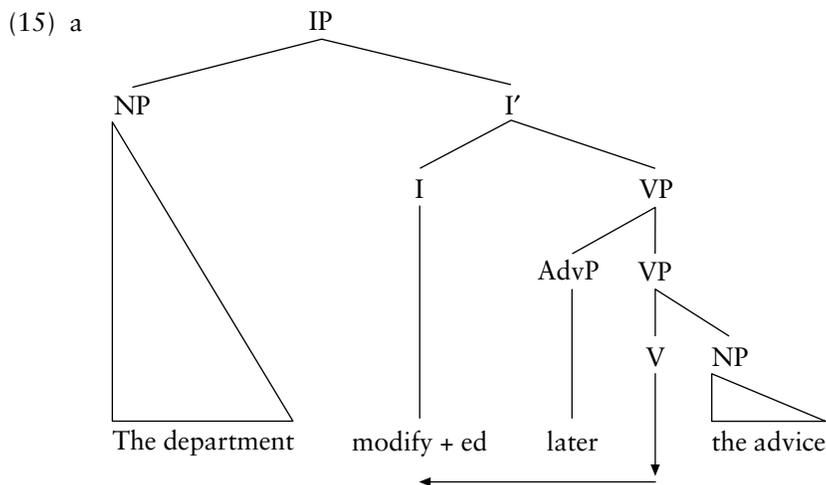
In the variants of (13a) that you will have created, the adjunct *later* remains to the left of the lexical verb, and the auxiliary is adjacent to the subject.

- (13) b The department has later modified the advice.  
 c The department will later modify the advice.

Adopting the format displayed above, the tree diagram for (13) will be as in (14), with alternative fillers for I.

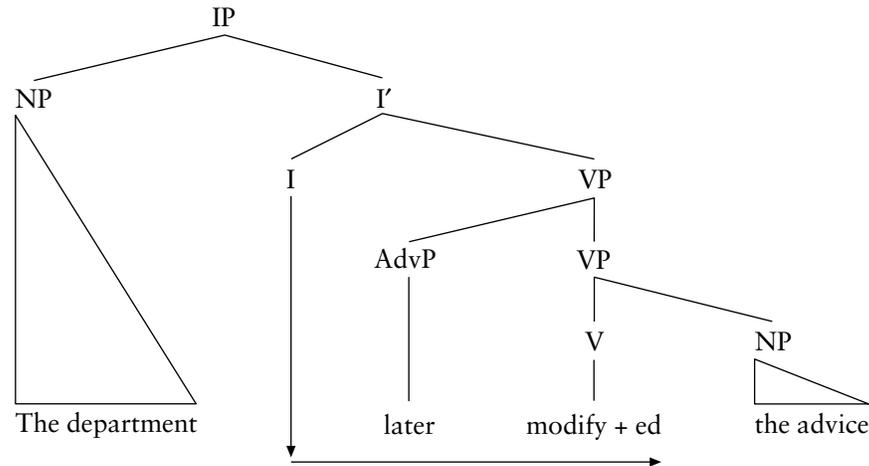


In example (13a) the tense ending *-ed* is located on the verb *modify*. So in representation (14a) we need to combine tense and verb. Let us examine how this is achieved. V and I are head positions. They contain heads, i.e. elements that form the nucleus of a projection. In (14a), the content of the head I is the inflectional ending *-ed*; the content of V is the lexical verb *modify*. These two heads need to be combined because *-ed* is a bound morpheme that has to attach to a verb. Presumably, looking at the tree, there are three options. One is that the verb *modify* is moved from its position V to the position I, where it combines with *-ed* (15a).



A second one is that the ending *-ed* is moved onto the verb (15b).

(15) b



There is a third alternative, namely that we create a new position Z in the structure, perhaps between V and I. V and I would be combined in that new position. If the new position were also a head position, which we could label Z, then we would actually have to deduce that there is a complete new projection ZP in the structure. Should we actually pursue this third proposal?

We have postulated the head positions I and V. In the two options laid out above (15a, b), we need only those two positions plus a mechanism that moves one of the constituents from its own position to the position of the other. In the third option outlined above, we also have to move the inflection and the verb. Therefore, we still need this additional mechanism for moving a constituent from one position to another. But in addition to that, we also need to create a totally new position inside the structure for the inflection and the verb to unite. A second difference between (15a, b) and the third option is that according to the proposals in (15a) and (15b), either the verb moves (15a) OR the inflection moves (15b), whereas in the third option, both the verb AND the inflection move. The third option then is less economical: it requires creating a new head position (and the related projection) inside the sentence and it requires moving two heads instead of just one. Because it is less economical, we will therefore only resort to this option if we can show that the more economical alternatives (15a, b) are both inadequate. In general, if we can arrive at an analysis using fewer tools, then we prefer to adopt that rather than adding extra tools to the analysis. Remember that in the spirit of a scientific approach to syntax, we should aim for theoretical simplicity.<sup>12</sup> An analysis requiring fewer tools is always more highly valued.

So before examining the third alternative in which a new projection is postulated, we will first compare (15a) and (15b). Could we propose that the lexical verb moves to the inflection? Consider tree diagram (15a). What would be the resulting linear order? If V were to move to I, as proposed, then we ought to obtain (15c):

(15) c \*The department modified later the advice.

<sup>12</sup> See Chapter 1, section 1.2.3.

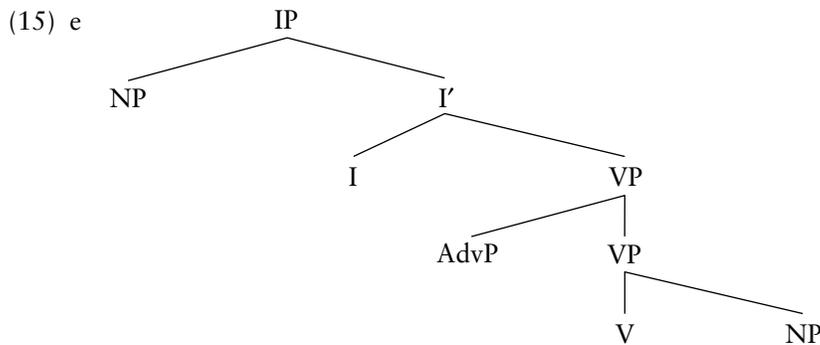
But (15c) is not acceptable. The verb must follow the adjunct *later*, which we assume is adjoined to VP.

Could the inflection move onto the verb? What would be the resulting word order? If I moves to V, then we obtain (15d):

(15) d The department later modified the advice.

(15d) is acceptable. The verb follows the adjunct *later*, which we assume is adjoined to VP.

Let us look at the geometry of the tree and in particular, let us look at the relative positions of the heads V and I in the tree diagram representation. From a geometrical point of view, which is higher, V or I?



I combines with VP. I and the projection VP are on equal footing, both are immediate constituents of I'.<sup>13</sup> V is buried inside VP. V is an immediate constituent of the core VP, so V hierarchically is ranked lower than the augmented VP. This means that the head V is lower than the head I. When I joins V it “goes down” into VP. We say that in English I **lowers** onto V. Conversely, I is higher than V. If the verb were to move to I, then it would have to leave VP and go up in the tree. In that case, we would say that it **raises** to I.<sup>14</sup> As shown above, in English I lowers onto the verb and the verb cannot raise to I.

#### 1.2.3.4 When the inflection cannot lower onto V

Suppose that we pick the VP in representation (15e) and move it to a position to the left of the subject. Leftward movement of the VP should not affect the content of the head I, which is inserted independently of the content of the VP. In (16a, b), the VP is moved to the left of the subject. The subject is the specifier of IP, the maximal projection of I. VP is also a maximal projection. Not every English sentence

<sup>13</sup> For immediate constituents see Chapter 2, section 2.4.2.

<sup>14</sup> We will discuss instances of V raising to I in sections 1.2.4 and 4.3 below. It is possible to rephrase the theory in a way that avoids lowering. See Chomsky (1995) and Adger (2003) for an introduction. We will not go into this issue here.

contains such a fronted VP. VP-fronting (or VP-preposing) is an optional operation that combines a VP with a clause. To represent the resulting structure, we propose that the fronted VP adjoins to IP. (16a) is a tree diagram representation, (16b, c) translate (16a) in the equivalent labeled bracketing representation.<sup>15</sup>

- (16) a
- 
- b  $[_{IP} [_{VP} \text{Modified the advice}], [_{IP} [_{NP} \text{the department}]] [_{I'} \text{has} [ \text{---} ]]]]$ .
- c  $[_{IP} [_{VP} \text{Modify the advice}], [_{IP} [_{NP} \text{the department}]] [_{I'} \text{will} [ \text{---} ]]]]$ .

Let us apply VP-fronting to a sentence without an auxiliary. If we front the VP and there is no auxiliary under I, we will be left with an inflection stranded under I. But the inflection is a bound morpheme and has to combine with a verb. Lowering the inflection onto V, as we did before, now raises a problem. After movement of the VP, there will actually be no verb to lower the inflection onto (16d). Left alone, the inflection is also unable to survive in I because it is a bound morpheme. In such cases, we have to “rescue” the sentence by enabling the inflection to survive independently of the lexical verb in the verb phrase, and we insert the auxiliary *do* (16e).

- (16) d
- 
- e
- 

<sup>15</sup> For some discussion of this issue see also Exercise 15 in Chapter 2. In Chapters 4 and 5 we will return to the operation that moves constituents from one position to another position in the sentence.

In (16a) VP movement does not give rise to *do*-insertion. Can you explain why this should be? The answer is that in these examples, insertion of *do* is not required to rescue the sentence because the problem of the stranded inflection does not arise. The auxiliary is a free morpheme. The inflection is associated with the auxiliary, *will* is a present tense form (as opposed to *would*, which would be the past tense form). Since there is no need for inserting *do* we do not insert it. In VP-fronting contexts, *do* is inserted to rescue a pattern which would otherwise not survive. We can say that these patterns illustrate the effect of economy on the structure.<sup>16</sup> We only insert *do* if we cannot manage without it.

Recall that we examined the formation of questions in Chapter 1, section 2, and we observed that direct questions involve subject-auxiliary inversion, abbreviated as SAI. We also saw that we insert *do* and invert it with the subject whenever the relevant sentence lacks an auxiliary. Identify SAI patterns in (17):

- (17) a What are my borrowing options? How much can I afford? Where do I begin? (*New York Times*, 28.4.2003, p. A22, advertisement Fleet)  
 b The key question is: what do we know about the 96 new cases of SARS, who are the 96, when did they start, where did they live? (Based on *Washington Post*, 29.4.2003, p. 18, col. 1)

We should again ask ourselves why *do* is inserted in some of the examples, and if possible we should try to relate the answer to the preceding discussion of the insertion of *do*. We saw in Chapter 1 that SAI is related to question formation. For sentences without an auxiliary, we would again want to end up saying that *do* is inserted as a last resort to rescue the structure. We have assumed that the auxiliaries are inserted in I and move to the left across the subject in cases of subject-auxiliary inversion. The position they arrive at, or their **landing site**, will be examined in Chapter 5. We should ask ourselves, though, which component is crucially targeted by SAI: is it the auxiliary itself or is it the inflectional element that is part of the auxiliary? In order to answer this question we will first extend our database and look at question formation in French.

## 1.2.4 VERB POSITIONS AND COMPARATIVE SYNTAX

### 1.2.4.1 French questions

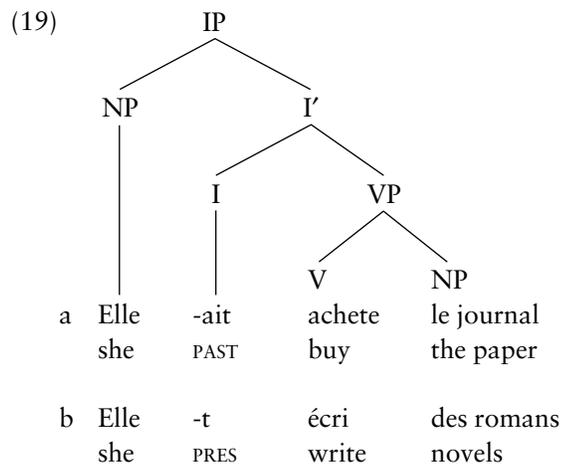
In Chapter 1 we saw that French also displays SAI:

- (18) a A-t-elle toujours acheté le journal?  
 has she always bought the paper  
 'Has she always bought the paper?'  
 b A-t-elle toujours écrit des romans?  
 has she always written novels  
 'Has she always been a novelist?'

<sup>16</sup> See Chapter 1, section 2.2.3.

But in contrast with the English pattern, when there is no auxiliary, direct questions in French can simply be formed by inversion of a tensed lexical verb and the subject.<sup>17</sup> We labeled this pattern subject-verb inversion or SVI. Why is there a difference between French and English?

In order to understand the difference, we need to compare English sentences with their French counterparts. Unless we are proven wrong, considerations of economy lead us to assume that French sentences essentially have the same structure as English sentences, and, in particular, that French verbs also project a VP. The verb would be merged in the position V. We call the position in which the verb is inserted its **base position**.



Consider the examples in (20):

- (20) a Achetait-elle toujours le journal?  
 a' \*Bought she always the paper?  
 b Écrit-elle encore des romans?  
 b' \*Writes she still novels?

In (20a) the verb *achetait* ('bought') cannot be occupying its base position, the head position of VP. If the verb were in its base position, it should be adjacent to its direct object *le journal* ('the paper'). Similarly, in its base position the verb *écrit* ('writes') would be adjacent to the direct object *des romans* ('novels') in (20b). In (21a) and in (21b), which are the acceptable counterparts to (20a') and (20b'), the English verbs *buy* and *write* occupy their base positions.

- (21) a Did she always buy the paper?  
 b Does she still write novels?

<sup>17</sup> See Chapter 1, section 3.1.1.

Why does English need *do* insertion in (21) and why does French not need a similar device in (20)? The difference cannot be due to the fact that SAI itself is restricted to English questions given the French data in (18), which also display subject-auxiliary inversion.

A further question arises for the French examples in (20), in which the verb inverts with the subject. Recall that we proposed as a working hypothesis that language is driven by economy: we do not insert elements unless they are needed. In the examples discussed so far, English *do*-insertion was motivated either by the need to highlight the link between subject and VP (in I), or, alternatively, because VP fronting had made the verb inaccessible to the inflection in I. In the latter case, there exists no alternative without *do*. Given the French data above, though, we can ask ourselves why English doesn't simply use the French strategy of inverting the verb with the subject, SVI, to form questions. Or, conversely, why does French use SVI? Formulating things in yet another way, how come French can use SVI at all and English cannot?

It could be that the contrast between English and French is to be directly related to the process of question formation as such, and that therefore we have to explain the phenomena in relation to questions. But it could also be that the observed contrast is due to a more general difference with respect to the behavior of the verbs in the two languages considered. In the latter scenario, we would expect to find other patterns in which English and French differ with respect to the position of the verb. In English, the verb occupies its base position next to the object in direct questions while in French the verb moves away from that position. Are there other situations in which the two languages differ in a parallel way, that is, in which the English verb remains in its base position while a French verb moves away? In the next section we will look at some such patterns.

The goal of the current discussion is to arrive at an explanation for the observed difference between English and French question formation. Ideally, we want to provide an account for this difference which relates it to some other property of the languages. We need to ask ourselves: "Could things have been different?" For instance, could English question formation have been more similar to French question formation? As we saw in Chapter 1,<sup>18</sup> the answer to both these questions is positive. English used to be different, and question formation in Old English used to be similar to question formation in present-day French:

- (22) a Hwæt sægest þu, yrðling?  
       what say you, peasant  
       'What do you say, farmer?'  
       (*Acoll*, 22, Van Kemenade 1987: 138)
- b Hu begæst þu work þin?  
       how beget you work your  
       'How do you carry out your work?'  
       (*Acoll*, 22, Van Kemenade 1987: 138)

<sup>18</sup> Section 3.2.

- c Hu lomp eow on lade?  
 how happened you on journey  
 ‘How did you fare on the journey?’  
 (*Beowulf* 1987–1988, Pintzuk 1991: 138)

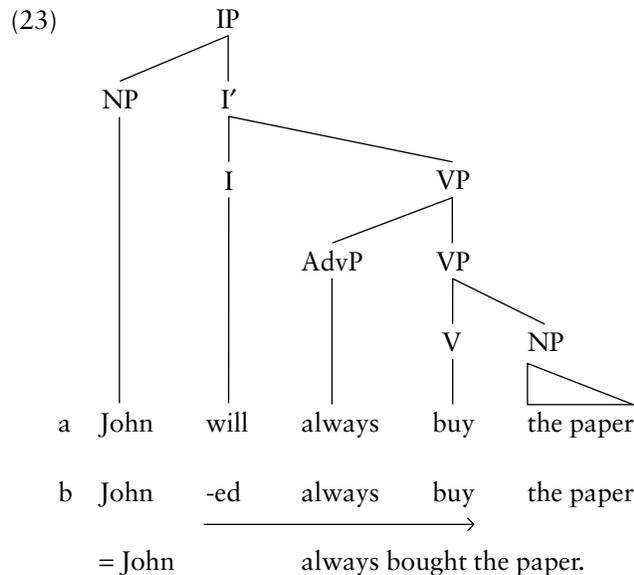
We do not want an account that implies that English could not have been different from what it is today. We do not want to postulate that there is an absolute divide between languages such as French, which can form questions by moving a verb across the subject, and languages like English, which cannot. Whatever explanation we propose in order to differentiate French and Modern English should ideally also account for the difference between Modern English and Old English and it should explain why English has changed.

#### 1.2.4.2 Verb positions in French and English

Recall that we propose that in an English sentence the lexical verb remains under V. The inflected auxiliary sits under I. The verbal inflection is inserted under I and lowers onto V. This proposal correctly derives the observed patterns:

- (i) Subject – inflected auxiliary – adjunct – V.  
 (ii) Subject – adjunct – inflected V.

Diagram (23) shows the structure.

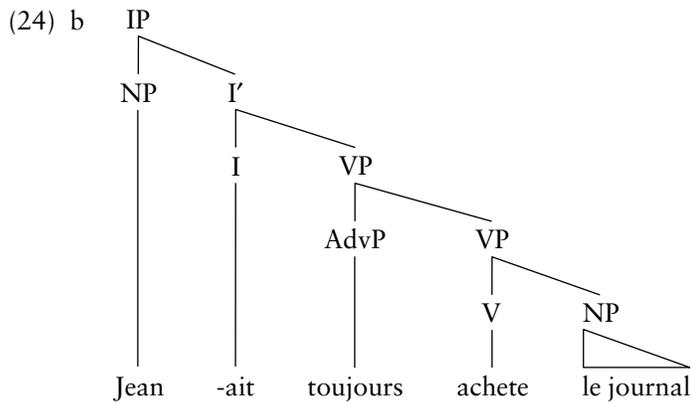


Now consider the French equivalents of *John always bought the paper*. The French verb is also the semantic nucleus of the VP; it is also first merged with its complement to create a core VP. Identify subject, verb, object, and adjunct in (24a), using the English glosses provided. We assume that the adjunct *toujours* (‘always’) is like

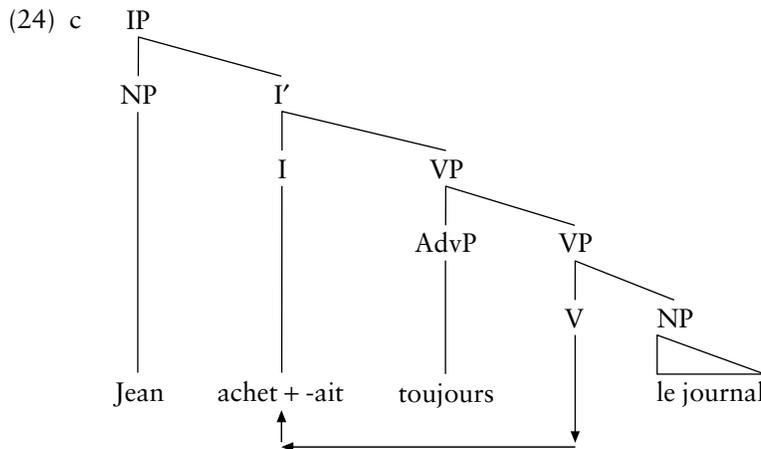
its English counterpart and that it is VP-adjoined. This seems to be a reasonable assumption since *toujours* modifies the sentence in a similar way to the English adverb *always*. What conclusions do we reach concerning the position of the verb *achetait* ('bought') in (24a)? Could it be in V?

- (24) a Jean achetait toujours le journal.  
 John bought always the paper  
 'John always bought the paper.'

If the French object NP *le journal* ('the paper') is in its base position, then the verb *achetait* ('bought') cannot be claimed to occupy its base position, V. Let us try to plot the position of the verb. We assume that the underlying structure of French is as in English, as shown in (24b). How could we derive the French word order in (24a)?



If English I and V unite by I-lowering onto V, giving the order adjunct-verb, then the simplest way to account for the observed French order verb-adjunct is to have V raise to I:



**Table 1** Present and past tense paradigms for French and English

	French	English
<b>Present tense</b>	<i>acheter</i>	<i>buy</i>
First person singular	<i>J'achète</i>	<i>I</i>
Second person singular	<i>Tu achètes</i>	<i>You</i>
Third person singular	<i>Il achète</i>	<i>He</i>
First person plural	<i>Nous achetons</i>	<i>We</i>
Second person plural	<i>Vous achetez</i>	<i>You</i>
Third person plural	<i>Ils achètent</i>	<i>They</i>
Number of different verb forms:	...	...
<b>Past tense</b>		
First person singular	<i>J'achetais</i>	<i>I</i>
Second person singular	<i>Tu achetais</i>	<i>You</i>
Third person singular	<i>Il achetait</i>	<i>He</i>
First person plural	<i>Nous achetions</i>	<i>We</i>
Second person plural	<i>Vous achetiez</i>	<i>You</i>
Third person plural	<i>Ils achetaient</i>	<i>They</i>
Number of different verb forms:	...	...

This derivation corresponds to derivation (15a), which we discarded for English; it gives us the correct order for French. But of course, this is not the end of the discussion. The next question we need to address is why the inflection lowers onto V in English and why the verb raises to I in French. In both languages, the reverse pattern is not available. V cannot move to I in English (24d) and I cannot lower to V in French (24e):

- (24) d \*John bought always the paper.  
 e \*Jean toujours achetait le journal.

How could we explain this cross-linguistic difference? We are dealing with a relation between V and I. Presumably, there are three possibilities: the explanation of the difference lies in V, or it lies in I, or it lies in the relation between V and I. Let us look at the inflections in the two languages. We give the inflectional paradigm for the French verb *acheter* ('buy') in the middle column of Table 1. Supply the missing forms for English in the right-hand column. For each tense, how many different forms do you count? The inflectional patterns of French and of English are markedly different. In English there are two forms in the present tense and there is just one past tense form. French has five forms each for present and for past.<sup>19</sup> We could try

<sup>19</sup> This is a slight simplification as some of the forms are pronounced in the same way in French. For instance, in the present tense the forms *achète*, *achètes*, and *achètent* used to be pronounced differently in earlier stages of French but in Modern French they sound the same; in the past tense *achetais*, *achetait*, and *achetaient* will sound the same. But even taking these forms as non-distinct, both tenses keep three distinct forms.

to account for the different behavior of the verb in English and in French by building a hypothesis that takes into account the differences between the inflections. Let us propose first that the different surface forms of the inflection signal the relative **strength** of the inflections: the more distinct forms there are in the paradigm, the stronger the paradigm is.<sup>20</sup> Pursuing this concept of strength, we could say that the inflection in French is strong and, that, by virtue of being strong, it can attract the verb, while the inflection in English is weak and that, because of its weakness, it cannot attract the verb. Because I cannot attract V in English, I will move down to unite with V.<sup>21</sup>

#### 1.2.4.3 *Inversion*

Consider now the form of direct questions in French and in English:

- (25) a A-t-elle acheté le journal?  
has-she bought the paper  
'Has she bought the paper?'
- b Achetait-elle le journal?  
bought-she the paper  
'Did she buy the paper?'
- c \*Bought she the paper?
- d Did she buy the paper?
- e Has she bought the paper?

As we have seen before, in French the finite auxiliary inverts with the subject (25a). If there is no auxiliary, the finite verb inverts with the subject (25b). We conclude that it cannot be the case that in order to form a question we actually have to invert an auxiliary. There is, for instance, no inverted auxiliary in (25b); in this example, inversion affects the inflected verb. On the other hand, it also cannot be the case that question formation depends on the inversion of a lexical verb, since, for instance, in (25a) only the auxiliary inverts with the subject. So even though inversion is definitely related to the formation of questions, neither lexical verbs nor auxiliaries are necessary ingredients.

We have formulated the hypothesis that the French verb is attracted to I. In (25b) the verb moves up to a position to the left of the subject. In (25a) the inflected auxiliary moves to the left of the subject. What is the common factor between the inverted constituents in (25a) and (25b)? What is common between these inverted constituents is the inflection itself. In both cases, the content of the inflectional node I ends up to the left of the subject: in French the content of I is either a verb or

<sup>20</sup> See Pollock (1989, 1997), Vikner (1997), and Rohrbacher (1999). For a critical view see Bobaljik (2002), Alexiadou and Anagnostopoulou (1998).

<sup>21</sup> Exercises 6 and 7, also Exercise 18.

an auxiliary. We can speculate that this common factor, inflection, is essential in question formation. In order to signal interrogative force, we move the content of I to the left of the subject. Whenever French I contains a lexical verb, moving I will take along the lexical verb (25b). In English, I never contains a lexical verb, so we cannot derive (25c). If I contains an auxiliary, moving I to the left will invert the auxiliary with the subject (25e).

If English I fails to contain an auxiliary and if we were to move just I to the left of the subject we would end up with (25f):

- (25) f  $[_I \text{-ed}] [_{IP} \text{she} \text{ — } [_{VP} \text{buy the paper}]]?$   
 \*-ed she — buy the paper?

Why does derivation (25f) not yield a possible sentence? The problem is once again that the inflectional morpheme *-ed* is a bound morpheme and that it cannot stand unattached. But if we were to lower it into VP and insert it onto V, then we would no longer signal interrogative force. In the case of VP fronting, we saw that an unattached inflectional ending in I was rescued by *do* insertion.<sup>22</sup> By applying *do* insertion to (25f) we derive the acceptable (25d).

The reason why lexical verbs can precede subjects in French questions is related to the fact that French lexical verbs can move to I. This in turn can be explained by our hypothesis concerning the relative strength of the inflection of the verb.

Recall that we have seen that Old English<sup>23</sup> lexical verbs inverted with subjects in questions. What would be your predictions concerning the inflectional paradigms of Old English: how would they compare to the patterns in Modern English? According to our hypothesis, the movement of lexical verbs is made possible by strong inflection. Thus we predict that Old English had a strong inflection. If you turn to any grammar of Old English you will find that the paradigms of the verb had indeed more different forms than is the case in current English. For instance, the verb *singan* ('sing') had the inflection in Table 2.

**Table 2** Present tense inflectional paradigm for Old English *singan* ('sing')

Person	Singular	Plural
1	<i>sing-e</i>	<i>sing-en</i>
2	<i>sing-est</i>	<i>sing-en</i>
3	<i>sing-eþ</i>	<i>sing-en</i>

<sup>22</sup> See section 1.2.3.4.

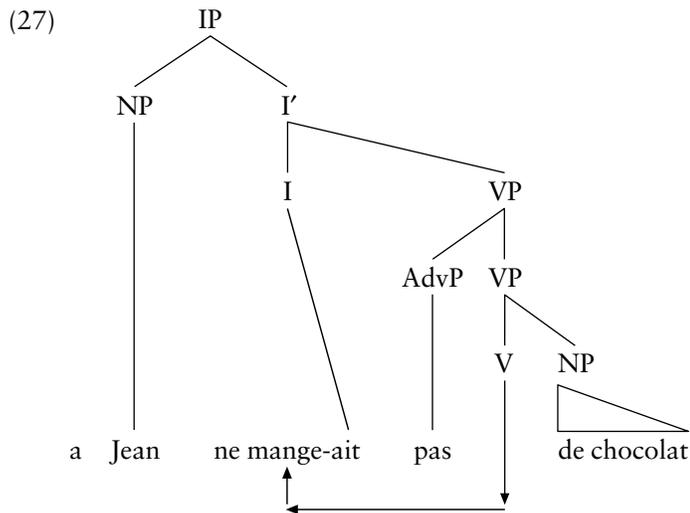
<sup>23</sup> See section 1.2.4.1.

## 1.2.4.4 Negative sentences

Consider (26):

- (26) a Jean ne mangeait pas de chocolat.  
       John *ne* eat-PAST-3SG not chocolate.  
       b \*Jean ne pas mangeait de chocolat.  
       c \*John eats not chocolate.  
       d \*John not eats chocolate.  
       e John does not eat chocolate.

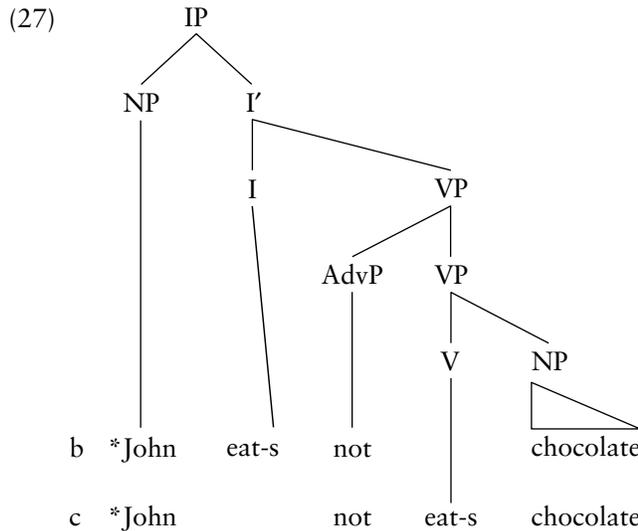
In French, negation is expressed by means of two elements, *ne* and *pas*. Roughly, *pas* corresponds to English *not*. The element *ne* is not always realized. We will not discuss *ne* here and we will provisionally locate it in I. Let us assume that *pas* is like any adverbial and may be VP-adjoined.<sup>24</sup> Draw the tree diagrams for (26a).



The verb *mange* is attracted to I *-ait* and will hence cross the VP-adjoined negation marker *pas*.

If English *not* is also VP-adjoined, we can account for the unacceptability of (26c). To obtain (26c), *eat* would have to have moved out of VP but we have seen that English lexical verbs do not leave VP. But (26d), in which V would remain in the VP and the ending *-s* would have lowered onto V, is also ungrammatical (27c):

<sup>24</sup> This is a rough approximation. For an introductory discussion see Haegeman and Guéron (1999). For more careful analysis see Pollock (1989), Haegeman (1995), Rowlett (1998), Zanuttini (1997a, b), and the references cited there. For discussion of negation in English see among others Klima (1964), Pollock (1989), Baker (1991), Ernst (1992), Haegeman (1995), Cormack and Smith (2002), and the references cited there.



Apparently, for the formation of negative sentences in English we have to insert the auxiliary *do* (26e).

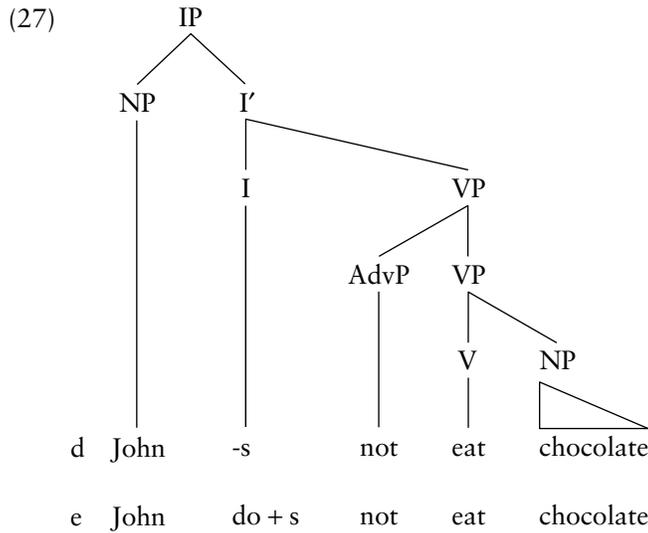
In our earlier discussion, we came across two other contexts in which *do* insertion was obligatory. What were these? Do you remember the factors that triggered *do*-insertion? We saw that *do* insertion is needed when a VP is fronted (28a) and also in direct questions which do not contain an inflected auxiliary (28b).

- (28) a And get over her problems, she did.  
b Did she get over her problems?

What these two examples have in common is that *do* rescues a stranded inflectional morpheme which is not able to lower onto V. In (28a), VP has moved leftward and the morpheme in I cannot lower onto V inside VP any more. In (28b) I has to move to a position to the left of the subject to encode interrogative force and it cannot lower onto V. If I did lower onto V, the resulting sentence would not be interrogative.

- (28) a' Get over her problems she -ed.  
Get over her problems she do + ed.  
b' -ed she get over her problems?  
Do + ed she get over her problems?

Extrapolating from these examples we could conclude that in negative sentences too *do* is inserted because the inflection would otherwise be stranded:



If this is on the right track, then we conclude that in (26d) *-s* is not allowed to lower onto the verb *eat*, even though the VP has not moved and *-s* is in I. The reason why *-s* cannot lower onto V presumably has to do with the sentence being negative. What is the semantic contribution of negation to a sentence? Sentence negation crucially bears on the relation between the subject and the VP: a negated sentence signals that the link subject-VP does not obtain. Indeed, recall that in French the element *ne* is associated with the inflected verb in I. Let us assume that when *not* negates a sentence, the position I must remain filled because it is precisely the link between subject and predicate that is targeted by the negation. Let us assume that when I must be filled, its content cannot lower onto V. The inflection will remain in I and *do* will be inserted precisely to allow the stranded inflection to remain in I.<sup>25</sup>

### 1.3 Non-finite clauses with *to*

#### 1.3.1 A FIRST HYPOTHESIS

In this section we turn briefly to sentences which lack a tensed verb or auxiliary. Such sentences are **non-finite**.<sup>26</sup> Here, we will only be looking at infinitival strings such as that underlined in (29b). In preparation for the analysis, draw the tree diagram representation for the structure of (29a). Then consider the underlined

<sup>25</sup> For problems with this proposal see Exercise 5.

<sup>26</sup> Since a non-finite sentence is typically embedded, the term non-finite clause would be more accurate. In practice, though, the terms clause and sentence are often used interchangeably in current syntactic discussions.

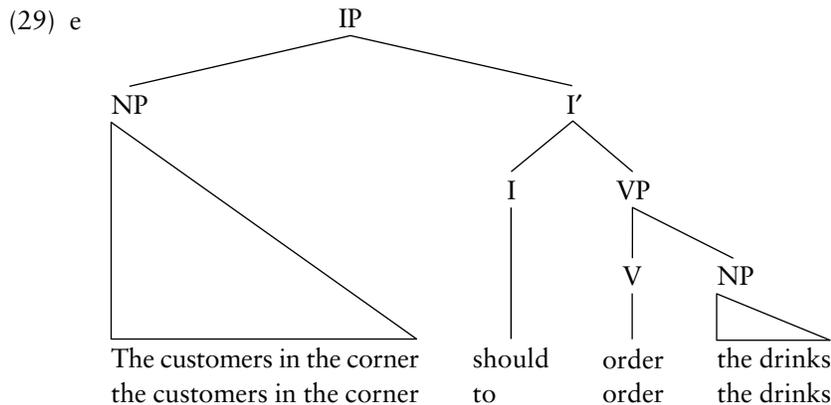
string in (29b). Is the underlined string a constituent? What is its function? Try to match the constituents of (29a) with those of the underlined string of (29b).

- (29) a The customers in the corner should order the drinks.  
 b I expected the customers in the corner to order the drinks.

The underlined string in (29b) is a constituent: it can be questioned; it can be replaced by a demonstrative.

- (29) c What did you expect?  
 d I did not expect that.

The underlined string in (29b) is very similar to sentence (29a): there is a parallelism between the constituents of (29a) and those of the underlined section of (29b). In (29a) the lexical V *order* heads the VP *order the drinks*; the subject is the NP *the customers in the corner*. The same constituents reappear in (29b). Based on the tree diagram that you have drawn for (29a), try to fit the constituents of the underlined string in (29b) into a tree. When doing this, the only problem that arises is the location of *to*. What would be the simplest way to insert *to* into a tree representation?



In (29e) *to* is inserted under I, suggesting it is a filler for the inflection of the verb.<sup>27</sup> Is *to* on a par with auxiliaries or is it more like the inflectional endings of the verb? In other words, does *to* have to attach to V? Is *to* a bound morpheme or a prefix?

<sup>27</sup> If we had used Tense rather than I to denote the head of the sentence (footnotes 6, 7), we could distinguish finite clauses from non-finite ones by means of a system of features. Finite clauses would have a positive value for tense [+TENSE], non-finite clauses would have a negative value [-TENSE].

(i) [<sub>TP</sub> [<sub>NP</sub> The customer in the corner] [<sub>T</sub> [±TENSE] [<sub>VP</sub> order the drinks before the meal]]].

Discuss how the following examples provide evidence that *to* should not be treated as a bound morpheme:

- (30) a But Vita could not write the last act, because she did not know how to.  
(Victoria Glendinning, *Vita*, 1984: 118)  
b He never asked for his attorneys. If he'd wanted to, he could have. (*Washington Post*, 29.4.2003, p. B1, col. 6)

In the examples above, a VP has been ellipped. The ellipsis does not affect *to*:

- (31) a because she did not know how to ~~write the last act~~.  
b If he'd wanted to ~~ask for his attorneys~~.

In (32a) co-ordination affects two VPs, and *to* is outside the co-ordinated constituents.

- (32) a After the discovery of a £200m budget shortfall the BBC is being forced to cut costs and lay off staff. (Based on *Guardian*, 7.10.2002, p. 1, col. 1)  
b After the discovery of a £200m budget shortfall the BBC is being forced to [[<sub>VP</sub> cut costs] and [<sub>VP</sub> lay off staff]].

The data above suggest that *to* is neither inseparable from V nor is it an integral part of the projection of V, VP. In order to confirm the hypothesis that *to* is not an inseparable part of a verb and of the related VP, complete the answer to (33a) using VP ellipsis. Apply VP-co-ordination to (33b).

- (33) a Do you expect the customers in the corner to order their drinks?  
No, actually I don't expect . . .  
b We expect the customers in the corner to order their drinks and we expect them to proceed to their tables.

The resulting sentences show that *to* is not a prefix on the verb. Rather, *to* is a free morpheme that seems to occupy the same position as finite auxiliaries and as the verb inflection. We will adopt the hypothesis that *to* fills the inflection node I of infinitival clauses.<sup>28</sup>

- (34) a Do you expect the customers in the corner to order their drinks?  
No, actually I don't expect them to [<sub>VP</sub> ~~order their drinks~~].  
b We expect the customers in the corner to [[<sub>VP</sub> order their drinks] and [<sub>VP</sub> proceed to their tables]].

### 1.3.2 CLAUSE TYPES: FINITE CLAUSES VS. NON-FINITE CLAUSES

If infinitival *to* is the filler for I, this means that *to* fills the head of the infinitival clause. As a consequence, the properties of *to* should determine the properties of the

<sup>28</sup> Exercise 4.

complete clause. This is indeed the case: the filler of I signals the contrast between two types of clauses, namely “finite clauses” and “non-finite clauses.”

Replace the subject NP *the customers in the corner* of the examples in (29) by a pronoun. You will find that the subject of the finite clause (29a) is replaced by a pronoun in the **nominative** form *they* (35a), that of a non-finite clause in (29b) by a pronoun in the **accusative** form *them* (35b):

- (35) a They should order the drinks.  
 b I expected them to order the drinks.

Recall that the specifier of a constituent has a special relation with the head of that constituent.<sup>29</sup> For instance, the subject of the sentence is located in the specifier position of I and the subject of a finite clause agrees with I. (35) shows how the nature of the head of the clause (finite/non-finite) correlates with the **case form** of its subject. A finite I takes a subject with a nominative form (*I, you, he, she*, etc.); a non-finite I takes a subject with an accusative form (*me, you, him, her*, etc.).

Some verbs select as their complements a specific type of clause. For instance, English *want* requires an infinitival clause and does not select a finite clause:

- (36) a I want [the customers in the corner to order their drinks now].  
 b \*I want [that the customers in the corner order their drinks now].

The choice of the filler for I, *to* as opposed to a finite auxiliary or a finite inflection, determines the distribution of the whole clause. This is as expected if I is the head of the clause: the properties of the head INFL percolate up to its projection, IP, and are visible for an outside selector (e.g., a verb). A finite clause is a clause whose head is a finite inflection; a non-finite clause is a clause whose head is non-finite.

### 1.3.3 SOME PREDICTIONS

We have examined an embedded non-finite clause containing *to* and we have proposed that *to* is inserted in I. Let us now examine the **empirical coverage** of our hypothesis. The hypothesis leads to a number of predictions. Below we examine two of them.

#### 1.3.3.1 Co-ordination with *to*

We have already examined VP co-ordination and its relation to the morpheme *to*. We have noted that VP co-ordination need not affect *to*. Which types of constituents are co-ordinated in the finite clauses in (37)?

- (37) a The customers should order their drinks and they can proceed to their tables.  
 b The customers should order their drinks and can proceed to their tables.

(37a) co-ordinates two constituents of the type IP; (37b) co-ordinates two constituents of the type I', i.e. consisting of strings modal auxiliary + VP.

<sup>29</sup> See the discussion in Chapter 2, section 3.

- (38) a [IP The customers should order their drinks]  
 + [IP they can proceed to their tables]  
 b [IP The customers [I' should order their drinks]  
 + [I' will proceed to their tables]]

Let us try to apply *I'* co-ordination to a non-finite clause with *to* as the filler of I. Reduce the following co-ordinated clauses by co-ordinating (non-finite) *I'*:

- (39) a We want the customers to order their drinks and we want them to proceed to their tables.

If we co-ordinate *I'* units this means that we co-ordinate two sequences *to* + VP. This is what we see in (39b, c):

- (39) b We want  
 [IP the customers [I' to order their drinks]  
 and [I' to proceed to their tables]]  
 c = We want the customers to order their drinks and to proceed to their tables.

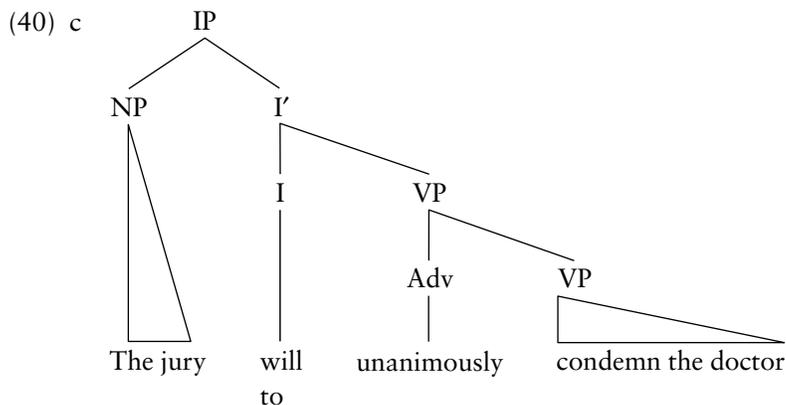
Our proposal that *to* occupies I allows us to co-ordinate two infinitival VPs introduced by *to*.

### 1.3.3.2 The split infinitive

In the following examples we illustrate finite clauses with a modal auxiliary. Draw a tree diagram for the examples:

- (40) a The jury will unanimously condemn the doctor.  
 b The sisters should only play those tournaments.

We have proposed that in non-finite clauses the infinitive marker *to* occupies the inflectional head, I, and that, similarly to finite auxiliaries, *to* is not a bound morpheme. Hence, *to* will not need to lower onto V. Like the finite auxiliaries, *to* can remain under I. Following this reasoning, we would expect that *to* can be separated from V by material that is left-adjoined to VP:



Is this prediction correct? Do we find sentences that display the sequence *to* + adjunct + V? We do indeed: the relevant sentences will exemplify the so-called **split infinitive** pattern. Though sometimes frowned upon by prescriptive authors and grammarians, the split infinitive is a well-attested phenomenon in English. Identify the relevant pattern in the following examples:

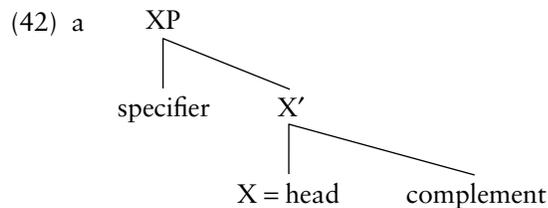
- (41) a The jury of seven men and five women took 33 hours and 55 minutes to unanimously find the doctor guilty of all the murder charges and forging the £386.000 will of his final victim. (*Guardian*, 1.2.2000, p. 1, col. 1)  
 b No one here is in a position to accurately assess the prior investigation. (*Chicago Tribune*, 30.11.2002, section 1, p. 20, col. 5)  
 c In the past few years, Web-sites allowing students to anonymously review their professors on their teaching have also been popular. (*San Francisco Chronicle*, 28.11.2002, p. A28, col. 2)

## 2 Building Structure by Merge and Move

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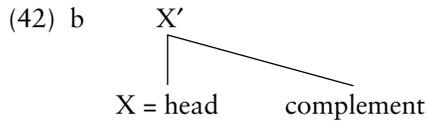
### 2.1 Summary so far

In the preceding discussion we have described sentence structure: we have identified the constituents of the sentence and we have described how they are related to each other. So far we have mainly worked on completed sentences, whose components we have identified. In this section we take a sentence apart and we examine how we can put it back together. (42) is a schematic presentation of our general hypothesis about linguistic structure:

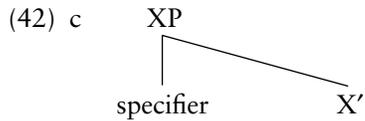


Let us break up this structure and examine how it is built up from its constituents. Syntactic units are formed by putting together or **merging** two constituents.<sup>30</sup> The construction of (42a) can be analyzed as a two-step procedure. We first merge the head X and its complement, to form a constituent that we label X' (42b). The complement itself is a complete constituent.

<sup>30</sup> The proposal that structures are built by the combination of the operations Merge and Move is one of the basic tenets of the Minimalist Program (Chomsky 1995), the current version of generative syntax. For introductions to the Minimalist Program see Adger (2003), and Radford (2004).

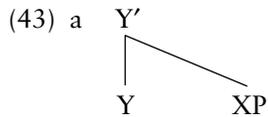


Then we merge the resulting constituent  $X'$  with a specifier to form  $XP$ .



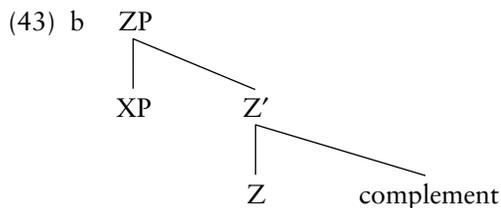
The two applications of Merge lead to the formation of a complete constituent,  $XP$ . Both specifier and complement are core ingredients of a structure.

Once we have completed a constituent such as that labeled  $XP$  in (42a) this finished product can be selected by another head, say  $Y$ . The selecting head  $Y$  will merge with the constituent and  $XP$  becomes the complement of the head it combines with:



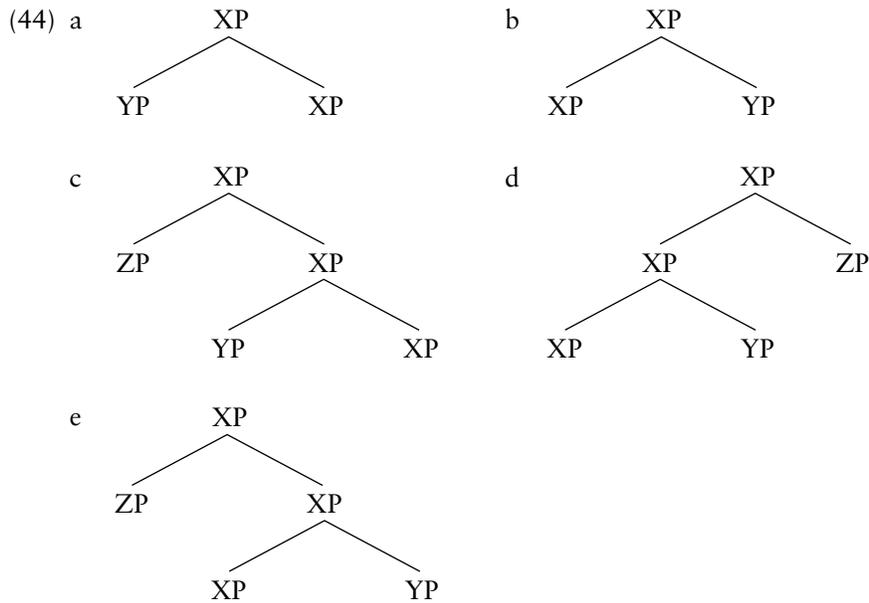
When a head merges with a completed constituent, the latter serves to “complete” the structure of the head, it satisfies some selectional requirement of the head. We call it the complement.

Alternatively, an already completed constituent may serve as the specifier of a structure, in which case it serves to delimit the application of that constituent: in (43b)  $XP$  is the specifier of a constituent headed by  $Z$ .



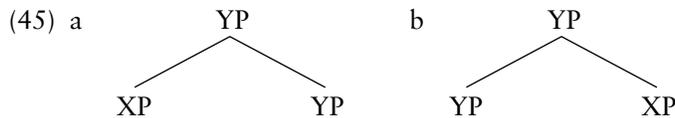
Another way of extending a structure is by adjunction. A completed constituent  $YP$  may be **adjoined** to another completed constituent, say  $XP$ . Adjunction is the merger of one fully formed constituent with another fully formed constituent. In the case of adjunction, there is an asymmetric relation between the adjunct and the constituent to which it adjoins. When an adjunct  $YP$  adjoins to a constituent of type  $XP$ , the resulting structure is an augmented  $XP$ . (44a) illustrates **left-adjunction** of  $YP$  to  $XP$ ; (44b) illustrates **right-adjunction** of  $YP$  to  $XP$ . Observe that in both cases the

output of the adjunction is a constituent of the type XP. The category of YP is no longer represented at the higher level. (44c), (44d), and (44e) illustrate some possible cases of multiple adjunction.<sup>31</sup>



In (44a) and in (44b) XP merges with the adjunct YP to form an augmented XP. In (44c, d, e) there are two adjoined constituents, YP and ZP. The adjoined constituents are like peripheral satellites of the constituent XP.

In (45) it is the constituent XP that is the satellite to the constituent YP.



Recall that adjoined constituents do not complete the structure they associate with: a constituent is structurally complete even without any adjoined constituents.

So far we have come across the specifier position in NPs<sup>32</sup> and in clauses.<sup>33</sup> The question has already been raised<sup>34</sup> whether VP also has a specifier and if it does, how its specifier is realized. This issue will be tackled in Chapter 4.

<sup>31</sup> For example of multiple adjunction see Exercise 14 in Chapter 2 and Exercise 3 in this chapter.

<sup>32</sup> See Chapter 2, section 3.1.2.

<sup>33</sup> See section 1 of this chapter.

<sup>34</sup> Cf. Chapter 2, section 3.3.

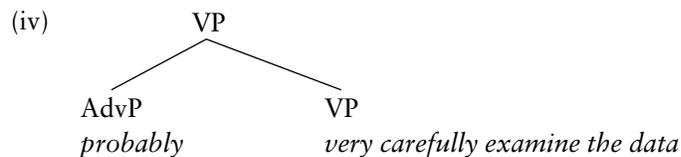
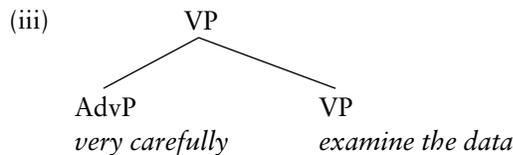
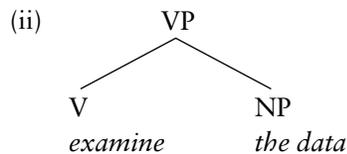
## 2.2 Merge

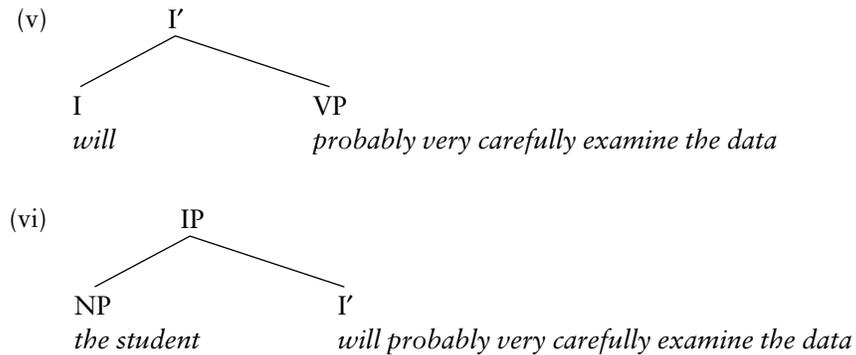
Let us look at an invented sentence and think about how it is put together:

(46) a The student will probably very carefully examine the data.

The semantic core of the sentence is the verb *examine*: the verb denotes the kind of situation that we are dealing with, and it determines which components will be obligatorily present. If we want to build a sentence containing the verb *examine*, we start off with the verb ((46b), step (i)). We add its complement, the direct object NP ((46b), step (ii)). The object is an essential ingredient, it serves to narrow down the action, telling us what is the entity that is the target of the examining. The verb selects the category of its complement; some verbs select NPs, others select PPs, etc. At the next stage ((46b), step (iii)), we add the adjunct of manner *very carefully*. This adverbial phrase “fine-tunes” the action expressed by VP: we specify how the action is carried out. Observe that the resulting constituent is labeled VP. We add another adjunct *probably* ((46b), step (iv)). The resulting VP is then selected by the auxiliary *will*: *will* sets the event in the future ((46b), step (v)) and it serves to link the VP to the subject: *the student* ((46b), step (vi)). One additional remark is in order here: when we add constituents such as NP, AdvP, etc. to the structure, these constituents have themselves been formed by the same Merge operation. We ignore these operations here, since they use the same mechanisms as those shown in (46b).

(46) b (i) V = *examine*





We build up the structure starting from V and by using the procedure **Merge** by which we combine two constituents to form a new constituent.

In section 2.3 below we elaborate in some more detail the idea that the verb is the semantic core of the sentence.

### 2.3 The operation “Move”

Once we have built up a certain amount of structure, we can also move around constituents from within the already existing structure. We call the position in which a constituent is merged in the structure its base position. The base position of the object, for instance, is that shown in (46b(ii)). It is right-adjacent to the lexical verb. The underlined segments of (47) are examples in which a constituent has been moved away from its base position. Identify the displaced constituent in the underlined sentences.

- (47) a Baxter said that he had been using a *Sinex* liquid decongestant . . . but then spotted the *Vicks* inhaler when shopping in Park City, and bought it since he preferred to use it. “The British one I have been using since I was about nine.” (*Guardian*, 22.3.2002, p. 3, col. 1)
- b Everything I did right for 20 years, he burned up in two or three. (*Washington Post*, 29.4.2003, p. C1, col. 1)
- c That night, I came home from the movies to find trails of red candle wax all over the floors. “We lost the electricity for a while,” my husband explained. “The only light I could find was a votive candle.” The red votive candle I haven’t replaced yet. (*New York Times*, 2.1.2003, p. G4, cols 1–4)
- d Letter writer:  
[The cat] will rummage through our closets looking for socks, drag them to the hallway and then make a strange sound as though she is calling her imaginary kittens to eat.

Animal Doctor's Reply:

Bringing such portable items home, or going through the house to find things to "gift" to you, I interpret as a cat's way of showing affection. (Animal Doctor, *Washington Post*, 29.4.2003, p. C9, cols 1–2)

- e Our dustmen arrive too early for me to check, but our fishmonger and his staff in Petersfield all wear ties (Letters, October 22) and very smart they look too. (*Guardian*, 23.10.2002, p. 9, col. 5, letters to the editor from David Dew, Horndean, Hants)
- f "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." (*Guardian*, 29.1.2003, p. 2, col. 5)

The role of movement to create sentence structure will be the central theme of Chapter 5.<sup>35</sup>

### 3 Meaning Relations and Structure

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#### 3.1 Thematic roles

We have proposed that constituents of a sentence are to some extent determined by the choice of the lexical verb. For instance, if you are going to build a sentence around the transitive verb *examine*, you expect to merge the verb with an object. On the other hand, when using the intransitive verb *yawn*, you will not need such a complement. Some verbs select a complement of a certain type; other verbs don't require a complement. The selectional requirements of verbs – whether they require a complement and if so, what kind – are related to their meanings. The verb *examine*, for instance, refers to a situation involving two participants: the one who examines something or someone and the entity that is being examined. It is hard to think of a situation of 'examining' without also thinking of these two entities. For instance, if you were asked to draw a picture of the activity of 'examining', it is likely that your drawing would represent an examiner and the element that is being examined. On the other hand, the verb *yawn* does not express a situation involving two entities. A picture of the activity 'yawn' might well be restricted to a drawing of a yawning individual.

Some constituents of the sentence are inherently required by the meaning of the verb. It is as if each verb sets the scene for some kind of situation: the verb requires

<sup>35</sup> For some suggestions as to what position the sentence initial constituents in the underlined sentences occupy we refer to Chapter 2, Exercise 15 and to Chapter 5, Exercise 8 of this chapter leads on to the discussion in Chapter 5.

a number of entities that will be involved in the situation. The participants in the situation are called the **arguments** of the verb. We say that a verb has an **argument structure**. When a verb is introduced as the nucleus of a VP, its argument structure is activated. *Examine*, for instance, is a verb with two **arguments**. The first argument is the **AGENT** of the activity. It is realized by the subject in (48a). The second argument refers to the entity that undergoes the activity, what we will call the **THEME**. In (48a) the second argument of *examine* is realized by the **direct object NP**. The distinct participant roles attributed to the arguments of the clause are also often referred to as **thematic roles**. A verb such as *give* in (48c) has three arguments: the **AGENT**, the **BENEFICIARY**, and the entity that is being transferred, the **THEME**.

- (48) a The student examined the project.  
 b The student yawned.  
 c The student gave the book to her friend.

(49) is a list of the labels that have been used in the literature to refer to the thematic roles that are associated with the arguments of a verb.<sup>36</sup>

- (49) a **AGENT/ACTOR**: the one who intentionally initiates the action.<sup>37</sup>  
 b **THEME (1)**: the entity undergoing a change of state (location, possession).  
 c **PATIENT**: the entity undergoing the action. The **PATIENT** undergoes a change in its internal state (rather than terms of location or possession, both of which would be external states).  
 d **EXPERIENCER**: the entity experiencing some (psychological) state.  
 e **BENEFACTIVE/BENEFICIARY**: the entity benefiting from the action.  
 f **GOAL**: the entity toward which the **THEME** is displaced.  
 g **SOURCE**: the place/entity from which the **THEME** is moved as a result of the activity, the place/entity from which the action originates.  
 h **LOCATION**: the place in which the action or state is situated.  
 i **CAUSE**: the entity that unintentionally initiates the event.  
 j **INSTRUMENT**: the means by which an action is performed.  
 k **POSSESSOR**: the entity that owns something.

Sometimes the roles of **PATIENT** and **THEME (1)** are grouped into a single role **THEME**:

- (49) l **THEME (2)**: the entity affected by the action.

<sup>36</sup> For discussion of the relation between thematic roles and syntactic structure see, among others, Jackendoff (1987), Wilkins (1988), Grimshaw (1990), Levin and Rappaport-Hovav (1995), Reinhart (2000).

<sup>37</sup> Exercises 9, 10, 11.

The following sentences illustrate the realization of thematic roles:

- (50) a Thelma ate the apple.  
 AGENT PATIENT/THEME (2)
- b Thelma handed Louise the text.  
 AGENT BENEFICIARY THEME
- c Thelma liked the text.  
 EXPERIENCER CAUSE<sup>38</sup>
- d The wind broke the fence.  
 CAUSE THEME

### 3.2 Linking thematic roles and syntactic positions

The argument structure of the verb determines to some extent the composition of a sentence. All the thematic roles associated with an active verb must be realized in the sentence; i.e. the verb must have a sufficient number of arguments to be able to **assign** all its thematic roles. It is often assumed that there is a one-to-one relation between thematic roles and arguments.<sup>39</sup> For instance, a verb cannot assign one thematic role to two different arguments. In (51a) the verb *examine* will either assign a thematic role to the NP *the project* or to the NP *the book*. But it cannot assign the same role twice. This means that one of the two NPs remains without a thematic role and hence cannot be related to the verb.

- (51) a \*<sub>[NP Thelma]</sub> examined <sub>[NP the project]</sub> <sub>[NP the book]</sub>.

We can make (51a) grammatical by creating a single argument out of the two noun phrases. In (51b) the constituent *the project and the book* co-ordinates the noun phrases *the project* and *the book*. The resulting constituent is itself also a noun phrase; it functions as one argument which realizes the second thematic role of the verb *examine*:<sup>40</sup>

- (51) b <sub>[NP Thelma]</sub> examined <sub>[NP <sub>[NP the project] and <sub>[NP the book]]</sub>]</sub>.</sub>

One single argument cannot normally be assigned two thematic roles. The verb *invite* takes two arguments in (52a). We infer that it assigns two thematic roles (52b).

<sup>38</sup> For a discussion of the argument structure of psychological verbs such as *like*, *fear*, *frighten*, etc., see Belletti and Rizzi (1988). Though this paper is essentially on Italian, its findings extend to English. The paper is advanced and should be tackled only after Chapter 5.

<sup>39</sup> See also Baker (1997), Newmeyer (2001).

<sup>40</sup> For the structure of co-ordinated constituents see Chapter 2, Exercise 7. For problems with the label of co-ordinated constituents see Chapter 2, Exercise 9.

- (52) a Thelma invites Louise.  
 b *invite* thematic role 1: *Thelma*  
 thematic role 2: *Louise*

(52c) is ungrammatical. In this example, both thematic roles associated with *invite* are meant to be assigned to the same argument, *Thelma*:

- (52) c \*Thelma invites.  
 d \**invite* thematic role 1: *Thelma*  
 thematic role 2: *Thelma*

If the AGENT of the invitation and the THEME both happen to be associated with the person referred to as Thelma, the object (though not the subject!) can be expressed by means of a reflexive (*herself* in (52e)).

- (52) e Thelma invites herself.  
 f *invite* thematic role 1: *Thelma*  
 thematic role 2: *herself*

We have proposed that I is an inherent linker (see section 1.1): it links a VP to a specifier. Given the two-faced nature of I, a sentence always has a subject position available, the specifier of IP. This means that one argument of a verb can always be realized as the subject of the sentence. In the case of *examine*, the AGENT of *examine* is realized as the subject and the PATIENT is realized as the direct object, the NP that is first merged with the verb; *examine* selects one NP complement.

### 3.3 Relating the subject to the verb

When discussing the internal structure of the VP we proposed that adjuncts were more peripheral to the VP than complements (such as direct objects). Our motivation for this proposal was the observation that adjuncts are less central to the meaning of the VP than complements. Complements are selected by V. We can relate this intuition in terms of the concepts of argument and thematic role by saying that because complements are arguments of the verb, they receive a thematic role from the verb. Hence complements must be close to V and they are part of the core VP. VP-adjoined elements are outside the core VP: they do not receive a thematic role from the verb. Adjuncts need not be as close to the verb precisely because they do not receive a thematic relation from the V.

However, now an internal contradiction arises in the way we have set up the structure of the sentence. The problem is that the subject NP will usually also receive a thematic role from the verb. Now in the tree diagrams elaborated so far, the subject NP occupies the specifier of IP.<sup>41</sup> Hence, in the structure we have elaborated, the

<sup>41</sup> See Exercise 17 of this chapter, though, for complications.

subject is radically outside the VP and it is definitely not as close to V as any of the VP-adjoined constituents. How is it possible for the subject to receive a thematic role from V while it is located outside the VP and while it is further away from V than adjuncts? This state of affairs makes it hard to motivate the distinction between complements and adjuncts on semantic grounds. Our present representation makes it appear as if the subject had a weaker semantic relationship to V than VP-adjoined constituents, even though the subject is thematically related to V and adjuncts are not. If the tree structure is intended to reflect closeness of semantic relations, then we would expect all constituents that are thematically related to V to occupy a position inside the core VP. This would imply that the subject must be part of the core VP.

In order to relate the subject to the verb and to the VP we would need to create a position for the subject inside the VP. Recall that in our representation of the structure of the VP we have not yet made use of the specifier position. If we were to introduce a specifier to the VP that position could become the VP-internal position for the subject. Note that if we do integrate a subject position in the VP we end up with two subject positions.

In preceding discussions we have seen that to motivate a certain structure we might use either empirical arguments or theoretical arguments. If you go over the discussion above, do you think that our motivation for a VP-internal subject position at this point is mainly empirical or theoretical? In order to answer this question you should examine the reasoning that we adopt. Is it based on empirical data or is it based on the way our theory is conceived? Probably, your conclusion will be that our motivation has been essentially theoretical. Postulating a VP-internal subject position is based on two strands of reasoning. On the one hand, we want to create a closer structural relation between the subject and the verb because we want to have a fit between syntactic structure and interpretation. But this fit is one that we have set up as a goal of our theory, and which we use as a guideline for postulating structure. In addition, when elaborating our structures we had come up with the hypothesis that a projection could have a specifier. We have identified the filler for the specifier of NP and for the specifier of the clause. We have not yet identified any element that could qualify as the specifier of VP. The absence of a VP specifier would be a problem for our approach. We can generalize the specifier position to VP if we relate the subject NP to that position: the resulting VP will then also have a specifier and will therefore be fully in line with the structures proposed for the NP and for the clause. We will return to this point in detail in Chapter 4, where we will see that there also exist a number of empirical motivations for postulating that there is a position for the subject in the VP.<sup>42</sup>

### 3.4 *Auxiliaries vs. lexical verbs*

We have already come across a number of patterns in which auxiliaries and lexical verbs pattern differently. Before reading on, try to make a list of the differences

<sup>42</sup> See Exercises 17 and 18 for some empirical evidence supporting this idea.

between auxiliaries and lexical verbs. You will probably recall that sentences with auxiliaries do not require *do*-insertion in questions or in negative sentences with *not*. We can explain this if we assume that English auxiliaries can be inserted in I, while English lexical verbs do not move to I. Consider the sentences in (53). How many thematic roles would we associate with the verb *neglect*? How are these thematic roles realized in (53)? Assuming that each constituent can only carry one thematic role, do you think it is plausible that auxiliaries can assign thematic roles?

- (53) a The student neglected his studies.  
 b The student had neglected his studies.  
 c The student will neglect his studies.  
 d The student is neglecting his studies.

We deduce from the examples in (53) that auxiliaries cannot assign thematic roles. If they did, then we would expect that, compared to (53a), (53b–d) should contain at least one additional argument to realize the thematic role associated with the auxiliary, contrary to fact. So we conclude that auxiliaries, though by their nature verbs, do not assign any thematic roles. Lexical verbs are potential thematic role assigners.<sup>43</sup>

### 3.5 *Lexical head vs. functional head*

If we compare (54a) in the present tense and (54b) in the past tense, there is no difference in their thematic structure. Inflectional morphemes are not thematic role assigners. Their function is to place the event expressed by the verb with respect to time. This means then that the prototypical filler of I, inflection, is not a thematic role assigner. While V is a **lexical head**, a head such as I, which itself does not assign thematic roles, is said to be a **functional head**.<sup>44</sup> The lexical verb heads a **lexical projection**; I heads a **functional projection**.<sup>45</sup>

- (54) a John always eats chocolate.  
 b John always ate chocolate.

Note that this does not mean that I can never contain a lexical head that assigns thematic roles. We have seen that in French (54c), the lexical verb raises to I. As a

<sup>43</sup> The fact that lexical verbs do and auxiliaries do not assign thematic roles could explain why the former are sometimes called “full verbs.” (See Chapter 1, section 2.4.)

<sup>44</sup> See also Chapter 1, section 2.4 for the concept “lexical.”

<sup>45</sup> Exercise 13 raises the question if projections of the N also are integrated into a functional projection.

result I will contain V, a thematic role assigner. But crucially, the verb is not directly merged in I. The verb is merged as the head of VP, and it has only ended up in I because it has been attracted there by the content of I, inflection (here the ending *-ait*). And once again the inflection itself is not a thematic role assigner.

(54) c [IP Jean [I [aim-ait] [VP — [NP du chocolat]]]].

## 4 Multiple Auxiliaries

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### 4.1 A first hypothesis: Clustering auxiliaries

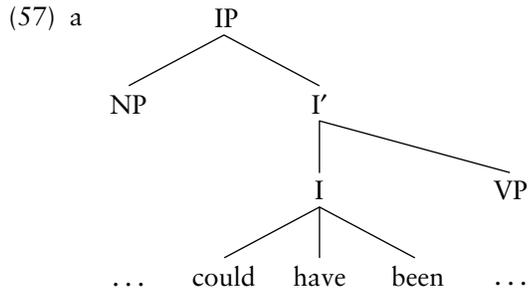
Identify the auxiliaries in the sentences in (55). Which is the finite auxiliary? How do you know? Form a direct question on the basis of these examples. Using the concepts developed so far, describe the processes used to form a question.

- (55) a The inspector will be staying at the pub.  
 b The press have been writing terrible things about him.  
 c Without this concession, he would have pulled the trigger.  
 d He could have been staying at the pub.

Each of the examples in (55) contains more than one auxiliary. In each of them, the first auxiliary is finite, witness the fact that it is tensed (present vs. past tense), and the finite auxiliary inverts with the subject to form a direct question. Below we have underlined the auxiliaries, we have indicated the tense form of the finite auxiliary, and we also illustrate SAI in direct questions:

- (56) a The inspector will (present, vs. *would*) be staying at the pub.  
Will the inspector be staying at the pub?  
 b The press have (present, vs. *had*) been writing terrible things about him.  
Have the press been writing terrible things about him?  
 c Without this concession, he would (past, vs. *will*) have pulled the trigger.  
Would he have pulled the trigger?  
 d He could (past, vs. *can*) have been staying at the pub.  
Could he have been staying at the pub?

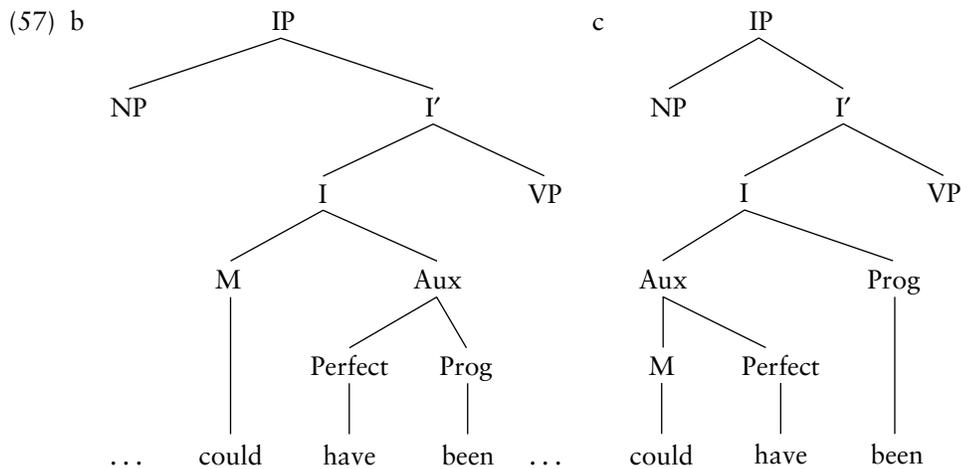
The question arises how multiple auxiliaries get inserted into the structure of a sentence. In our earlier discussions, we inserted the inflected auxiliary under I. When we have more than one auxiliary we might think that we should insert all the auxiliaries as a kind of auxiliary cluster under I. This is illustrated in (57a), for example (56d). Let us evaluate this proposal.



The first question that arises is whether (57a) is compatible with the theory we have been elaborating. If you look at the tree diagrams with which we have been operating so far, and if you recall our proposals for structure,<sup>46</sup> you will decide that (57a) is not compatible with our theory of structure. (57a) violates the binary branching hypothesis. In (57a) I is ternary branching: there are three auxiliaries hanging directly from I.

Needless to say, this particular problem can only arise with sentences with more than two auxiliaries, such as (56d). When there are only two auxiliaries, the head I would obviously be binary branching even if the auxiliaries formed a cluster.

We might decide that the binary branching hypothesis is wrong and that it should be discarded, and we might re-introduce multiple branching into our theory. However, this rather rash step would increase the tools of our theory dramatically.<sup>47</sup> To maintain that auxiliaries form a cluster, while at the same time preserving the binary branching hypothesis, we could introduce binary branching inside I. (57b) and (57c) are two ways of achieving this.<sup>48</sup> The labels Perfect and Prog(ressive) identify which auxiliary is going to be inserted in the relevant position.



<sup>46</sup> From Chapter 2, section 2.4.2.

<sup>47</sup> Recall the discussion of the concept of economy in Chapter 1, section 1.2.3.

<sup>48</sup> A version of (57b) was proposed at one time (Chomsky (1975, 1972)).

Having solved a theoretical objection to (57a), let us now try to think of empirical evidence that could be invoked to support one of the structures in (57b, c). Alternatively, what kind of empirical evidence could be invoked to challenge one or the other?

Do the sentences with SAI in (56) bear on (that is confirm or challenge) the structures in (57b, c)? In fact, these examples are neutral with respect to the structures in (57b, c). SAI moves the finite auxiliary to the initial position, which means that the finite auxiliary is a constituent. This is the case in each of the representations in (57), in which the finite auxiliary forms the node I in combination with other auxiliaries. It is in principle possible to move a constituent from a larger constituent: for instance we can move an object NP out of a VP. In French, we have seen that V can leave VP and move to I.

To show that either (57b) or (57c) is appropriate we would have to find a construction pattern in which we move not just the finite auxiliary but, for instance, a cluster of two or three auxiliaries. This would provide empirical evidence for the clustering of the auxiliaries in I. Try moving a cluster of auxiliaries in the examples above. Are the resulting sentences grammatical? Clearly not, as shown in (58):

- (58) a \*Would be the inspector staying at the pub?  
 b \*Had been the press saying that things were wrong?  
 c \*Will have he pulled the trigger?  
 d \*Could have been he staying at the pub?  
 \*Could have he been staying at the pub?

That the examples in (58) are unacceptable could be due to the fact that the auxiliaries do not in fact form a cluster. But this explanation is only one possibility. It is conceivable that the unacceptability of (58) might also be due to some other factor(s). Perhaps SAI can only move the finite auxiliary. We do conclude, though, that SAI does not at the moment provide any direct support in favor of either (57b) or (57c).

Let us examine another prediction of the structures in (57b, c). Assuming (57b, c), any syntactic operation affecting auxiliaries should always target one individual auxiliary, or it should target a cluster of auxiliaries. Any operation should affect all the auxiliaries in I, or it should affect the two auxiliaries under Aux in (57b) or (57c). A syntactic operation could also target the VP. According to these representations, no operation should be able to affect, for instance, the rightmost auxiliary in the cluster under I as well as the VP. If we did find evidence that there is such an operation then that would mean that the auxiliaries do not form a cluster and we would have to devise an alternative structure. If possible, we would also try to offer empirical support for the new structure. This is what we will do in the next sections.

#### 4.2 *A second hypothesis: Auxiliaries as heads of VP*

The attested sentences in (59) contain multiple auxiliaries. Read the sentences carefully, identify finite and non-finite auxiliaries, and decide to what extent, if at all,

these data can be made to bear on the question raised in the preceding section concerning the structure of sentences containing multiple auxiliaries.

- (59) a He drove her hard, he stole her fame or would have if he could have. (*Guardian*, Review, 24.5.2003, p. 5, col. 3)  
 b You should have been an accountant and made some money so you could take care of your parents. (*Washington Post*, 29.4.2003, p. A23, col. 4)  
 c I should have gone on the stage or been a diplomat's wife or an international spy. (Mary McCarthy, *The Company She Keeps*, 1989: 3)  
 d I asked him where this Detective Inspector Thomas Lynley was from . . . He's from New Scotland Yard! Staying right here at the inn, he'll be. He booked a room hisself not three hours past. (Elizabeth George, *Missing Joseph*, 1993/1996: 144)

(59a) illustrates ellipsis: the VP associated with *have* has been omitted.

- (59) a' (he) would have ~~stolen her fame~~ if he could have ~~stolen her fame~~.

The application of ellipsis in (59a) is compatible with the representations in (57b, c) in that it shows that the VP must be able to be treated as a constituent. Once again, this example does not provide any support for the clustering of the auxiliaries (*would have*). Similarly, in (59b) and in (59c), VPs are co-ordinated:

- (59) b' You should have [<sub>VP</sub> been an accountant] and [<sub>VP</sub> made some money].  
 c' I should have [<sub>VP</sub> gone on the stage] or [<sub>VP</sub> been a diplomat's wife or an international spy].

Again, these examples simply confirm the constituent status attributed to the verb and its complements, the VP, but they do not bear on the grouping of the auxiliaries (*should have*). In (59d) the VP is fronted. Again this example confirms that VP is a constituent but does not bear on the clustering of auxiliaries (*'ll be*).

- (59) d' Staying right here at the inn, he'll be.

Now examine the examples in (60), which also contain multiple auxiliaries. Do these provide any arguments for determining the structural relations between auxiliaries? Where possible, try to group related examples.

- (60) a "The Hershey chocolate company is about to be sold!" he says, eyes widening. "Who could have imagined it?" Very few could. (Based on *Guardian*, G2, 26.8.2002, p. 2, col. 1)  
 b Some 24% agreed top-up fees would not have mattered, while 35% would have considered other universities but probably still have chosen the same university. (Based on *Guardian*, 20.1.2003, p. 5, col. 2)

- c Michael Jackson has, on some occasions in the past, not eaten when he should. (*Guardian*, Review, 28.5.2003, p. 3, col. 1)
- d But we have been saying for 15 to 20 years that there are too many games in the top division and done nothing about it. (*Guardian*, 15.2.2003, *Sport*, p. 11, col. 5)

The examples above do bear on the structures in (57b, c). Indeed, they illustrate the patterns that the structures in (57b, c) are predicted to exclude. In (60) an operation (movement, ellipsis, co-ordination) applies to a combination of one auxiliary of the cluster and the VP, excluding the other auxiliaries in the cluster from the operation. That such an operation should be possible is not predicted by either variant (57b) or (57c). Let us examine some of the examples in (60) in detail.

(60b) and (60d) illustrate co-ordination. In (60b) co-ordination affects two strings consisting of a non-finite auxiliary *have* and a VP (61a). In (60d) co-ordination affects a constituent containing the auxiliary *been* and the VP on the one hand, and a VP on the other hand, (61b).

- (61) a 35% would [have considered other universities]  
           but [probably still have chosen the same university].  
       b we have [been saying for 15 to 20 years that . . . in the top division]  
           and [done nothing about it].

If co-ordination affects constituents (as we have been assuming so far),<sup>49</sup> it is hard to see how the auxiliaries could form a cluster of the type proposed in (57b, c). If auxiliaries did indeed form a cluster, one would not expect that one particular auxiliary could be affected by a syntactic operation which also affects the VP, while the other auxiliaries of the cluster remain unaffected. The data suggest that we need a structure in which we can operate on a (non-finite) auxiliary and the VP to its right without at the same time affecting the finite auxiliary. In schematic terms we need to be able to isolate AUX2 and the VP without affecting AUX1:

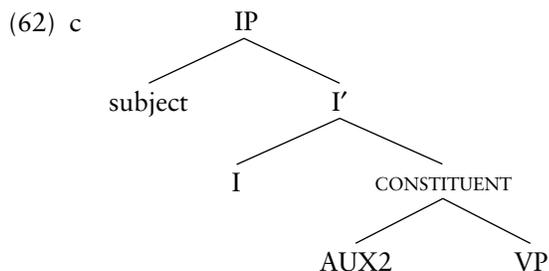
- (62) a subject   AUX1   AUX2   VP

Put differently, AUX2 and VP should be able to form a constituent. (62b) gives a partial bracketing representation:

- (62) b [<sub>IP</sub> subject AUX1 [<sub>CONSTITUENT</sub> AUX2 [<sub>VP</sub> VP]]]

If you try to translate this representation into a binary branching tree diagram structure, you end up with something like (62c) as a first approximation. The provisional label CONSTITUENT simply means that the auxiliary and the VP are grouped as one entity.

<sup>49</sup> See Chapter 2, section 1.8.



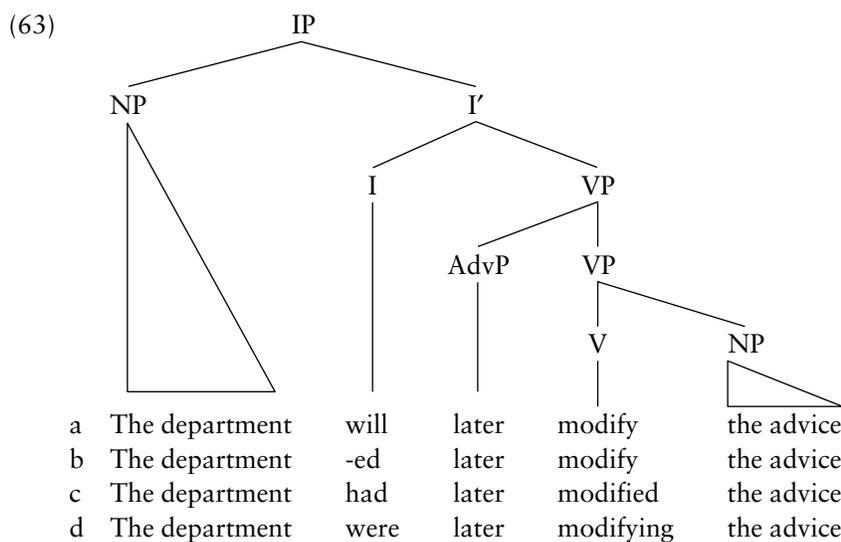
In (60a) and in (60c) ellipsis affects a combination of one auxiliary (*have*) and the VP. These patterns are compatible with the structure proposed in (62c): ellipsis applies to the newly identified unit, provisionally labeled CONSTITUENT.

- (61) c Very few could [<sub>CONSTITUENT</sub> ~~have imagined it~~].  
 d when he should [<sub>CONSTITUENT</sub> ~~have eaten~~].

On the basis of the argumentation above, we need to enrich our structure so that we can insert all the auxiliaries, both finite and non-finite. We have postulated that there is a unit formed of an auxiliary and the VP. The auxiliary is a head, the VP can be seen as its complement. Various questions come to mind: What are the heads in which the auxiliaries are merged? If auxiliaries are heads, they will give rise to a full projection of their own. What kind of a projection is headed by the auxiliary? Assuming the projection headed by the auxiliary also has a specifier, the question arises what, if anything, do we merge in that specifier position? Before answering this question let us first look at another issue concerning finite auxiliaries.

### 4.3 Finite auxiliaries

Throughout the discussion, we have inserted the finite auxiliary directly under I. Tree diagram (63) is based on the discussion in section 1 of this chapter.



Under I we find the present tense form of the modal auxiliary *will* (a), the past tense ending of the verb *-ed* (b), the past tense form of the auxiliary *have* (c), and the past tense form of the auxiliary *be* (d).

There is an inconsistency in our treatment of the tense inflection. In the case of an inflected lexical verb like *modify* we split up the verb and its tense or agreement inflection, inserting the latter in I. In the case of the modal auxiliary *will* and the auxiliaries *have* or *be*, we don't apply a split. In other words, we treat inflectional endings differently depending on the type of verb they associate with. We have not motivated this differential treatment. It would be simpler (and hence preferable) if all inflectional endings of the verb could be treated in the same way.<sup>50</sup> Would this be possible?

Let us first look at the auxiliaries *have* and *be*. First of all, we note that though these elements are often followed by a VP, they need not be. *Have* and *be* can be the only verb element in the sentence.

- (64) a John had lunch at the club.  
 b John is the captain.

So, without going into the details of the structures in (64), it seems reasonable to allow ourselves to treat *be* and *have* as verbs in their own right. In their independent uses, illustrated in (64), *have* and *be* are not necessarily finite: they need not be associated with a tense form; they may also be non-finite:

- (64) c John has had lunch at the club.  
 John is having lunch at the club.  
 John wants to have lunch at the club.  
 d John has been the captain.  
 John is being difficult.  
 John seems to be hungry.

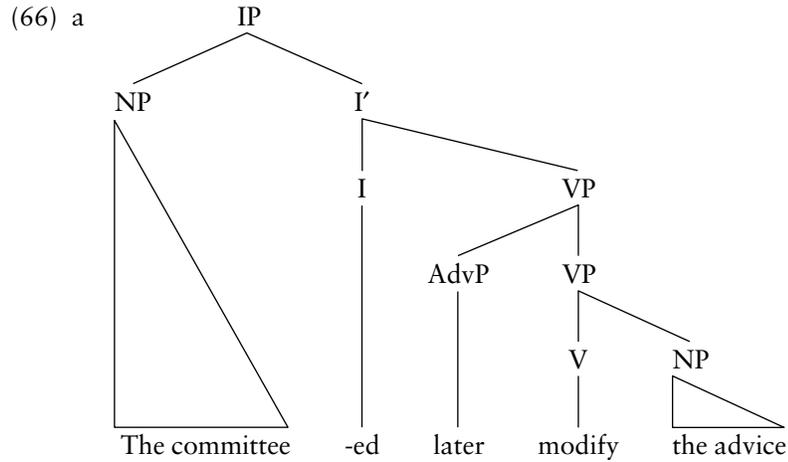
We conclude that *have* and *be* are verbs with finite and non-finite forms.

In examples with multiple auxiliaries, we also find the auxiliaries *have* and *be* in their non-finite forms. This means rather uncontroversially that in their auxiliary use too, these verbs are not inherently finite. In the following examples we pair non-finite *be* and the non-finite lexical verb *keep*.

- (65) a The committee will probably be modifying the advice.  
 The committee will probably keep modifying the advice.  
 b The committee have probably been modifying the advice.  
 The committee have probably kept modifying the advice.

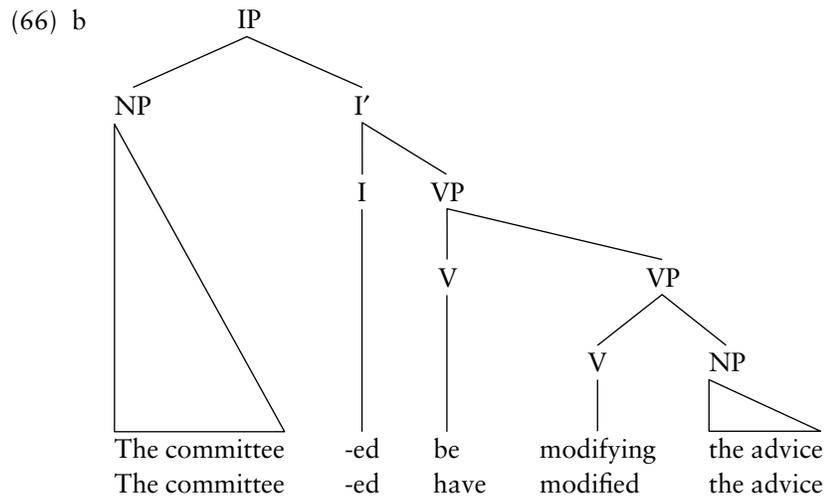
<sup>50</sup> A further inconsistency is that we insert participles as one element, disregarding that they too contain an inflectional morpheme. We do not dwell on participial morphology here, as this would lead us too far. See for discussion Belletti (1990) and Friedemann and Siloni (1993). See also Exercise 14 of this chapter.

Recall that we assume that a lexical verb is merged as the head of the VP and that it subsequently combines with the tense inflection. Concretely, we propose that in English the inflection lowers onto the verb.



For the sake of internal consistency, ought we not to try to propose the same analysis for the auxiliaries *have* and *be*? We might propose that *have/be* are merged in the structure as verbs and that they subsequently combine with their inflection. In fact, if we did decide against this move, we would actually have to explain why we do not treat *have/be* as verbs here, since they seem to be able to act as a verb elsewhere.

Let us treat auxiliaries *be* and *have* as verbs. In their use as auxiliaries, *be* and *have* have the specific property of selecting a VP as their complement. The auxiliary *be* selects a VP complement with a present participle as its head; *have* selects a VP complement with a past participle as its head. The inflection of the auxiliary is inserted under I, just like any other verb inflection. Let us translate this in terms of the structure.



In other words, after having merged the components of VP (*modifying the advice*, *modified the advice*), we merge VP with the auxiliary (*be*, *have*) and we merge the resulting structure with the inflection. Hence, we no longer make any special provisions for the auxiliaries *be* and *have*, we treat them as verbs. Observe that in (66b) there are two VPs: one VP is headed by a lexical verb (*modifying/modified*), and one VP is headed by *be/have*.

We also need to make sure that auxiliaries and their inflectional endings are united. How can we do this? Given a structure like (66b), two procedures can be invoked.<sup>51</sup> We have discovered that English lexical verbs unite with their inflection as a result of the lowering of the inflection. On the other hand, French lexical verbs move up to the inflection. Since we initially provided evidence that the auxiliaries *be* and *have* occupy I, it seems reasonable to assume that they unite with their inflection by moving to I. This means that we preserve the essence of our hypothesis in Chapter 2 according to which a finite auxiliary occupies I. In addition, we align the auxiliaries *be* and *have* with other verbs by merging them as Vs taking a VP complement. When *be* and *have* take a VP complement we call them auxiliaries. As auxiliaries, *have* and *be* distinguish themselves from English lexical verbs in that they move to I.<sup>52</sup>

The fact that auxiliaries can move to I in English needs an explanation. Recall that auxiliaries such as *have* and *be* are members of a closed class.<sup>53</sup> They serve to signal temporal and aspectual relations. The perfective meaning signaled by English *have* would in fact be encoded by an inflection in Latin: 'I have loved' translates as *amavi*, the perfect form of the verb *amare*. *Amavi* consists of the verb *ama-* root with an inflectional ending *-vi*. We will not develop this point in detail. A full account for the movement of *have* and *be* to I could explore the semantic similarity to inflectional elements.<sup>54</sup>

In our previous discussions, modal auxiliaries were taken to be inserted directly under I. It is not obvious that we need to change that hypothesis. Consider the auxiliary *can*. It can be used to denote an ability, a capacity ascribed to the subject. However, the auxiliary can only be used in the forms *can* or *could*. In most varieties of English, we cannot, for instance, refer to a future capacity of the subject by using *can* in combination with the auxiliary of the future, *will*. Similarly, we cannot form a perfect tense with *can*:

- (67) a \*He will can finish the book.  
 b \*He has could finish the book.<sup>55</sup>

<sup>51</sup> See section 1.2.3.3 of this chapter.

<sup>52</sup> This also shows that the operation of a verb raising to I is not incompatible with the grammar of Modern English. What is not possible is for a lexical verb to move to I.

<sup>53</sup> See Chapter 1, section 2.4.

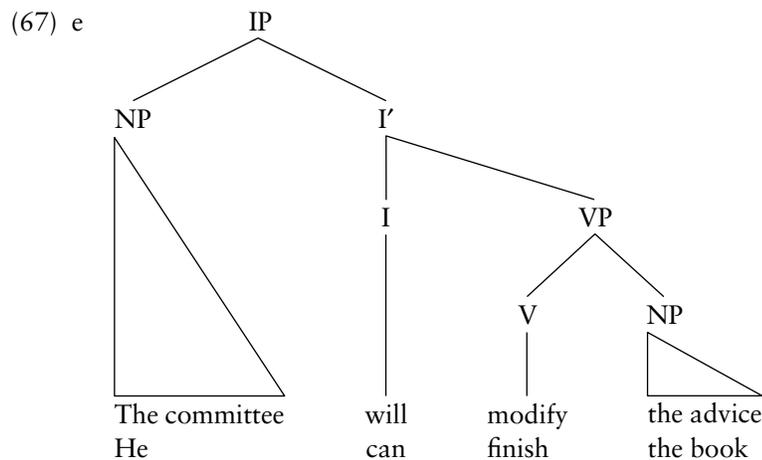
<sup>54</sup> For discussion see Emonds (1978), Pollock (1989), Chomsky (1995), and Roberts (1985). For an alternative approach which merges the auxiliaries in I-type heads see Cinque (1999).

<sup>55</sup> There are English dialects, both in the United Kingdom and in the United States, which do allow double modals. For Scots see Brown (1992) and Miller (1993). For American varieties see for instance Battistella (1995). We leave these aside here. For the diachronic development of modals see Lightfoot (1979) and Roberts (1993).

Observe that it is not the intended meaning of (67) that causes the problem here. We may well want to refer to a future capacity of a person (67c), or we may want to refer to a past capacity with present relevance and use a perfect form (67d), but in order to do that we use a different construction.

- (67) c He will be able to finish the book.  
 d He has been able to finish the book.

Our conclusion is that modal auxiliaries never come without an associated tense. We can say that in standard Modern English, modal auxiliaries are inherently tensed; it is as if the tense and the base of the modal are welded together and can no longer be separated. So we will continue to insert them directly under I.<sup>56</sup>

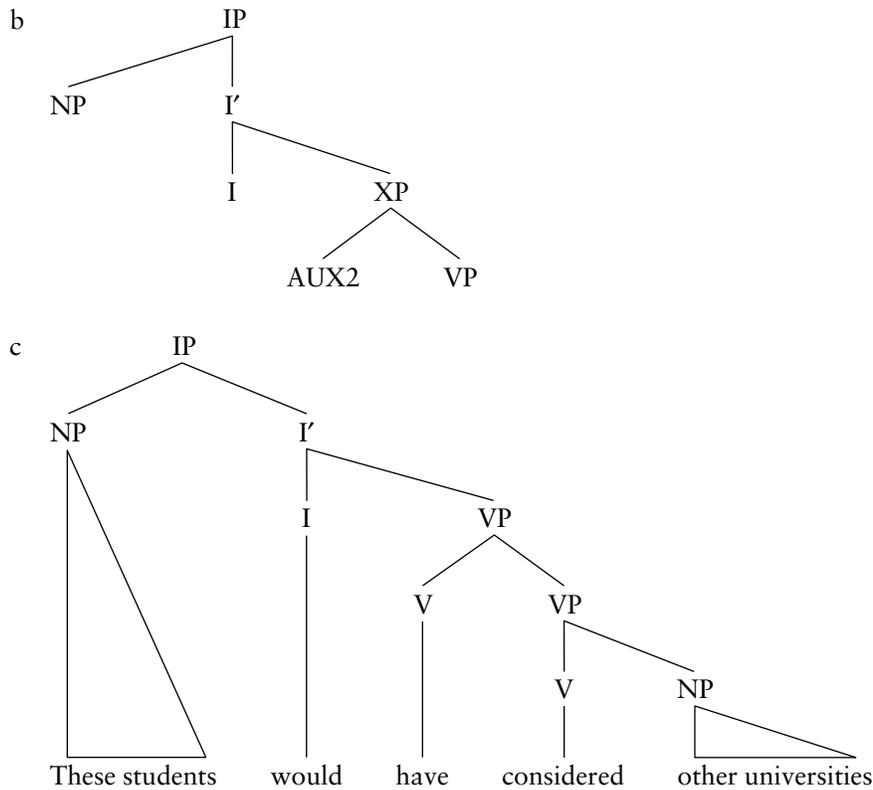


#### 4.4 The structure of auxiliary sequences

Having concluded that the auxiliaries *have* and *be* ought to be treated as verbs, with the particular property that they move to I to unite with their finite inflection, we can return to sentences with multiple auxiliaries and complete their structures. Consider for instance, (68a) and the partial structure in (68b), which we had arrived at in the preceding discussion. This structure has been improved by re-labelling the position “Aux” as V and by making this V the head of a VP. The revised representation (66b) is repeated in (68c):

<sup>56</sup> Of course in the dialects that allow double modals (note 55) the analysis will be different. In earlier stages of English modals did have non-finite forms (Lightfoot, 1979).

(68) a These students would [have considered other universities].



There are two projections of V: one is headed by the lexical verb *considered*, the other is headed by the auxiliary *have*.

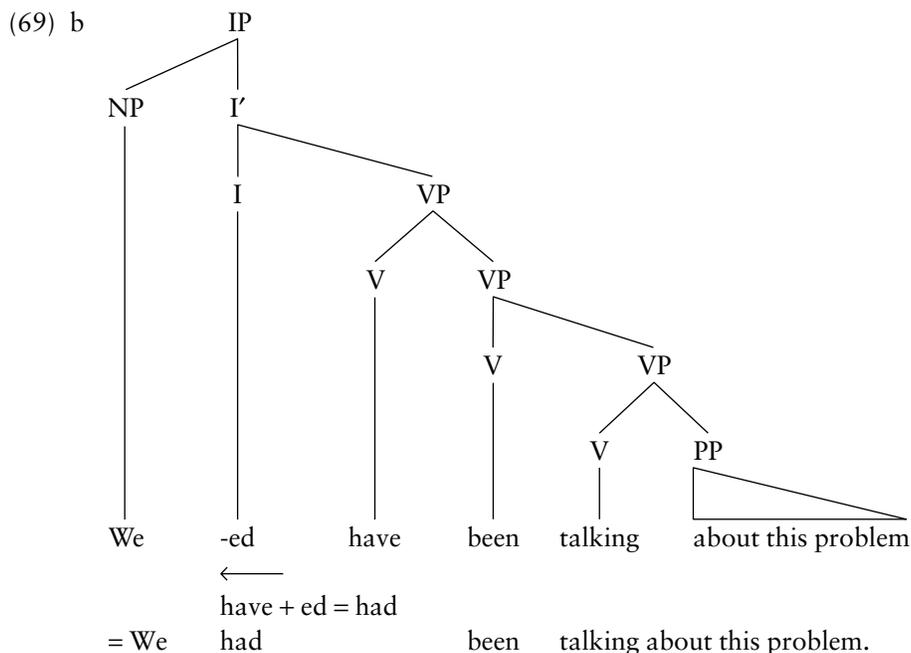
What about (69a), in which I is occupied by the past tense auxiliary *had*?

(69) a We had been talking about this problem.

To represent the structure we combine the proposals elaborated in this section.

(i) On the one hand, *have* and *be* are treated as verbs, heading their own VP and selecting a VP complement. (ii) On the other hand, these auxiliaries are inserted independently of the finite inflection – *had* is decomposed into two morphemes: the verb root, which we represent as *have*, and the past tense inflection. The auxiliary is inserted in V and its past tense is inserted in I. (iii) *Have* moves to I to pick up the tense inflection.<sup>57</sup>

<sup>57</sup> Exercise 12 shows that the same structure can be used for passive sentences. Exercise 15 introduces some empirical problems.



If we compare the tree diagram in (69b) with a representation such as that in (7c), (69b) might seem to be more complicated and therefore perhaps less economical (and less highly valued). After all there seems to be more structure in the tree diagram in (69b).

However the impression that (69b) leads to a more complex or less economical theory is deceptive. Let us examine the relevant components needed to form the tree in (7c) and that in (69b). We are concerned with sentences containing auxiliaries *have* or *be*. (7c) presents inflected auxiliaries like *had* and *was* as unanalyzable elements, they are inflected forms of the auxiliaries. In other words, (7c) has to assume the finite forms of the auxiliaries *have* and *be* are separate entities, and it also has to allow for the non-finite forms of *have* and *be*, which we have shown to be verbs and which project a VP. (69b), on the other hand, decomposes the finite forms of the auxiliaries *have* and *be* into more elementary units. It separates out the verbal root and the tense inflection. So according to (69b) auxiliaries are simply verbs that project a VP.

(69b) does require us to postulate that certain verbs in English, namely auxiliaries, raise to I, and that lexical verbs don't raise to I. However, that is not a complication to our theory since we need to allow for V-raising to I independently to account for the word order patterns in French. So once again, we do not require a new mechanism, we exploit an existing mechanism.<sup>58</sup>

We conclude that none of the elements required to replace representation (7c) by representation (69b) is new to the theory. We only make use of devices that are

<sup>58</sup> As mentioned in note 50, the assumption that participles are inserted with their inflection is not consistent with the current discussion and would have to be rethought. See also Exercise 14.

already needed independently. Hence assuming (69b) for sentences with finite auxiliaries is not more complex or less economical.<sup>59</sup>

## 5 Summary

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The first part of this chapter completes the representation of the structure of the sentence. Pursuing the representation elaborated for sentences with auxiliaries in Chapter 2, we elaborate a representation that covers both sentences with auxiliaries and those without. The proposal starts from the observation that the inflection of the verb is a pivotal element in the sentence that links VP and subject. The sentence is seen as a projection of the inflection I. I selects a VP as its complement, and takes the subject as its specifier. I thus serves to relate the situation denoted by the VP to the entity denoted by the subject. I and V are united by a movement operation. French lexical verbs raise to the finite inflection in I; English I lowers onto lexical verbs. The difference between the two patterns is related to the strength of the inflection as reflected in the number of distinct forms in the verbal paradigm.

We conclude that our syntactic representations make use of two basic operations: the operation Merge which combines two units, and the operation Move which selects a constituent in an existing structure and moves it to another position. When building the sentence we start with a verb and we progressively add constituents to build a more elaborate structure.

The verb plays a central role in the semantic make-up of the sentence. Lexical verbs denote situations involving one or more participants, the arguments of the verb. These arguments have specific semantic relations with respect to the situation denoted by the sentence. The semantic relations between the verb and its arguments are referred to as thematic roles. Thematic roles are assigned to arguments on a one-to-one basis. In contrast with lexical verbs, auxiliaries do not assign thematic roles. Auxiliaries are functional elements.

In the final part of the chapter it is proposed that the auxiliaries *be* and *have* be treated as verbs selecting a VP complement. An auxiliary is inserted as a V head that merges with a VP complement. In finite clause, the auxiliaries *have* and *be* move to I to combine with the inflection. Modal auxiliaries, on the other hand, are inherently tensed, they lack non-finite forms and they are inserted directly under I.

Both the NP and the sentence have a specifier position. We still have to address the question whether VPs also have a specifier position. Because verbs have a thematic relation with their subjects we might wish to propose that the subject of the sentence should be seen as the specifier of the VP. However, so far we have been assuming that the **canonical** subject position is in the specifier of IP, in other words it is outside the VP. If there is a subject position inside the VP then we end up with two subject positions: the canonical subject position, the specifier of IP, and a VP-internal subject position.<sup>60</sup>

<sup>59</sup> For some complications to the analysis, though, see Roberts (1990).

<sup>60</sup> Exercise 17 introduces some empirical support for the hypothesis that there is more than one subject position.

## Exercises

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### Exercise 1 Constituent structure (T)

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Discuss how each of the examples below can be argued to contain some support for the hypothesis that the underlined strings of words are constituents:

#### **Example**

The news, when it comes, he seems to take — well enough. (*Guardian*, G2, 26.7.2002, p. 2, col. 1)

- In this example, movement has affected the string *the news*. *The news* is the direct object of *take*. Its canonical position is to the immediate right of the verb. In the example it has been moved to the beginning of the sentence. The fact that it has been moved suggests the string of words is a constituent. Moreover, the string *the news* is substituted for by the pronoun *it*.
- *The news* is an NP.

- (1) Two decades of financial squeeze has eroded academic standards and seriously damaged common-room morale. (*Guardian*, 26.10.2002, p. 13, col. 1)
- (2) 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)
- (3) Boyle testified that she told Malvo four times that he could be silent or see an attorney but that Malvo continued to talk about the shootings in a relaxed, almost convivial way. (*Washington Post*, 29.4.2003, p. B1, cols 3–4)
- (4) You could study this pattern for years and still not wholly understand it. (Ian Rankin, *The Falls*, 2001: 240)

Using the structural representation developed in this chapter, discuss the structural ambiguity of the following examples:<sup>1</sup>

- (5) He added that the looting, though continuing, is much reduced. "You will see a guy or two carrying a table or chairs. We tell them to put it down and go home." (*Guardian*, 7.5.2003, p. 5, col. 14)
- (6) If you feel threatened in a mini cab, firmly ask the driver to stop and get out. (*Guardian*, G2, 7.3.2003, p. 7, col. 2)

## Exercise 2 The structure of the sentence (T)

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Identify the category of the co-ordinated constituents in the attested example below. Is this co-ordination compatible with the structure we have elaborated for the sentence?

- (1) Mr Duncan Smith stepped out of central office into the autumn sunshine to declare angrily that he both welcomed the contest and would win it. (*Guardian*, 29.10.2003, p. 17, col. 1)

### COMMENT

In this example the sequence *both . . . and* co-ordinates the units (i) [*welcomed the contest*] and (ii) [*would win it*]. In terms of our analysis these units can be taken to correspond to the constituent labeled I'. Observe, though, that co-ordination in

<sup>1</sup> We already introduced these examples in Chapter 2, Exercise 6. Since we have made some progress in our discussion, it is a good idea to try to refine the answer you might have given when doing the exercise earlier on.

these examples affects only a partial projection, since the full projection would comprise the IP layer, that is, it would include the subject.

### Exercise 3 Adjuncts, interpretation, and word order (T)

---

In this exercise we speculate about the application of adjunction. The exercise is longer and more discursive than some of the other exercises. The goal of the exercise is to further explore the consequences of the argumentation elaborated in the chapter and see where that would lead us.

Identify all the VP-adjuncts in the following examples. Represent adjunction by means of labeled bracketing.

- (1) The student will examine the text very carefully.
- (2) The students will very carefully examine the text.
- (3) One of the most controversial takeovers in British sporting history was last night awaiting a government decision. (Based on *Guardian*, 13.3.1999, p. 1, col. 1)
- (4) It is two-faced of the mayor to one day attack the private sector and the next day outbid them. (*Guardian*, 9.12.2000, p. 5, col. 7)
- (5) The new rule does not end judicial discretion but it rightly seriously curtails it. (based on *Guardian*, 27.3.2001, p. 9, col. 2)

You should end up with the following representations.

- (1') The student will [<sub>VP</sub> [<sub>VP</sub> examine the text] [<sub>ADV</sub> very carefully]].
- (2') The student will [<sub>VP</sub> [<sub>ADV</sub> very carefully] [<sub>VP</sub> examine the text]].
- (3') One of the most controversial takeovers in British sporting history was [<sub>VP</sub> [<sub>NP</sub> last night] [<sub>VP</sub> awaiting a government decision]].
- (4') It is two faced of the mayor to [<sub>VP</sub> [<sub>NP</sub> one day] [<sub>VP</sub> attack the private sector]] and [<sub>VP</sub> [<sub>NP</sub> the next day] [<sub>VP</sub> outbid them]].
- (5') The new rule does not end judicial discretion but it [<sub>VP</sub> [<sub>ADV</sub> rightly] [<sub>VP</sub> [<sub>ADV</sub> seriously] [<sub>VP</sub> curtails it]]].

Example (5') has two adverb phrases in mid position, *rightly* and *seriously*; we can replace each of the one-word adverbs by more elaborate constituents.

- (6) The new rule does not end judicial discretion but it [<sub>VP</sub> quite rightly [<sub>VP</sub> rather seriously [<sub>VP</sub> curtails it]]].

The fact that we can replace adverbs that function as adjuncts on their own by a phrase of which these adverbs are the heads (*quite rightly, rather seriously*) confirms the proposal in section 2.1 that “adjunction is the merger of one fully formed constituent with another fully formed constituent”: in general constituents adjoined to maximal projections are themselves maximal projections.

(i) **Working hypothesis**

Adjuncts to projections are themselves projections.

Could the adverbial adjuncts in (5) appear in a different order?

- (7) ??The new rule does not end judicial discretion but it [<sub>VP</sub> seriously [<sub>VP</sub> rightly [<sub>VP</sub> curtails it]]]. (Based on *Guardian*, 27.3.2001, p. 9, col. 2)

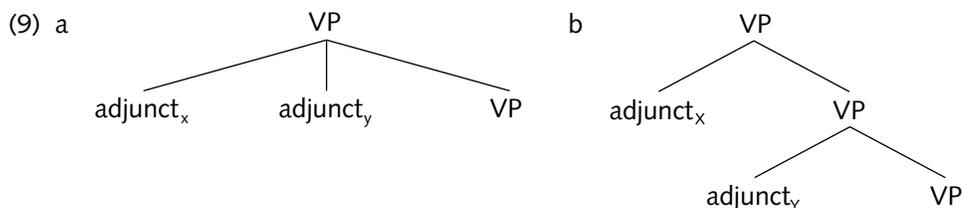
Though (7) is perhaps not completely unacceptable, it is hard to give it an adequate reading. (5) can be paraphrased by (8):

- (8) It is right that the ruling seriously curtails it.

No such obvious paraphrase can be worked out for (7). The reordering of the adverbials has led to a serious degradation.

The left to right **ordering restrictions** of the adjuncts seems to reflect the semantic contributions of the adjuncts. We paraphrase (5) as in (8), where the adjective phrase *right* modifies the seriousness of the degree of curtailment.

For the interpretation of the structure in (5), the meaning of *seriously* is first added to the interpretation of the core VP *curtail it* to give the meaning of the augmented VP *seriously curtail it*. Then the resulting unit of meaning is further modified by *rightly*. Below are two representations for a VP with two adjuncts. In (9a) the adjuncts are both attached to one node; in (9b) they are stacked, with the lower adjunct<sub>y</sub> having a closer relation to VP than the higher adjunct<sub>x</sub>. Which one of these structures would be preferable and why? When answering the question try to determine whether your answer addresses the theory as such or the empirical data that it purports to capture.



(9b) is preferable since it respects the binary branching hypothesis. Furthermore the build-up of the structure matches its interpretation in that (9b) suggests that a higher adjunct (to the left) is added to and modifies the constituent formed by the VP and the lower adjunct. We say that the higher adjunct<sub>x</sub> **takes scope** over the lower adjunct<sub>y</sub>. Observe that in (9b) there is only a single VP, headed by the same verb. The VP consists of a core VP augmented by means of adjuncts. (Think of one house being extended by a veranda, a garage, a terrace, etc.)

Experiment: Could constituency tests be used to support representation (9b)? Try to front the VP containing just one adjunct. Also try to pseudo-cleft the VP with just one adjunct. You will create examples such as (10) and (11).

(10) The new rule does not end judicial discretion but [<sub>VP</sub> seriously [<sub>VP</sub> curtail it]], it [<sub>VP</sub> rightly] does.

(11) What it rightly does do is seriously curtail it.

Let us experiment with the data. Try inserting the adjunct *probably* in (1) and in (2) in a position between the modal auxiliary and the verb. Could *probably* be inserted to the right of *very carefully* in (2)?

- (12) a The student will probably examine the text very carefully.  
 b The student will probably very carefully examine the text.  
 c \*The student will very carefully probably examine the text.

How would you represent the structure of (12a)?

As shown by (12b), the natural position for *probably* is to the left of *very carefully*. Draw a representation for (12b) modeled on the preceding discussion and using (9b) as your model. Do the following constructed sentences bear on the structure?

- (13) a Speaker A: The student will probably very carefully examine the text.  
 Speaker B: He will indeed.  
 Will he really?  
 No he won't!  
 b What the student will probably do is very carefully examine the text.  
 c \*What the student will very carefully do is probably examine the text.

Consider the examples below. Does the left-right sequencing of the underlined adjuncts correspond to their relative scope? Provide paraphrases to bring out the relative scope of the adjuncts.

- (14) The Hutton inquiry disclosed how the prime minister had earlier personally ordered Dr Kelly to face a second round of questioning from senior MoD officials about his contacts with the BBC reporter, Andrew Gilligan. (*Guardian*, 15.8.2003, p. 1, cols 1–2)

- (15) Since the extended saga of the England captain's move from Manchester to Madrid bridged the seasons, it could be said that football never really went away. (*Guardian*, 9.8.2003, p. 19, col. 1)
- (16) In Britain plant-based remedies have been largely ignored, especially since 1945 and the introduction of the NHS, which has traditionally actively discouraged herbal remedies. (*Guardian*, G2, 2.9.2003, p. 9, col. 2)
- (17) The judges on the state's highest court yesterday closely questioned both sides over the constitutionality and legality of a recount. (*Guardian*, 8.12.2000, p. 2, col. 3)
- (18) A study published last December found that only one of the top 10 medical schools in the US has clear regulations forbidding researchers from having a financial involvement in the companies they are supposedly impartially testing. (*Guardian*, 3.5.2001, p. 8, col. 6)

Recall that in the discussion of the structure of the VP,<sup>2</sup> we introduced two layers, which we kept relatively distinct. There was the core VP with the verb and its complement (for instance, the direct object) and then there was the augmented VP which introduced additional information, the adjuncts. This layering was meant to reflect the interpretative relation of the constituents to the verb: complements have a closer relation to the verb than adjuncts. For one thing, complements receive a thematic role. The hierarchical relation of adjoined adjuncts also reflects their semantic relation to the sentence: inner adjuncts are more closely connected to V than outer adjuncts. The analysis is in line with the hypothesis that syntactic structure maps into meaning.

Recall also from section 3.3 of the current chapter that this mapping hypothesis leads to a problem with respect to how we treat the subject since the subject has a closer semantic relation to V than, say, adjuncts. We turn to this in Chapter 4.

## Exercise 4 Modals and *to* (T)

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Consider the following examples in the light of the assumption that modal auxiliaries have the same distribution as the infinitival marker *to*.

- (1) a Do you think John will object to your proposal?  
b I don't expect him to.
- (2) a I expected that Mary would have understood the situation by now.  
b I expected Mary to have understood the situation by now.

<sup>2</sup> Chapter 2, section 2.3.

- (3) a I will not give in to such pressure.  
 b To not give in to such pressure will be hard.
- (4) a \*I not will give in to such pressure.  
 b Not to give in to such pressure will be hard.

## Exercise 5 Sentential negation (E)

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English sentences can be negated in a number of different ways. Identify the constituent that negates the sentence in the examples below:

- (1) I have not actually seen anyone at that shop.
- (2) I saw no one at that shop.
- (3) I have never actually seen anyone at that shop.
- (4) No English students attended the party.

Among the means of expressing negation we find two elements in mid position: *not* (1) and *never* (3). In the discussion we proposed that *not* is like an adverb and is adjoined to a maximal projection. This means that we should probably propose a similar analysis for *never*. Discuss the problems raised by the following examples for equating the status of *not* and *never*:

- (5) a He never liked this book.  
 b \*He not liked this book.  
 c He didn't like this book.
- (6) a Never have I seen such horrible behavior.  
 b \*Not have I seen such horrible behavior.
- (7) a I never will accept those conditions.  
 b \*I not will accept those conditions.  
 c He asked me to accept those conditions but I never will.  
 d \*He asked me to accept those conditions but I not will.  
 e \*He asked me to accept those conditions but I would never.  
 f He asked me to accept those conditions but I wouldn't.
- (8) a Do you talk to him? Never.  
 b Do you talk to him? \*Not.

## COMMENTS

The data suggest that *not* and *never* should be differentiated. Consider the examples in (5). In the chapter we proposed that the finite inflection lowers onto the lexical verb in English. We also saw that this lowering is blocked by an intervening *not*.<sup>3</sup> Does the adjunct *never* also block the lowering of the inflection onto V? We must conclude that the syntactic properties of *not* and of *never* as the expressions of sentential negation are different. In particular, *not* is special in that it blocks the lowering of the inflection onto V.<sup>4</sup>

## Exercise 6 Comparing languages (T, E)

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In Table 1 we give the paradigms for the verb *hear* in Danish and in Icelandic (Vikner, 1997). Based on these paradigms and on the conditions we have elaborated for the movement of the finite verb to I, which of the sentences in (1) for Danish and in (2) for Icelandic would you predict to be grammatical?

- (1) a Da at Johan ofte spiser tomater.  
       that John often eats tomatoes  
       ‘that John often eats tomatoes.’
- b Da at Johan spiser ofte tomater.

**Table 1** Inflectional patterns in Danish and in Icelandic

	Danish		Icelandic	
	Present	Past	Present	Past
1sg	<i>hører</i>	<i>hørte</i>	<i>heyri</i>	<i>heyrdi</i>
2sg	<i>hører</i>	<i>hørte</i>	<i>heyrir</i>	<i>heyrdir</i>
3sg	<i>hører</i>	<i>hørte</i>	<i>heyrir</i>	<i>heyrdi</i>
1pl	<i>hører</i>	<i>hørte</i>	<i>heyrum</i>	<i>heyrdum</i>
2pl	<i>hører</i>	<i>hørte</i>	<i>heyrið</i>	<i>heyrdðu</i>
3pl	<i>hører</i>	<i>hørte</i>	<i>heyra</i>	<i>heyrdu</i>

<sup>3</sup> Section 1.2.4.4.

<sup>4</sup> For discussion of the status of *not* see also Klima (1964), Pollock (1989), Baker (1991), Ernst (1992), Haegeman (1995). For an accessible introduction see Haegeman and Guéron (1999).

- (2) a Ic að Jón oft borðar tómata.  
       that Jón often eats tomatoes  
       ‘that John often eats tomatoes.’
- b Ic að Jón borðar oft tómata.

## COMMENTS

Danish finite verbs are invariant, both in the present tense and in the past tense. The inflection is weak and the prediction is that the lexical verb ought not to move to I. (1a) ought to be grammatical and (1b) ought to be ungrammatical. These predictions are correct.

In Icelandic the finite paradigms display a number of different forms, both in the present tense and in the past tense. So the inflection is strong and the prediction is that the lexical verb ought to move to I. (2a) ought to be ungrammatical and (2b) ought to be grammatical. These predictions are also correct.<sup>5</sup>

For more detailed and sophisticated discussion of these data see Vikner (1997) and the references cited. Vikner provides a careful analysis of precisely what kinds of verb inflections are needed to trigger verb movement and he compares an array of Scandinavian languages. He also offers a good survey of the relevant literature.<sup>6</sup>

## Exercise 7 Comparing languages (T, E)

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We have observed that English grammar has undergone a change through its history. In Old English, paradigms of verb conjugation displayed a number of different forms and the lexical verb was mobile. For instance, the inflectional system was stronger in earlier stages of the language<sup>7</sup> and this allowed the lexical verb to invert with the subject. With the loss of its distinct inflectional endings, the English lexical verb has become less mobile.

We might predict an analogous development for languages which today still have strong inflections if, for some reason, their inflections were to be eroded through time. Haitian Creole is a language whose lexicon is strongly based on French but whose word order is quite different from French, as illustrated in (1)–(4). The inflectional system is given in (5)–(6). Can we account for the difference in the positions of the finite verb in the Creole examples in (1)–(4) and their French counterparts in (7)–(10)?

- (1) a Bouki deja pase rad yo.  
       Bouki already irons laundry their  
       ‘Bouki has already ironed their laundry.’
- b \*Bouki pase deja rad yo.

<sup>5</sup> Exercise 16 is also concerned with the distribution of the verb in Icelandic.

<sup>6</sup> For additional discussion of Germanic languages see also Rohrbacher (1999). For a critical view see Bobaljik (2002), Alexiadou and Anagnostopoulou (1998).

<sup>7</sup> Cf. Chapter 1, section 3.2, and Chapter 3, section 1.2.4.

- (2) a Mwen toujou ekri manman mwen.  
I always write mother my  
'I always write to my mother.'
- b \*Mwen ekri toujou manman mwen.
- (3) a Elèv la byen etidye leson an.  
student the well study lesson the  
'The student has studied the lesson well.'
- b \*Elèv la etidye byen/mal leson an.
- (4) a Jak pa janm di bonjou.  
Jack NEG never says hello  
'Jack never says hello.'
- b \*Jak di pa janm bonjou.
- (5) mwen /ou /li /nou /yo renmen Boukinèt  
I /you /he/she /we/you /they 'love' Bouquinette
- (6) a Boukinèt ta renmen Bouki (PAST)  
b Boukinèt ap renmen Bouki (FUTURE)
- (7) a \*Jeanne déjà repassé le linge.  
Jeanne already irons the laundry
- b Jeanne repassé déjà le linge.  
'Jeanne is already ironing the laundry.'
- (8) a \*Je toujours écris à maman.  
I always write to mummy
- b J'écris toujours à maman.  
'I always write to mummy.'
- (9) a \*L'élève bien étudie la leçon.  
the pupil well studies the lesson
- b L'élève étudie bien la leçon.  
'The pupil studies the lesson well.'
- (10) a \*Jacques ne jamais dit bonjour.  
Jacques NEG never says hello
- b Jacques ne dit jamais bonjour.  
'Jack never says hello.'

## COMMENTS

When we consider the inflectional paradigm in (5) we see that there is no variation for person and number in Haitian Creole. Nor does the language have a distinct ending for past or for future, as shown by (6). Given an invariant verb form we deduce that the inflection is weak and hence we correctly predict the lexical verb to remain in V and to follow adjuncts. In French the finite inflection is strong and hence we expect the verb to move to I and to precede adjuncts. For more discussion of the syntax of the Haitian Creole verb see DeGraff (1997), which also contains a range of references. For an overview of the problems of Creole languages see also the discussion in DeGraff (1999) and the references cited there.

### Exercise 8 Moved constituents (T, L)

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We have elaborated a blueprint for the structure of the sentence in which we use two operations for assembling a sentence. These operations, discussed in section 2 of this chapter, are **Merge** and **Move**. So far we have concentrated mainly on the operation Merge, and we have only invoked the concept Move to account for the displacement of the verb. Consider the examples below. What is the category of the underlined constituents? Do you think these constituents occupy their base positions? If not, try to restore them to their base positions.

- (1) Our fishmonger and his staff in Petersfield all wear ties (Letters, October 22) and very smart they look too. (*Guardian*, 23.10.2002, p. 9, col. 5, letters to the editor from David Dew, Horndean, Hants)
- (2) Everything I did right for 20 years, he burned up in two or three. (*Washington Post*, 29.4.2003, p. C1, col. 1)
- (3) The payback burden varies according to earnings later in life, to about £60 a month, for example, for a civil servant, lower than that for a voluntary sector worker. The paybacks I don't think are unreasonable. (*Guardian*, 20.1.2003, p. 3, col. 3)
- (4) People retain a mystic faith in old exam results or in the snap judgements of school reports, dogged by lazy character assassinations for the rest of their days. That is why education should always try to praise a child's talents, not brand it with failure. These things she knew well, and it made her a humane politician and a good education minister. (*Guardian*, 25.10.2002, p. 7, col. 2)
- (5) There are hardly any small movies that people go to, and some of the more interesting ones they won't go to. (*Guardian*, Review, 1.11.2002, p. v, col. 4)

Examine the underlined sentence-initial constituents in the following examples. What is their base position? Why do you think that they are displaced?

- (6) How can we stop this? (*Chicago Tribune*, 3.1.2004, S1, p. 33, col. 6)
- (7) What kind of delusional rock is Smith living under? (*Chicago Tribune*, 3.1.2004, S3, p. 2, col. 6)
- (8) I don't know whom I will be voting for then, but it won't be Bush. (*Chicago Tribune*, 3.1.2004, S1, p. 27, col. 3, letter to the editor)
- (9) How good will he become? (*Chicago Tribune*, 3.1.2004, S3, p. 10, col. 5)
- (10) What are they afraid of? (*New York Times*, 8.3.2004, p. C6, col. 5)

What examples (6)–(10) have in common is that the underlined constituent originates in a position to the right and has been fronted to a peripheral position in the sentence. The common factor shared by all these fronted elements is that the constituent is interrogative and encodes the scope of the question.

- (6') How can we stop this —?
- (7') What kind of delusional rock is Smith living under —?
- (8') I don't know whom I will be voting for — then.
- (9') How good will he become —?
- (10') What are they afraid of —?

In (11)–(15) the underlined constituent has also been displaced. What is the motivation for the movement? Locate the base position of the moved constituent. Consider the distance between the moved constituent and its base position.

- (11) Who do you think is the more moderate politician? (*Guardian*, 25.9.2003, p. 9, col. 6)
- (12) What did they think they were making with those girls in there? Animated cartoons? (*Guardian*, 13.9.2003, p. 14, col. 2)
- (13) At the end of the day everybody eats meat. What do you think your cat or dog eats? Where do you think that meat comes from? Where do you think Pedigree Chum comes from? (*Observer Magazine*, 7.9.2003, p. 41, col. 1)

- (14) What has the Chancellor been doing and where does he think the party is going? (*Guardian*, 27.9.2003, p. 4, headline)
- (15) Some are born great, some achieve greatness and some have greatness thrust upon them . . . Which do you think you were? (*Guardian*, G2, 27.10.2003, p. 6, col. 2)

## COMMENT

In (11)–(15) again, the underlined interrogative constituent has been fronted to a peripheral position in the sentence. What distinguishes these examples from the earlier ones is that in (11)–(15) the fronted interrogative constituent has been lifted out of the clause in which it originates. We signal the clause from which the constituent has been extracted by square brackets in the simplified representations below. When a movement operation lifts a constituent out of a clause and into a higher clause we often talk about **long** movement. Examples (6)–(10) illustrate **short** movement.

- (11') Who do you think [<sub>IP</sub> — is the more moderate politician]?
- (12') What did they think [<sub>IP</sub> they were making — with those girls in there]?
- (13') What do you think [<sub>IP</sub> your cat or dog eats —]?  
Where do you think [<sub>IP</sub> that meat comes from —]?  
Where do you think [<sub>IP</sub> Pedigree Chum comes from —]?
- (14') Where does he think [<sub>IP</sub> the party is going —]?
- (15') Which do you think [<sub>IP</sub> you were —]?

Return to the examples (1)–(5). Identify the example in which the fronted constituent has undergone long movement.<sup>8</sup>

## Exercise 9 Thematic roles: The expression of AGENT (T)

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In (49) in section 3.1, we defined the thematic role AGENT as follows:

- (1) AGENT/ACTOR: the one who intentionally initiates the action.

<sup>8</sup> The derivation of examples such as (6)–(15) will be discussed in Chapter 5, section 3.1.

Consider the generalizations (i) and (ii):

- (i) The AGENT thematic role is always realized overtly, and it must be expressed by the subject of a sentence.
- (ii) The subject of a sentence always realizes the AGENT thematic role.

On the basis of the three examples below discuss the validity of generalizations (i) and (ii).

- (1) The news was announced by the director of the company.
- (2) The thief was arrested later that night.
- (3) John's analysis of the data surprised everyone.

#### COMMENT

(1) and (2) illustrate what are called **passive** sentences. The underlined verbs are the **passive** forms of the verbs; they are associated with the passive morpheme *-ed*. Typically a situation involving two participants can be presented either by means of an active sentence or by means of a passive one. Discuss how the thematic roles of the verb *announce* are realized in (1a). What about (1b)?

- (1) a The director of the company announced the news.
- b The news was announced by the director of the company.

It appears that the passive morphology of the verb *announced* triggers a rearrangement in the arguments of the verb. Starting from the active verb, we build up the sentences in the way described in this chapter. Notably the AGENT of the action expressed by the active verb is realized by the subject NP, *the director of the company*, and as such it becomes the anchoring point for the information given in the sentence. (1a) gives information about the entity 'the director of the company'. In the passive version of the sentence, (1b), the AGENT of the activity is not expressed as a subject, rather it is made explicit by means of a PP introduced by the preposition *by*. The NP that denotes the entity affected by the activity, the THEME, now occupies the canonical subject position and has become the anchor of the information given in the sentence. (1b) is about the entity 'the news'.

(2) is also a passive sentence. Is the AGENT expressed? Can it be inferred? We conclude that in passive sentences the *by*-phrase expressing the AGENT need not be present. However, even when not overtly expressed, the AGENT of *arrest* can be inferred. For more discussion of such inferred AGENTS see Exercise 11.

In (3) the verb *surprise* does not take an AGENT argument: the full NP *John's analysis of the data* does not denote 'the one who intentionally initiates the action'. The subject denotes an event, events do not have intentions, so events cannot

'intentionally initiate the action'. The subject NP *John's analysis of the data* expresses a CAUSE. In the passive counterpart of (3) the CAUSE will also be expressed in a *by*-phrase:<sup>9</sup>

(4) Everyone was surprised by John's analysis of the data.

Now let us turn to the NP *John's analysis of the data*. This NP contains as its head the noun *analysis*. In terms of its form, this noun is related to the verb *analyze*. A noun whose form is related to a verb is called a **deverbal** noun.<sup>10</sup> The verb *analyze* is associated with two thematic roles: the AGENT, the person doing the analysis, and the THEME, the entity that is being analyzed.

(5) a John analyzed the data.  
 b *analyze* thematic role 1: *John*  
 thematic role 2: *the data*

The thematic roles of the verb *analyze* are retained in the deverbal noun *analysis*. Turning to the NP *John's analysis of the data* we see that the AGENT of *analysis* is realized by the prenominal genitive NP *John's* and its THEME is realized by the NP *the data*, contained in a PP *of the data*.<sup>11</sup>

(6) a John's analysis of the data  
 b *analysis* thematic role 1: *John's*  
 thematic role 2: (*of*) *the data*

## Exercise 10 Thematic roles: The expression of AGENT (T, E)

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In (49), in section 3.1, we defined the thematic role AGENT as follows:

(1) AGENT/ACTOR: the one who intentionally initiates the action.

Comment on the realization of the AGENT role associated with the underlined verbs in the following examples.

(2) Dawson was invited by Sven-Goran Eriksson to the England get-together in November. (*Guardian*, 7.1.2003, p. 14, col. 2)

<sup>9</sup> For the realization of arguments of such psychological verbs see also Belletti and Rizzi (1988). Though based on Italian data the conclusions of this paper are relevant for English.

<sup>10</sup> For some discussion of the formation of deverbal nouns see Chapter 2, Exercise 17.

<sup>11</sup> For a thorough discussion of the thematic structure of deverbal nouns see, among others, Williams (1981), Grimshaw (1990), Alexiadou (2001).

- (3) The center is at a public facility, Huilongguan Hospital, and is being funded quite willingly by Beijing's city government. (*San Francisco Chronicle*, 28.11.2002, p. F6, col. 1)
- (4) The *Which?* Web Trader scheme, which has been running since July 1999, is being closed down by the Consumers' Association because it is too expensive to maintain. (*Guardian*, 7.1.2003, p. 12, col. 5)
- (5) A spokesman for Mr Bing said the money would be paid into a trust. (*Guardian*, 18.12.2002, p. 3, col. 4)
- (6) The culture committee's motion was drafted by members of prime minister Silvio Berlusconi's Forza Italia party. (*Guardian*, 18.12.2002, p. 6, col. 3)

## COMMENT

(2)–(6) illustrate what are called **passive** sentences. The underlined verbs are the **passive** forms of the verbs; they are associated with the passive morpheme *-ed*. Typically, a situation involving two participants can be presented either by means of an active sentence or by means of a passive one: (7) would be another illustration:

- (7) a The director of the company announced the news.  
 b The news was announced by the director of the company.

As we discussed in Exercise 9, the passive morphology of the verb gives rise to a rearrangement in the arguments of the verb. In an active sentence, the AGENT of the action denoted by the verb is realized by the subject NP, *the director of the company* in (7a), and it is the anchoring point for the information given in the sentence. (7a) gives information about the entity 'the director of the company'. In the passive version, (7b), the AGENT of the activity is not realized as a subject; rather it is made explicit by means of a PP introduced by the preposition *by*. The NP that denotes the entity affected by the activity, the THEME, now occupies the subject position and is the anchor of the information given in the sentence.

Consider the underlined passive verb in (8). Who is the AGENT? Is the AGENT expressed in the example?

- (8) A student was arrested on suspicion of murdering special branch officer Stephen Oake in Manchester. (*Guardian*, 16.1.2003, p. 1, col. 4)

As already mentioned with respect to example (2) in Exercise 9, a passive verb does not require the presence of a *by* phrase. We propose that in the passive sentence, the *by* phrase, though it realizes a thematic role, is an adjunct. In (8) the *by* phrase is not realized because we can infer from the choice of verb, *arrest*, that the AGENT was the police.

Consider the underlined passive verbs in the following sentences. Is the AGENT of the action denoted by these verbs overtly expressed? Which component of the sentence do the bold faced parts of the sentence modify?

- (9) She was **deliberately** killed. (*Guardian*, 16.9.2003, p. 8, col. 7)
- (10) There is some technical study till mid-morning teabreak, then lunch at 1 p.m., which is cooked **together** but bought from a kitty to which all the men contribute. (*Guardian*, 7.9.2002, p. 7, col. 7)
- (11) The victims were shot **using a high powered rifle**. (*Guardian*, 10.10.2002, p. 2, col. 5)
- (12) **Using plastic gloves from the Harrods food hall**, the contents were then inspected and shown to Mr Fayed. (*Guardian*, 14.8.2002, p. 5, col. 7)
- (13) Mr. Mansfield said Blakely's behaviour was **intentionally** directed at Ellis, and given the history of the relationship it amounted to provocation. (*Guardian*, 17.9.2003, p. 6, col. 4)

Sentences (9)–(13) suggest that even when the AGENT of a passive verb is not expressed by a *by*-phrase, it still remains accessible for modifiers. In (9), for instance, the adverb *deliberately* modifies the attitude of the AGENT of *kill*, even though that AGENT is not overtly expressed. Similarly, in (10) the intended interpretation is that a number of people cook lunch together. Again *together* bears on the understood AGENT of *cook*. In (11) *using a high powered rifle* is a non-finite string which lacks an overt subject. The verb *using* is the present participle. *Using a high powered rifle* is a non-finite clause, in particular it is a participial clause. The subject of *using* is implicit. We interpret its subject as being identical to the implied AGENT of *shot*: those who shot the victims were using a high powered rifle.

We conclude that the understood AGENT in a passive sentence remains accessible to modification.

## Exercise 11 Thematic roles: The implied AGENT (T, E, presupposes Exercise 10)

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In Exercise 10, we discovered that even when implicit, the AGENT of an activity might be accessible for syntactic processes such as modification by an adverbial or by a participial clause. However, care must be taken when we state that an implicit element is syntactically accessible. In particular, not every element that we can infer from the meaning of a sentence is “accessible.” Compare the expression of the AGENT role in the following examples.

- (1) a We finally opened the door with the headmaster's key.  
 b The door was finally opened by the junior staff member.  
 c The headmaster's key finally opened the door.

In (1a) and in (1b) the AGENT of *open* is overtly expressed. In (1a) it is the subject of the sentence, *we*; in (1b) the AGENT is expressed by means of an adjunct *by* phrase; in (1c) the subject, *the headmaster's key*, realizes the INSTRUMENT role. From the fact that an INSTRUMENT is referred to we infer that an AGENT must be involved in the action. The AGENT is the one who uses the instrument. So we can say that in (1c) an AGENT can be inferred.

These data might lead us to expect that in the same way that the understood AGENT is accessible for modification in a passive sentence, the inferred AGENT in (1c), which contains a reference to an instrument, will be accessible for modification. Comment on this expectation using the following data.<sup>12</sup>

- (2) a Expecting the worst, we finally opened the door with the headmaster's key.  
 b Expecting the worst, the door was finally opened by the junior staff member.  
 c \*Expecting the worst, the headmaster's key finally opened the door.

#### COMMENT

There is a difference between the way an AGENT may be implicit in a passive sentence, in which it remains accessible for purposes of modification (1b), and the way the existence of an AGENT is inferred in a sentence such as (1c), in which the subject realizes an INSTRUMENT. Even under the assumption, which is possible though not necessary, that the headmaster is the AGENT in (1c), (1c) becomes unacceptable when we insert an adjunct modifying the AGENT (2c). Passivization has a way of preserving the AGENT in the sentence.<sup>13</sup>

## Exercise 12 *Be* + passive VP (T)

---

Identify the constituents that are co-ordinated by the underlined conjunction *and* in the examples below.

- (1) The scheme will start in London and be extended later to other parts of England. (*Guardian*, 3.10.2002, p. 3, col. 2)
- (2) Mitrokhin has been interviewed on television and co-written a book with Professor Christopher Andrew. (*Observer*, Review, 16.9.2001, p. 15, col. 3)
- (3) It is understood that one individual who sent an email containing footballers' names has been warned he could face a libel action and been asked to hand

<sup>12</sup> See also Reinhart (2000) for discussion of the relation between INSTRUMENT and AGENT.

<sup>13</sup> For a discussion of passivization see among others Baker, Johnson, and Roberts (1989).

over the names of the people he sent the message to. (*Guardian*, 2.10.2003, p. 3, col. 2)

### KEY AND COMMENTS

The conjoined constituents are all VPs:

- (1') [<sub>VP</sub> start in London]  
+ [<sub>VP</sub> be extended later to other parts of England]
- (2) [<sub>VP</sub> been interviewed on television]  
+ [<sub>VP</sub> co-written a book with Professor Christopher Andrew]
- (3) [<sub>VP</sub> been warned he could face a libel action]  
+ [<sub>VP</sub> been asked to hand over the names of the people he sent the message to]

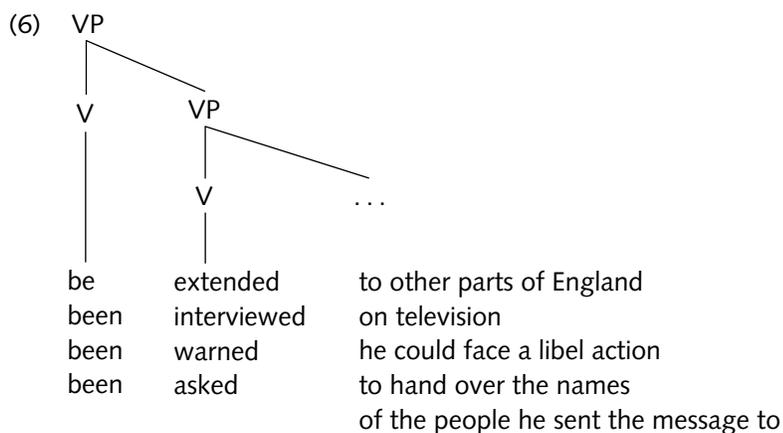
Two of the VPs are simply projections of a lexical verb:

- (4) a [<sub>VP</sub> start in London]  
b [<sub>VP</sub> co-written a book with Professor Christopher Andrew]

The other VPs contain the auxiliary *be* and a passive verb form.

- (5) a [<sub>VP</sub> be extended later to other parts of England]  
b [<sub>VP</sub> been interviewed on television]  
c [<sub>VP</sub> been warned he could face a libel action]  
d [<sub>VP</sub> been asked to hand over the names of the people he sent the message to]

Following the discussion in the chapter, we assume that an auxiliary is a verb and heads its own VP. In (5) the auxiliary *be* selects a passivized VP, with which it forms a constituent:



Discuss how VP ellipsis in the following extract provides further evidence for the hypothesis that passive *be* forms a constituent together with the lexical VP headed by the passive participle:

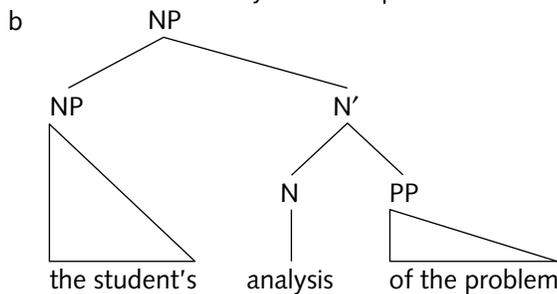
- (7) More than in any recent presidential election, the critical economic issue this year boils down to whether middle-income people think they are being squeezed. President Bush passionately argues they are not. (Adapted from *New York Times*, 1.8.2004, section 3, col. 2)

### Exercise 13 Lexical heads and functional structure (E)

---

The merger operation that assembles the clause starts from a lexical element, a verb. A lexical head *V* projects a structure, *VP*, which is selected by a functional head. Merger of *VP* and *I* integrates the *VP* projection into a functional projection, *IP*. It would be interesting to examine if this pattern of a functional projection dominating a lexical projection is general. Do projections of other lexical elements also require a dominating functional projection? The noun is a case in point. The noun *analysis* in (1a) is the head of an *NP*. In (1b) we provide the type of structure proposed for the *NP*. Does the lexical projection *NP* merge with a functional structure? Try to rephrase the *NP* in (1a) by means of a sentence. To which sentential constituent would the genitive *NP* *the student's* correspond? And, in a sentence, which constituent would match the *PP* *of the problem*?

- (1) a the student's analysis of the problem



(1a) is closely similar in composition to the sentence (2a), whose structure is given in (2b):

- (2) a The student has analyzed the problem.  
b [<sub>IP</sub> The student [<sub>I'</sub> [<sub>I</sub> has] [<sub>VP</sub> analyzed the problem]]].

We might try to generalize the hypothesis that a lexical projection is inserted as the complement of a functional head and also merge the *NP* with a functional head.

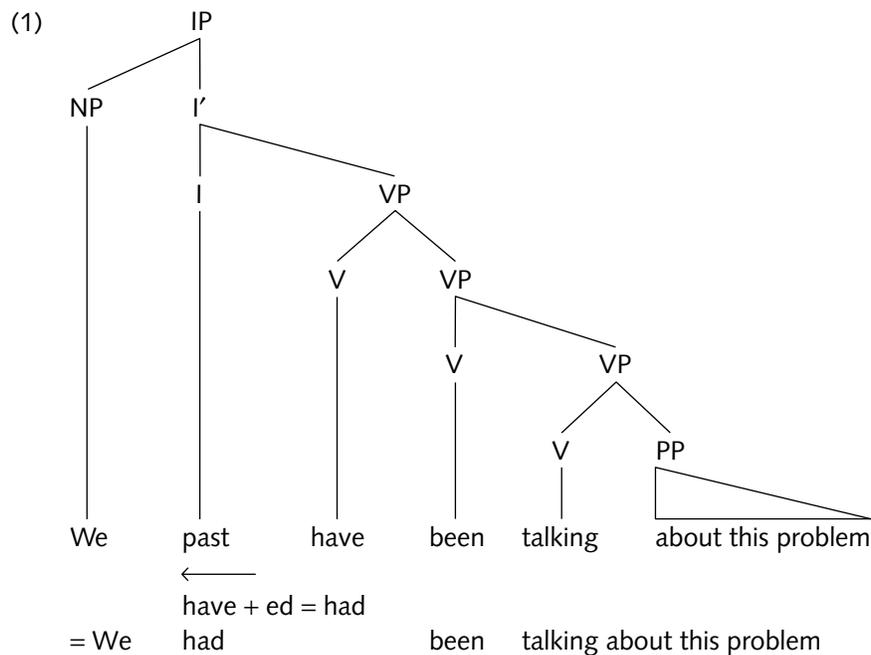
We could propose something along the lines of (1c), for instance, in which we associate the genitive marking with a functional head, which we label F. Draw the tree diagram that would correspond to (1c).

(1) c  $[_{FP} \text{ the student } [_F \text{ 's}] [_{NP} \text{ analysis of the problem}]]]$

Based on the discussion of the structure of the NP in the chapter, list the constituents that were shown to alternate with the genitive in (1a). Are these constituents all phrasal constituents?<sup>14</sup>

## Exercise 14 Non-finite inflections (E)

Consider representation (69b) from the chapter, repeated here as (1):



One point that emerges from the discussion in the chapter is that the finite inflection of the verb should be represented separately from V, and that this separation

<sup>14</sup> The hypothesis that NPs must also be associated with functional structure was elaborated by Abney (1987). For introductory discussion of the structural build-up of the nominal projection see Haegeman and Guéron (1999) and Bernstein (2001). For more advanced discussion see, among others, Szabolcsi (1994), Giorgi and Longobardi (1991), Gavrusseva (2000), and the references cited there.

applies both to lexical verbs and to auxiliaries. In sections 4.3. and 4.4 we made the point that if we represented inflectional endings separately for lexical verbs and if we failed to do so for inflections of auxiliaries, we would have to provide an account for this different treatment. The simpler theory is one in which all finite inflections are represented as separate. The one exception we did allow for is modal auxiliaries as these are inherently tensed and they lack non-finite forms.

However, careful readers will have detected another inconsistency. If finite inflections are to be represented separately from the associated verb stem, should the same not apply to non-finite inflections? Should we not treat all verbal inflections as separate from the stems they are associated with? What would the consequences be for the structure in (1)?<sup>15</sup>

### Exercise 15 The structure of sentences: Extending the data (E)

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Discuss the problems raised for the representation of sentence structure elaborated so far by the position of the underlined elements in the following examples.<sup>16</sup>

- (1) 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)<sup>17</sup>
- (2) Jarvis today will wipe away some of the immediate gloom surrounding the support services group by announcing a £300 million contract to build 3,000 rooms for the University of Lancaster. (*Guardian*, 17.10.2003, p. 13, col. 1)
- (3) A year ago, these streets at 4 a.m. of a Friday night were raucous and reeling with drunks. (Based on *Atlanta Journal-Constitution*, 23.11.2003, p. F1, col. 5)<sup>18</sup>
- (4) I never could make out what those damned dots meant. (*Independent*, 14.4.2001, p. 20, col. 6)<sup>19</sup>
- (5) I expect house prices over the year to rise by 4 per cent. (*Times*, *Times 2*, 27.12.2000, p. 7, col. 1)

<sup>15</sup> For some discussion see Belletti (1990) and Friedemann and Siloni (1993).

<sup>16</sup> For some discussion see Pollock (1997). We return to some of the examples in Exercise 22 of Chapter 4.

<sup>17</sup> Cf. Chapter 4, Exercise 22 (7).

<sup>18</sup> For the position of *a year ago* see also Chapter 2, Exercise 15.

<sup>19</sup> Cf. Chapter 4, Exercise 22 (8).

- (6) American officials also have cited a possible business dispute as a reason for the disappearance of the Angola jet. (*Chicago Tribune*, 3.1.2004, section 1, p. 6, cols 1–2)
- (7) We expect actors in real life to be like the characters they play, and of course, they're not. (Adapted from *Sunday Times*, News Review, 25.1.2001, p. 3, col. 6)
- (8) Today Gulliver still can barely stand to be among the Yahoos. (*Guardian*, G2, 31.8.2004, p. 12, col. 1)<sup>20</sup>
- (9) The AP trophy probably will be presented to USC in Los Angeles, not New Orleans. (*Chicago Tribune*, 3.1.2004, S3, p. 2, col. 3)
- (10) Parents and students probably wouldn't do that. (*New York Times*, *Education*, 1.8.2004, p. 16, col. 2)

## Exercise 16 Object shift and verb movement in Icelandic (E)

---

Consider the Icelandic example (1a). How could we explain the position of the verb to the left of the negation marker *ekki* ('not')?

- (1) a Jón las ekki bækurnar.  
 John read not books  
 'John didn't read the books.' (Collins and Thráinsson, 1993: 132, their (2b))

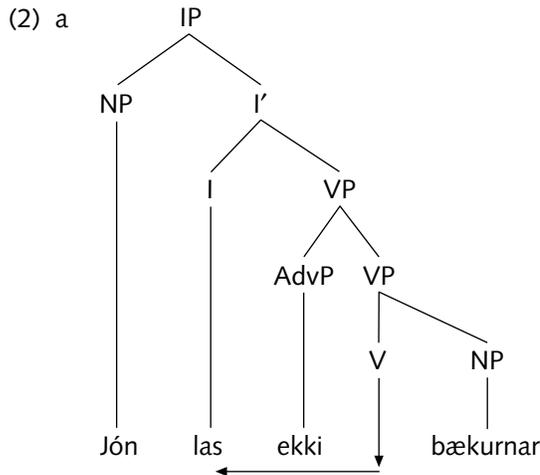
Draw a tree diagram for the sentence. Discuss how (1b) differs from (1a).

- (1) b Jón las bækurnar ekki.  
 John read books not  
 'John didn't read the books.' (Collins and Thráinsson, 1993: 132, their (2a))

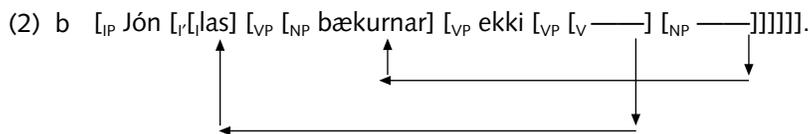
### KEY AND COMMENTS

In (1a) the lexical verb *las* ('read') precedes the negation marker *ekki*. We saw in Exercise 6 that Icelandic verbs have a strong inflection. We can assume that the verb has moved out of the VP to I. In (2a) we use an arrow to show verb movement.

<sup>20</sup> Cf. Chapter 4, Exercise 22 (9).



To derive the word order in (1b), we need an additional movement: we have to shift the object NP, *bækurnar* ('the books'), leftward to an IP-internal position. The operation which moves the object to the left within the IP domain is called **object shift**.<sup>21</sup> One possibility would be to propose that the object NP left-adjoins to the VP.<sup>22</sup> The movement of the verb and that of the object are both indicated by arrows in (2b).



Consider the examples in (3). Has the lexical verb moved to I in (3a)? Has object shift taken place in (3a)? Consider (3b). Is object shift possible?

- (3) a Jón hefur ekki lesið bækurnar.  
 John has not read the books  
 'John hasn't read the books.'
- b \*Jón hefur bækurnar ekki lesið.  
 John has the books not read.

In (3) the participial form of the lexical verb *lesið* ('read') has not left the VP. In Icelandic there is a correlation between object shift to the left of the VP and movement of V to I. If there is no V-to-I movement, then object shift is not possible. This correlation is often referred to as **Holmberg's generalization** (Holmberg, 1986).

<sup>21</sup> For the discussion of the relevance of object shift in the derivation of the Germanic OV languages see Exercise 18 of Chapter 2.

<sup>22</sup> For alternative proposals see Holmberg (1986, 1999), Collins and Thráinsson (1993), Diesing (1997).

## Exercise 17 Variations in subject positions (L)

---

Consider the following examples. Identify the subject of the underlined verbs.

- (1) a Enough moralists were objecting to the theatre as it was.
- (2) a A bomb is waiting to go off in consumers' pockets.
- (3) a Some men were selling special editions of the evening paper.
- (4) a A lot of things are going on around you.

Now consider the underlined strings in the (b)-sentences, which were the source for the (a)-sentences above. The (b)-sentences all contain a variant of the (a)-sentences. Describe the differences between the (a)-sentences and the (b)-sentences.

- (1) b Putting a rogue on the stage as a hero was really daring, there were enough moralists objecting to the theatre as it was. (*Independent* 15.7.2004, p. 11, col. 2)
- (2) b William Ostrom . . . admits there is a "bomb" waiting to go off in consumers' pockets. (*Guardian*, 6.5.2003, p. 14, col. 4)
- (3) b When I came out there were men selling special editions of the evening paper. (*Guardian*, Review, 31.5.2003, p. 5, cols 3–4)
- (4) b 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)

### KEY AND COMMENTS

We will discuss example (1). In (1a) the subject is the NP *enough moralists*, and the lexical verb is *objecting*. The NP *enough moralists* occupies what we call the canonical subject position, the specifier of IP. When we form a direct question based on (1a), SAI affects the relative order of the NP *enough moralists* and the finite auxiliary *were*.<sup>23</sup>

- (1) c Were enough moralists objecting to the theatre?

(1d) isolates the underlined section in (1b):

- (1) d There were enough moralists objecting to the theatre.

<sup>23</sup> We turn to the position of the inverted auxiliary in Chapter 5.

In (1d), the NP *enough moralists* follows the finite auxiliary. This means that it does not occupy the specifier of IP, the canonical subject position. Rather, in the canonical subject position we find the word *there*. When applied to (1d), SAI changes the order of the auxiliary *were* and the element *there*.

(1) e Were there enough moralists objecting to the theatre?

On the other hand, in terms of its meaning, the NP *enough moralists* refers to the AGENT<sup>24</sup> of *objecting*, and it agrees with the auxiliary *were*, suggesting that it too is a subject. So we are faced with a sentence with two constituents that qualify as subjects. In turn, this means that we must provide two positions for these subjects in the structure of the sentence: the canonical subject position, which is the specifier of IP, and a second subject position which in (1b) is immediately next to the verb. We will examine such sentences in Chapter 4, section 3.2.2.<sup>25</sup>

## Exercise 18 Modern Greek word order (T, L)

---

Consider the following examples in Modern Greek (Alexiadou, 1997). Does the Modern Greek verb move to I?

- (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 Petros etroge sinithos sika.  
 the Peter-NOM ate-IMP-3SG usually figs  
 'Peter usually ate figs.' (Alexiadou, 1997: 93 (23a))
- (3) O Janis agorase kthes to aftokinito.  
 the John-NOM bought-3SG yesterday the car  
 'John bought the car yesterday.' (Alexiadou, 1997: 109 (62a))
- (4) O sismos katastrepse entelos to horjo.  
 the earthquake destroyed-PERF-3SG completely the village  
 'The earthquake destroyed the village completely.' (Alexiadou, 1997: 131 (14a))

Now discuss the word order displayed by the examples below. As shown by the English translations, these are to be interpreted as declarative sentences.

<sup>24</sup> Cf. section 3.2 for thematic roles.

<sup>25</sup> Exercise 18 also suggests that we need more than one subject position.

- (5) Filise o Petros ti Maria.  
kissed-3<sub>SG</sub> the Peter-NOM the Mary -ACC  
'Peter kissed Mary.' (Alexiadou, 1997: 57 (15b))
- (6) Ektise i Maria to spiti.  
built-3<sub>SG</sub> the Mary the house  
'Mary built the house.' (Alexiadou & Anagnostopoulou, 1998: 495 (7c))
- (7) Diavaze sihna o Janis to vivlio.  
read-3<sub>SG</sub> usually the John-NOM the book-ACC  
'John was usually reading the book.' (Alexiadou, 1997: 62 (29))
- (8) Efage kala o Janis.  
ate-3<sub>SG</sub> well the John  
'John ate well.' (Alexiadou, 1997: 131 (13a))

#### KEY AND COMMENTS

Examples (1)–(4) suggest that the lexical verb moves to I in Modern Greek. As a result of the movement, the verb can be separated from its object by an intervening adverb. In (5) and in (6) the verb precedes the subject. Moreover, in (7) and in (8) the verb is separated from the subject by an adverb. If the verb moves from V to I and if the relevant adjuncts in (7) and (8) are VP-adjoined, then the position of the subject in these examples is unexpected. The discussion concerning the relation of the subject to the verb and the VP in section 3.3 bears on this.<sup>26</sup>

<sup>26</sup> The English data in Exercise 17 above also suggest the need for postulating more than one subject position. In Exercise 16 of Chapter 4 we return to the Modern Greek data discussed in the exercise. In Chapter 4 we will introduce the hypothesis that in addition to the canonical subject position, the specifier of IP, there is a second subject position, the specifier of VP. See also Exercises 6 and 7 in Chapter 4.