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1 Terminological preliminaries

This chapter deals with what are traditionally called **relative clauses**. We use the more general term **relative constructions** because although it is reasonable enough to call the underlined construction in [1i] a relative clause, the term is misleading for the type of construction seen in [1ii]:

- [1] i *I agree with most of the things that your father was saying.* [clause]
 ii *I agree with most of what your father was saying.* [NP]

These two sentences are equivalent. But the phrase *what your father was saying* in [ii] is an NP: it corresponds not to the relative clause *that your father was saying* in [i], but to the larger NP containing it, *the things that your father was saying*. And we will see that there are syntactic as well as semantic reasons for treating *what your father was saying* in [ii] as an NP.

We therefore use the term ‘relative constructions’ to cover both the underlined sequences in [1], with ‘relative clause’ available as a more specific term applying to cases like [i]. Often, however, we will talk simply of ‘relatives’, leaving ‘construction’ or ‘clause’ understood.

2 Types of relative construction

This section presents an overview of the different types of relative construction that will be discussed in detail in subsequent sections. The two major dimensions of contrast yield what we will call **formal types** and **relational types**.

The formal types are distinguished according to whether they contain one of the special relative words *who*, *which*, etc., or the subordinator *that*, or simply a ‘gap’, a missing constituent.

The relational types are distinguished on the basis of their external syntax, their relation to the larger construction containing them. The traditional distinction between restrictive and non-restrictive relative clauses fits in here, but we shall use different terms and contrast them with two further categories, cleft and fused relatives.

In addition to these major contrasts, we need to invoke the more general distinction of finiteness: while most relative constructions are finite, infinitivals (and certain minor types) are also possible under certain conditions.

2.1 Formal types: *wh*, *that*, and bare relatives

Relative clauses are so called because they are related by their form to an antecedent. They contain within their structure an anaphoric element whose interpretation is determined by the antecedent. This anaphoric element may be overt or covert. In the overt case the relative clause is marked by the presence of one of the relative words *who*, *whom*, *whose*, *which*, etc., as or within the initial constituent: clauses of this type we call ***wh* relatives**. In **non-*wh* relatives** the anaphoric element is covert, a gap; this class is then subdivided into ***that* relatives** and **bare relatives** depending on the presence or absence of *that*:¹

- | | | | | |
|-----|-----|---|-------------------------------------|---|
| [1] | i | { | <u><i>which you don't want.</i></u> | [<i>wh</i> relative] |
| | ii | | <u><i>that you don't want.</i></u> | [non- <i>wh</i> : <i>that</i> relative] |
| | iii | | <u><i>you don't want.</i></u> | [non- <i>wh</i> : bare relative] |

In [i] *toys* is antecedent for the pronoun *which*, whereas in [ii–iii] there is no such pronoun, merely the absence of the understood object of *want*. We take *that* in [ii] to be a clause subordinator, not a relative pronoun as in traditional grammar. It is the same marker of clause subordination as we find in content clauses, and the distinction between *that* and bare relatives is analogous to that between expanded and bare declarative content clauses, as in *You said that you don't want the toys* and *You said you don't want the toys*. We present arguments in support of this treatment of *that* in §3.5.6.

2.2 The relational types: integrated, supplementary, cleft, and fused

Four types are distinguished according to the relation of the relative construction to the larger structure containing it:

- | | | | |
|-----|-----|---|--------------------------|
| [2] | i | <i>The boys <u>who defaced the statue</u> were expelled.</i> | [integrated relative] |
| | ii | <i>My father, <u>who retired last year</u>, now lives in Florida.</i> | [supplementary relative] |
| | iii | <i>It was Kim <u>who wanted Pat as treasurer</u>.</i> | [cleft relative] |
| | iv | <i><u>What you say</u> is quite right.</i> | [fused relative] |

The underlined sequence in [i–iii] is a clause, while that in [iv] is an NP; we will see, however, that fused relatives can also be PPs.

■ The integrated relative clause

The most central and most frequent type of relative construction is the **integrated** relative. It usually functions as a modifier within a nominal constituent: in [2i], for example, *who defaced the statue* modifies *boys*, which is the antecedent for the pronoun *who*. Integrated relative clauses are occasionally found as modifier to other kinds of head: a superlative adjective, as in *He's now the fattest he's ever been*, or an interrogative preposition, as in *Where can we eat that isn't too expensive?* (In this last example the relative clause is postposed instead of being in the default position immediately following the antecedent.)

Integrated relatives are so called because they are integrated into the construction containing them, both prosodically and in terms of their informational content. The prototypical integrated relative serves to restrict the denotation of the head nominal it

¹Bare relatives are sometimes called 'contact clauses'.

modifies, and is often referred to by the term ‘restrictive relative’. The set of boys who defaced the statue, for example, is smaller than the set of boys; here the information expressed in the relative clause is an integral part of that expressed by the matrix clause in that it delimits the set of boys under discussion.

■ The supplementary relative clause

A **supplementary** relative clause adds extra information about the antecedent, information not fully integrated into the structure of the containing clause and not needed to delimit the set denoted by the antecedent. In [2ii] the antecedent of *who* is not the nominal *father*, but the NP *my father*, which refers to a unique person: the clause *who retired last year* thus plays no role in identifying the referent, but adds some extra information about him. The information expressed in this type of relative is presented as supplementary, separate from that expressed in the rest of the sentence, and this is reflected in the fact that the relative clause is characteristically marked off prosodically or by punctuation from the rest.

The supplementary relative is also distinguished from the integrated relative in that it permits a much wider range of antecedents, as is evident from such examples as:

- [3] i *Pat is afraid of snakes, which I’m sure Kim is too.* [AdjP]
 ii *Pat is afraid of snakes, which doesn’t surprise me at all* [clause]

The antecedents for *which* here are an AdjP in [i] and a whole clause in [ii], the relative clauses being interpreted as “I’m sure Kim is afraid of snakes too” and “That Pat is afraid of snakes doesn’t surprise me at all”. The antecedent can indeed be a piece of text syntactically unconnected to the relative, as when a lecturer finishes one topic and then moves on to the next with the supplementary relative *Which brings me to my next point*.

■ The cleft relative clause

The clause that occurs after the foregrounded element in an *it*-cleft construction is called a **cleft** relative clause. Consider the following set of examples:

- [4] i *Kim wanted Pat as treasurer.* [non-cleft]
 ii *It was Kim who wanted Pat as treasurer. (= [2iii])* }
 iii *It was Pat that Kim wanted as treasurer.* [cleft]

Example [i] is an ordinary, non-cleft, clause, while [ii] and [iii] are cleft counterparts of it, and the underlined clauses are the cleft relatives, differing in function and, in certain respects, their internal structure from integrated relatives. The cleft construction is so called because it divides the more elementary construction into two parts, one of which is foregrounded and the other backgrounded. In [ii] *Kim* is foregrounded and *wanted Pat as treasurer* backgrounded, whereas in [iii] the foregrounded element is *Pat*, with *Kim wanted as treasurer* backgrounded. The cleft construction is dealt with in Ch. 16, §9, and in the present chapter will be mentioned only incidentally.

■ The fused relative construction

Finally we consider the **fused** relatives, which are always of the *wh* type:

- [5] i *What he did was quite outrageous.*
 ii *Whoever devised this plan must be very naive.*
 iii *You can buy whichever car appeals to you most.*

From a syntactic point of view this is the most complex of the four relative constructions. With the others we can separate a relative clause from its antecedent, but this is not possible with the fused construction. Compare, for example:

- [6] i *It would mean abandoning that which we hold most dear.* [antecedent + clause]
 ii *It would mean abandoning what we hold most dear.* [fused relative]

These are semantically equivalent (though [i] belongs to very formal style). Syntactically, *that* in [i] is antecedent, with *which we hold most dear* an integrated relative clause modifying it, but in [ii] *what* corresponds to *that* and *which* combined, so that it is not possible to separately identify antecedent and relative clause – hence the term ‘fused’.

While the fused relatives in [5] are NPs, those based on *where* and *when* are PPs:

- [7] i *Put it back where you found it.*
 ii *He still calls his parents whenever he is in trouble.*²

Because the fused relative construction is so different from the integrated, supplementary, and cleft relative clause constructions, we will treat it separately, deferring further consideration of it until §6.

2.3 Finiteness

The great majority of relative constructions are finite, but with integrated relatives we find infinitivals of the *wh* type and corresponding ones without a relative word. The underlined parts of [8] are infinitival relative clauses:

- [8] i *She found a good place from which to watch the procession.*
 ii *She found a good place to watch the procession from.*

There are various other non-finite constructions which bear some resemblance to relatives, such as gerund-participials and past-participials that modify nouns (*anyone knowing his whereabouts, those killed in the accident*): these constructions are discussed in Ch. 14, §9.

3 The form of relative clauses

A relative clause, we have said, contains within its structure an overt or covert element that relates it anaphorically to an antecedent. Other kinds of clause may also contain anaphoric elements, of course. In *I lent Jill my bicycle last week [and she hasn't returned it yet]*, for example, *she* and *it* in the second clause are anaphorically related to *Jill* and *my bicycle* in the first. Here, however, the anaphoric relation is incidental: there is no anaphora in *I lent Jill my bicycle last week [and now there's a bus strike]*, but we still have the same syntactic construction, a coordination of main clauses. In relative clauses, by contrast, the anaphoric relation is an essential feature of the construction. What distinguishes relatives from other clauses is the specific nature of the anaphoric relation

²Other terms found in the literature corresponding to our ‘fused relative (construction)’ are ‘free relative’, ‘headless relative clause’, and ‘nominal relative clause’. Terms incorporating ‘clause’ are unsatisfactory for the reasons we have given. In addition, ‘nominal’ is insufficiently general in that it doesn’t cater for prepositional examples like those with *where* or *when*. And ‘headless’ is misleading in our view since the head of the containing phrase is not missing but fused with part of the modifying clause.

involved. In the central case of the integrated relative, the antecedent is the head that the clause modifies, and in all cases the anaphoric element itself has distinct properties. In *wh* relatives the overt forms *who*, *which*, etc., are distinct from the anaphoric forms that are used in main clauses; they are homonymous with interrogative words, but the latter are not anaphoric. In non-*wh* relatives the anaphoric element is a gap, but this too is distinct from other kinds of anaphoric gap with respect to the positions in which it can occur and the way it is interpreted.

3.1 Relativisation

The essential anaphoric element in a relative clause we call the **relativised element**. It is primarily in respect of this element that the relative differs in form from a comparable main clause. Consider first the case where the relativised element is subject:

- [1] i *A letter drew our attention to the problem.* [main clause]
 ii *This is the letter_i; [which_i drew our attention to the problem].* [*wh* relative]
 iii *This is the letter_i; [that ____i drew our attention to the problem].* [*that* relative]

The main clause in [i] has the ordinary NP *a letter* as subject. In the *wh* relative the subject is *which*, a relative pronoun anaphorically linked to the antecedent *letter*, as indicated in [ii] by the identical subscripted indices. In [iii], where *that* marks the clause as subordinate, the subject position is empty, but there is still an anaphoric link to the antecedent *letter*, which we indicate by attaching the same index to the symbol marking the gap. The meaning in both [i] and [ii], ignoring the definite article, can be given roughly as “This is letter *x*; *x* drew our attention to the problem”. This kind of meaning, with two occurrences of a single variable, is an essential and distinctive feature of all relative constructions.

We take the antecedent of *which* and the gap to be *letter*, not *the letter*, since *the* enters into construction with the whole nominal *letter which/that drew our attention to the problem*: it is this, not *letter* by itself, that is presented as an identifying description that sanctions the definite article (see Ch. 5, §6.1).

In [1iii], as in almost all cases of subject relativisation in non-*wh* relatives, *that* is non-omissible: there is no bare relative counterpart **This is the letter drew our attention to the problem*. But where it is the object that is relativised *that* is optional, so we have all three types:

- [2] i *My neighbour gave me some advice.* [main clause]
 ii *I accepted the advice_i; [which_i my neighbour gave me].* [*wh* relative]
 iii *I accepted the advice_i; [that my neighbour gave me ____i].* [*that* relative]
 iv *I accepted the advice_i; [my neighbour gave me ____i].* [bare relative]

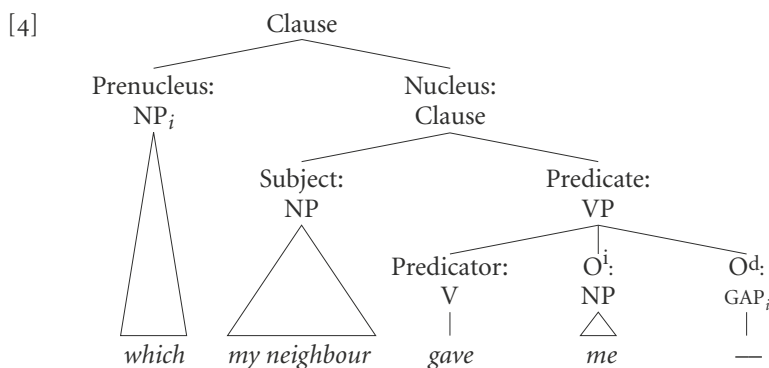
As in [1], the main clause in [2i] has an ordinary NP as direct object, whereas the relative clauses do not. The *wh* relative [ii] again has *which* as relative pronoun, while the non-*wh* versions simply have a gap in object position. And as before the meaning involves two occurrences of a variable: “I accepted advice *x*; my neighbour gave me *x*”.

■ Fronting to prenuclear position

In [2ii] *which* occurs in what we call **prenuclear** position, before the subject + predicate construction that constitutes the nucleus of the clause (cf. Ch. 2, §2). Formally, there is a gap after *gave me* in this construction as well as in the non-*wh* relatives. The difference

is that while in [2iii–iv] the gap is related directly to the antecedent *advice*, in [2ii] it is related indirectly, via *which*. Example [2ii] can thus be represented as in [3], with the relative clause having the structure shown in [4]:

[3] *I accepted the advice_i [which_i my neighbour gave me —_i].*



In the first instance it is the gap that is in object function, as indicated in the diagram. However, prenuclear elements that are linked to a gap are interpreted as having the function of that gap, and we can thus say in a secondary, derivative, sense that they have that function. On this account, therefore, *which* is object of the relative clause, just as it is in traditional grammar.

■ Relative clauses vs content clauses

Examples [1–2] show how the relativisation feature distinguishes relative clauses from main clauses. The obligatory presence of an (overt or covert) relativised element likewise distinguishes relative clauses from content clauses, the default kind of subordinate clause:

- [5] i a. *They ignored the suggestion_i [that Kim made —_i].* [relative clause]
 b. *They ignored the suggestion [that Kim cheated].* [content clause]
 ii a. *Focus on the question_i [which_i your brother raised —_i].* [relative clause]
 b. *Focus on the question [which of them stood to gain by it].* [content clause]

The non-*wh* relative in [ia] has a gap in object position anaphorically linked to the antecedent *suggestion*: we understand that Kim made some suggestion. Thus, again ignoring the determiner, the meaning can be given as “They ignored suggestion *x*; Kim made *x*”, with two occurrences of the same variable. But there is no gap in the content clause in [ib], where we understand the subordinate clause as simply expressing the proposition “Kim cheated”. Similarly in [ii], except that this time the relative is of the *wh* type and the content clause is an open interrogative rather than a declarative.³ We understand from [iia] that your brother raised some question: “Focus on question *x*; your brother raised *x*”. But the content clause in [iib] is understood simply as “Which of them stood to gain by it?” In [iia] *which* is anaphoric, relative, while in [iib] it is non-anaphoric, interrogative.

If the verb in the subordinate clause is one that can be used both transitively and intransitively there may be ambiguity between the two constructions:

³In the interrogative case a preposition (*of* or *as to*) would often appear after the head noun.

- [6] *They rejected the idea [that we had advanced].* [relative or content clause]

In the relative interpretation there is a relativised object, a gap, with *idea* as antecedent. We had advanced some idea: “They rejected idea *x*; we had advanced *x*”. In the content clause interpretation, on the other hand, *that* introduces an ordinary clause (a complement to the noun *idea*): the meaning is that they rejected the proposition “We had advanced”.

There are other factors that distinguish relative clauses from content clauses. In NP structure relatives function as modifiers, whereas content clauses are complements, compatible only with a fairly small subclass of noun. Our examples contain *suggestion, question, idea*: others are *fact, news, belief, concern, proposal*, etc., but innumerable nouns like *cat, boy, health, energy* allow relatives but not content clauses. Secondly, content clauses do not allow the alternation between the *wh* and *that* constructions found with relatives: for example, if we replace *that* by *which* in [6] it becomes unambiguously relative. In content clauses, *that* marks declarative clause type, while *which, who*, etc., occur only in open interrogatives, licensed by such nouns as *question*.

3.2 Relative words, relative phrases, and upward percolation

We refer to the initial phrase in *wh* relatives as the **relative phrase**; it occupies either subject or prenuclear position. A **simple** relative phrase consists of a relative word on its own: *who, whom, which, where*, etc. A **complex** relative phrase consists of a relative word together with other material. Compare:

- [7] i *I can't find the book [which_i he recommended __].* [simple]
 ii *We've never met the people [whose house_i we are renting __].*
 iii *We admired the skill [with which_i she handled the situation __].* } [complex]

In [ii–iii], as in almost all the complex cases, the relative phrase contains more than just the relativised element. In [ii], for example, the relative phrase in prenuclear position is the NP *whose house*, but it is just the genitive determiner within this NP, i.e. *whose*, that constitutes the relativised element: it is *whose* that derives its interpretation from the antecedent *people*. The gap in object position in the nucleus is thus not co-indexed with the antecedent, as it is in [i]. Rather, we have two co-indexed pairs of different extents, with *whose* linked to *people*, and the gap linked to *whose house*, for it is *whose house* that is understood as object of *renting*. Similarly in [iii], except that the gap is anaphorically linked to a PP rather than an NP. The anaphoric links can thus be shown as in [8], where the outer brackets in [ii–iii] enclose the relative clause, and the inner ones the complex relative phrase:

- [8] i *I can't find the book_i; [which_i he recommended __]_i.*
 ii *We've never met the people_i; [[whose_i house]_i we are renting __]_i.*
 iii *We admired the skill_i; [[with which_i she handled the situation __]_i.*

Non-*wh* relatives do not contain a relative phrase, and consequently there can be no non-*wh* relatives matching *wh* relatives like [7ii–iii]:

- [9] i *I can't find the book [that he recommended].*
 ii **We've never met the people [that's house we are renting].*
 iii **We admired the skill [with that she handled the situation].*

In describing the range of permitted complex relative phrases we will invoke the metaphor of ‘upward percolation’. In [7ii], for example, the relative feature percolates upwards from the genitive determiner *whose* to the matrix NP *whose house* and in [7iii] it percolates upwards from the NP *which* to the PP *with which*. We invoked the same metaphor in Ch. 10, §7.9, in describing the structure of complex interrogative phrases, but the phenomenon is considerably more extensive in the case of relatives. Seven types of upward percolation may be distinguished in relative clauses, five involving percolation from the element on the right, two from the one on the left:

[10]	TYPE	PERCOLATION FROM	TO	EXAMPLE
	I	comp of preposition	PP	<i>behind <u>which</u></i>
	II	PP	NP	<i>the result <u>of which</u></i>
	III	PP	AdjP	<i>prominent <u>among which</u></i>
	IV	NP	infinitival	<i>to refute <u>which</u></i>
	V	NP	gerund-participial	<i>passing <u>which</u></i>
	VI	genitive <i>whose</i>	NP	<i><u>whose</u> essay</i>
	VII	determinative <i>which</i>	NP	<i><u>which</u> suggestion</i>

We will examine each of these in turn. Where appropriate, we will contrast the examples with main clause constructions to show the basic, non-relative, form of the phrase.

3.2.1 Type I: from complement of preposition to PP (*behind which*)

In general, this type of upward percolation is optional:

- [11] i *Kim was hiding behind the curtain.* [main clause]
 ii *the curtain* { [*behind which Kim was hiding*] [Type I applied]
 iii { [*which Kim was hiding behind*] [Type I not applied]

In [ii] the relative phrase is the PP *behind which*, with percolation of the relative feature from the NP *which* to the PP in which it is complement; the result is that the preposition is fronted along with its complement. In [iii] the relative phrase is just *which*, and fronting this time affects only the complement of the preposition, the latter being left **stranded**. The factors favouring, or in some cases requiring, one or other of these structures are discussed in detail in Ch. 7, §4.1.

3.2.2 Type II: from PP complement of noun to NP (*the result of which*)

Type II always combines with Type I in the PP, so that we have percolation from a relative NP to a PP and thence to a larger NP:

- [12] i *She's just sat her final exam, [the result of which we expect next week].*
 ii *She investigated all the complaints, [most of which were well founded].*
 iii *They are members of an association [the first and most precious principle of which is mutual trust].*
 iv *Police are looking for a Ford Escort [the licence number of which ends in 7].*

Much the most frequent preposition is *of*, and the construction is found more often in supplementary relatives ([i–ii]) than in integrated ones ([iii–iv]). Example [ii] illustrates the quite common case where *of which* is a partitive complement.

Like Type I, Type II upward percolation is in general optional. There is potentially alternation, therefore, between three different versions of the relative clause:

- [13] i *He already knows the answers to the problems.* [main clause]
 ii *[the answers to which he already knows]* [Types I and II]
 iii *problems [to which he already knows the answers]* [Type I only]
 iv *[which he already knows the answers to]* [Type I not applied]

In [ii] we have percolation from *which* into the PP *to which* (Type I), and from there into the NP *the answers to which* (Type II). In version [iii] only Type I applies so that we have fronting of just the PP complement of the NP object. Version [iv] has a simple relative phrase: there is no upward percolation at all.

■ Some factors relevant to choice between alternants

Examples like [13ii], with two steps of upward percolation, are characteristic of relatively formal style. Other factors include the following.

Preposition stranding not normally permitted at the end of the subject

- [14] i a. *[the purpose of which escapes me].*
 b. *He came up with a strange plan, [of which the purpose escapes me].*
 c. **[which the purpose of escapes me].*
 ii a. *[the purpose of which I don't understand].*
 b. *He came up with a strange plan, [of which I don't understand the purpose].*
 c. *?[which I don't understand the purpose of].*

In the last example in each set, fronting applies to *which* from the larger NP, leaving *of* stranded; in [ic], where the NP is subject, the result is quite ungrammatical, while [iic], where the NP is object, is much more acceptable – stylistically inelegant rather than ungrammatical.

Partitive *of* resists stranding

Constructions with a partitive *of* phrase normally have at least one step of upward percolation:

- [15] i *[only five of which he'd answered].*
 ii *She hadn't kept copies of her letters, [of which he'd answered only five].*
 iii **[which he'd answered only five of].*

Informational status

The main factor concerns what we are calling information packaging, the informational status of various parts of the message. Compare, for example:

- [16] i *I sympathise with such complaints, [of which we receive many].*
 ii *I sympathise with such complaints, [many of which I investigate myself].*

In the most likely interpretation of [i], the main information being conveyed is that the complaints are numerous: *many* occupies the basic object position and will carry the main stress, marking it as the focus of new information. *Many of which we receive* would suggest (if the focal stress is on *receive*) that some of the complaints are not received, i.e. are lost, or (if the stress is on *we*) that some of them are received by others. In [ii], where *many* is fronted along with its complement, the main information is that I investigate them myself.

In general, then, material will not be fronted if fronting it would leave the nucleus following the relative phrase with too little significant content:

- [17] i a. *They are striving to explain phenomena [of which we have little or no direct knowledge].*
 b. **They are striving to explain phenomena [little or no direct knowledge of which we have].*
 ii a. *Her first loyalty is to the programme [of which she is director].*
 b. **Her first loyalty is to the programme [director of which she is].*

The [b] examples are unacceptable because of the radical imbalance between the content of the relative phrase in prenuclear position and that of the following nucleus. In [iib] *director* is head of the predicative complement, and it is doubtful if upward percolation of Type II could ever apply into an NP in predicative complement function, certainly where the verb is *be*: we have accordingly marked it as ungrammatical, not merely infelicitous.

■ Recursive application of percolation Types I and II

Since an NP containing a PP as complement can itself be the complement of a preposition, there can be a further application of Type I after Type II, and then a further application of Type II: the construction is recursive. Compare:

- [18] i *He was wearing a tall black sheepskin hat [from the top of which dangled a little red bag ornamented by a chain of worsted lace and tassels].* [I + II + I]
 ii *They will be involved in several other projects, [one of the most important of which will be to find ways to use the new superconductor in chips that can provide the brains of a new generation of supercomputers].* [I + II + I + II]

In [i] the upward percolation goes from *which* to the PP *of which*, then to the NP *the top of which* and finally to the underlined PP. In [ii] there are four steps: from NP to PP, PP to NP, NP to PP, and PP to NP.

3.2.3 Type III: from PP to AdjP (*prominent among which*)

- [19] i *The many varieties of mammalian skin secretions perform a wide range of functions, [prominent among which is sexual attraction].*
 ii *Several MPs were interviewed, [chief among whom was the Chancellor of the Exchequer, Douglas Durack].*

This type is rare and highly restricted: in general, the head of an AdjP containing a relative PP is not fronted with it but remains in the basic predicative complement position, as in *He had received a savage sentence for a crime of which he might quite possibly have been innocent* or *It concerns a part of the business for which I am no longer responsible*. This relates to the point about information packaging made in §3.2.2: fronting the adjective here would result in an imbalance between the informational content of the relative phrase and that of the following head clause. It is significant that the examples in [19] (which are semantically very similar) both have postposing of the subject, which is the locus of the main information in the relative clause.

Type III percolation is confined to supplementary relatives; it is obligatory in [19ii], while [19i] has the less favoured alternant *among which sexual attraction is prominent*.

3.2.4 Types IV and V: from NP to non-finite (*to refute which, passing which*)

■ Type IV: infinitivals – supplementary relatives only

- [20] i *I felt the need of a better knowledge of Hebrew and archaeology to refute a higher criticism of the Bible.* [main clause]
 ii *I became disturbed by a ‘higher criticism’ of the Bible, [to refute which I felt the need of a better knowledge of Hebrew and archaeology].* [Type IV]

This type is rare and very largely confined to purpose adjuncts and catenative complements that are semantically somewhat similar – e.g. *to please whom he had striven so hard*, but not **to please whom he had wanted so desperately* (only *whom/who he had so desperately wanted to please*).

Type IV combines (obligatorily) with Type I when the infinitival is complement of the preposition *in order*:

- [21] *Here is Dr Van Buren, [in order to interview whom Phelps says he was prepared to fly to Copenhagen].*

■ Type V: gerund-participials – supplementary relatives only

- [22] *They take a rigorous examination, [passing which confers on the student a virtual guarantee of a place at the university].*

This is again very rare and also highly formal in style – except in the expressions *speaking/talking of which/whom*, used to indicate the topic of what follows.

3.2.5 Type VI: from genitive *whose* to NP (*whose essay*)

Relative *whose* functions as subject-determiner in NP structure and obligatorily triggers upward percolation:

- [23] i *He plagiarised the student’s essay.* [main clause]
 ii *the student* { [whose essay he plagiarised] [Type VI]
 iii { [*whose he plagiarised essay] [Type VI not applied]

Type VI percolation can combine with I, and hence also with II:

- [24] i *I hadn’t yet met the people [in whose house I would be staying].*
 ii *She was lecturing on Tom Roberts, [an exhibition of whose work can currently be seen at the National Art Gallery].*
 iii *You sometimes find yourself unable to describe the physical appearance of someone [with the very texture of whose thought you are familiar].*

The steps involved here are, respectively: VI + I; VI + I + II; VI + I + II + I.

3.2.6 Type VII: from determinative *which* to NP (*which suggestion*)

When *which* is a determinative rather than a pronoun, upward percolation to the containing NP is obligatory:

- [25] i *They all enthusiastically endorsed this suggestion.* [main clause]
 ii *I said that it might be more efficient to hold the meeting on Saturday morning, [which suggestion they all enthusiastically endorsed].* [Type VII]
 iii **... [which they all enthusiastically endorsed suggestion].* [Type VII not applied]

Determinative *which* is not itself a phrase, and cannot be separated from the head on which it is dependent, as evident from [iii]. We take the relativised element in [ii] to be the whole object NP, *which suggestion*: this is the phrase whose interpretation is given by the antecedent (*it might be more efficient to hold the meeting on Saturday morning*), though the presentation of it as a suggestion is of course contributed by the relative clause rather than being inherent in the antecedent itself. The double-variable gloss will thus be: “I said *x* (=it might be more efficient to hold the meeting on Saturday morning); they all enthusiastically endorsed suggestion *x*”. This is the only type of upward percolation which does not yield a relative phrase that is larger than the relativised element.

Type VII percolation is found only in supplementary relatives. Further examples are seen in:

- [26] i *They refuse to support the UN's expenses of maintaining the UN Emergency Force in the Middle East as a buffer between Egypt and Israel, and the UN troops in the Congo, [which expenses are not covered by the regular budget].*
 ii *I may be late, [in which case I suggest you start without me].*
 iii *I will return at 3 pm, [by which time I expect this room to be tidy].*
 iv *Both horses, broken and trained by different trainers, were blundering jumpers until they were seven, [at which age they began to outgrow their carelessness].*
 v *She has to comment on him standing there, and later, when the soldiers march away, has to tell him not to move yet – [neither of which remarks should be so obtrusive that the soldiers might notice them, but both of which should be clearly heard by the audience].*

Examples like [i], where the NP concerned is itself an element of clause structure, are quite rare and formal, verging on the archaic. It is much more usual for the NP to be complement of a preposition which is also fronted, and the head noun is then predominantly one of very general meaning such as *case* or *time*, as in [ii–iii]. In the last example the upward percolation involves three steps: VII (*which remarks*), I (partitive of *which remarks*), and II (the whole NP).

3.3 What can be relativised

In this section we survey briefly the various elements in the relative clause that can be relativised, without at this stage distinguishing between *wh*, *that*, and bare relatives.

(a) Subject

- [27] i *A man came to dinner.*
 ii *The man_i [who_i came to dinner] turned out to be from my home town.*

(b) Object

- [28] i a. *She received a letter from the Governor.* [direct object]
 b. *This is the letter_i [that she received ___i from the Governor].*
 ii a. *He showed a student the exam paper.* [indirect object]
 b. **The student_i [whom_i he showed ___i the exam paper] informed the police.*

Relativisation applies to direct objects but not normally to indirect ones.

(c) Predicative complement

- [29] i a. *She is a scholar.*
 b. *Her book displays the fine sceptical intelligence of the scholar_i [she is —_i].*
 ii a. *They consider it a good investment.*
 b. *?I don't think it is the good investment_i [they consider it —_i].*

Relativisation of predicatives is comparatively rare, and almost entirely limited to the subjective type, i.e. those with the subject as predicand, as in [ib]. Example [iib], with the object as predicand, is of doubtful acceptability – it would be much more usual to have *they consider it to be —*.

With integrated relatives it is also very rare for the antecedent to be in other than a definite NP: we find the NP *the scholar she is* in [29], but it is hard to contextualise *#a scholar she is* as an NP. But in the right context indefinites are possible; for example, there is no syntactic ill-formedness to *Harry is basically a fat man searching for a thin man that he once used to be*.

(d) Complement of preposition

- [30] i *He was trying to cut it with a penknife.*
 ii *The penknife_i [that he was trying to cut it with —_i] was blunt.*

In *wh* relatives the preposition may be fronted along with its complement: *the penknife with which he was trying to cut it*. This involves upward percolation, as described in §3.2 above, with the relativised element (still complement of a preposition) contained within the complex relative phrase.

(e) Adjuncts and associated complements

- [31] i *We met Kim at the races one day.*
 ii *Do you remember the day_i [we met Kim at the races —_i]?*

The gap in [ii] is functioning as adjunct in its clause, like *one day* in [i]. A selection of the major types of adjunct or complement we are concerned with here is supplied in [32]:

- [32] i *It was a time in my life_i [when_i everything seemed to be going right —_i].* [time]
 ii *I've finally found somewhere_i [where_i I can work undisturbed —_i].* [location]
 iii *They want to go to the place_i [where_i they went last year —_i].* [goal]
 iv *I shall go back the way_i [I came —_i].* [path]
 v *Look at the way_i [he tackled the job —_i].* [manner]
 vi *That's not really the reason_i [she left him —_i].* [reason]

This sort of case is to be distinguished from (d) above: here it is the whole adjunct or complement that is relativised, whereas in (d) what is relativised is just the NP functioning as complement within a PP. In [30ii], for example, what is relativised is not the instrumental adjunct itself, but just the complement of *with*. Case (d) is in fact broader than (e) since it can apply with virtually the full range of prepositions. For most of the categories in [32] there is an alternant of type (d): for example, [v] alternates with *the way in which he tackled the job*. We look further at such alternations in §3.5.4.

Two extensions of this kind of construction should be noted.

Extension I: special *wh* words

A number of additional adjunct categories can be relativised by means of the somewhat formal or archaic relative words *whence*, *whither*, *whereby*, *wherein*, etc.

- [33] i *They returned to the place_i [whence_i they had come ___i].* [source]
 ii *It is a scheme_i [whereby_i payment can be deferred for six weeks ___i].* [means]

Extension II: cleft relatives

Cleft relatives differ from ordinary ones in various ways, and one of them is that they allow for the relativisation of a very much wider range of complements and adjuncts, e.g. the beneficiary and purpose adjuncts in [34]:

- [34] i *It wasn't for me_i [that he made the sacrifice ___i].* [beneficiary]
 ii *It's to avoid such a conflict of interest_i [that I'm resigning ___i].* [purpose]

(f) Genitive subject-determiner

- [35] i *Some client's measurements remain unknown.*
 ii *One cannot tailor a suit for a client [whose measurements remain unknown].*

(g) Complement of auxiliary verb, and related constructions – supplementary relatives only

- [36] i a. *I simply can't design it myself.*
 b. *He told me to design it myself_i, [which_i I simply can't ___i].*
 ii a. *I called the police immediately.*
 b. *They advised me to call the police_i, [which_i I did ___i immediately].*
 iii a. *I'd very much like to go with him.*
 b. *He's asked me to go with him_i, [which_i I'd very much like to ___i].*

In [ib] the relativised element is complement of the auxiliary *can*. Auxiliary *have* and *be*, and of course the other modals, behave in the same way: *She said he had cheated_i, [which_i indeed he had ___i]*, etc. Where the main clause counterpart does not contain an auxiliary, the relative construction requires *do*, as in [iib]. In this case, what is relativised is in effect the predicate, for it is *do* + *which* that derives its interpretation from the antecedent. In [iiib] it is the head of a *to*-infinitival VP that is relativised. This is possible only when the infinitival is complement of a catenative verb – compare, for example:

- [37] i *It is certainly important to consult your lawyer.*
 ii **He says you should consult your lawyer_i, [which_i it is certainly important to ___i].*

Here the infinitival is in extraposed subject function. For further discussion of the constructions illustrated in [36], see Ch. 17, §§7.1–3.

3.4 Relativisation of an element within an embedded clause

The gap that is linked to the antecedent in non-*wh* relatives and to the fronted relative phrase in the *wh* type need not be located directly in the relative clause itself: it can be within a smaller clause embedded within the relative. Compare:

- [38] i a. *She recommended a book.*
 b. *This is the book_i [that she recommended ___i].*

- ii a. *I think she recommended a book.*
 b. *This is the book_i [that I think [she recommended ___i]].*

In [ib] the gap is object of the relative clause itself, whereas in [iib] it is object of the content clause functioning as complement of *think* – the outer pair of brackets enclose the relative clause, while the inner pair enclose the content clause embedded within it. It is by virtue of this possibility that relative clauses belong to the class of unbounded dependency constructions which we shall be examining in §7.

■ Relativisation is characteristically unaffected by embedding

Leaving aside various general constraints on unbounded dependency constructions, it for the most part makes no difference, as far as relativisation is concerned, whether the gap is directly in the relative clause itself or in a smaller clause embedded within it. In [38], for example, we have relativisation of a direct object, and in both [ib] and [iib] *that* can either be replaced by *which*, giving a *wh* relative, or else be omitted, giving a bare relative. Compare, similarly, the following cases of indirect object relativisation:

- [39] i a. *I lent a boy my key.*
 b. **They found the boy_i [that I lent ___i my key].*
 ii a. *He said I lent a boy my key.*
 b. **They found the boy_i [that he said [I lent ___i my key]].*

This time both relative clauses are ungrammatical: the indirect object can't be relativised. But again it makes no difference whether it is the indirect object of the relative clause itself, as in [ib], or of a clause embedded within the relative clause, as in [iib].

■ Subject vs embedded subject

There is just one exception to this pattern, one place where embedding does make a difference: when we have relativisation of the subject. Compare:

- [40] i a. *This car is safe.*
 b. *I want a car_i [that ___i is safe].*
 ii a. *I know [this car is safe].*
 b. *I want a car_i [that I know [___i is safe]].*

The difference is that *that* is obligatory in [ib] but omissible in [iib]. We can thus have a bare relative in case [ii], but not in case [i]:

- [41] i **I want a car_i [___i is safe].* [gap as subject of relative clause]
 ii *I want a car_i [I know [___i is safe]].* [gap as subject of embedded clause]

We need therefore to distinguish between relativisation of the relative clause subject and relativisation of an embedded clause subject. The distinction is also relevant in *wh* relatives, where it has a bearing on the case of the pronoun *who*, with some speakers allowing an accusative for an embedded subject (⁰*the man whom they say was responsible*) but not a relative clause subject (**the man whom was responsible*): see Ch. 5, §16.2.3.

3.5 The formal types: *wh*, *that*, and bare relatives

In this section we examine the various *wh* relative words, the omissibility and syntactic status of *that*, and factors relevant to the choice between *wh* and non-*wh* relatives.

3.5.1 *Who* and *which*

Which belongs to both pronoun and determinative categories. As a determinative, it occurs only in supplementary relatives, as illustrated in [25–26] above; as a pronoun it contrasts in gender with *who*, as **non-personal** vs **personal**. The choice depends on the nature of the antecedent:

- | | | |
|------|---|---|
| [42] | PERSONAL ANTECEDENT | NON-PERSONAL ANTECEDENT |
| i | a. <i>the people <u>who</u> were outside</i> | b. <i>the <u>things</u> <u>which</u> matter most</i> |
| ii | a. <i>a <u>dog</u> <u>who</u> was licking my face</i> | b. <i>a <u>dog</u> <u>which</u> is always barking</i> |

The distinction between *who* and *which* is very similar, but not identical, to the one between *he/she* on the one hand and *it* on the other. The two contrasts are compared in our discussion of gender (Ch. 5, §17.3),⁴ and here we will merely add a few points of detail.

■ *Who* with antecedents denoting animals

Who occurs predominantly with human antecedents, but with antecedents denoting animals, both pronouns are possible, as shown in [42ii]: *which* is the default choice, but *who* is by no means uncommon. *Who* conveys a greater degree of empathy or personal interest and involvement. The most obvious cases where *who* is used are in references to pets, but it is also found with other creatures (or even collections of creatures), as in these attested examples:

- [43] i *For eighty years, grizzly bears have been feeding at the rubbish dumps, often in great roaming bands who came down from the remote pine forests.*
 ii *The more vigorous dance for a dilute source of nectar in turn recruits other bees, who then visit that dilute source instead of concentrated ones.*

■ Two special cases of *which* used with human antecedents

Ascriptive predicative complement of *be*

Which occurs with antecedents denoting human beings when the relativised element is complement of auxiliary *be* in a supplementary relative. Compare:

- [44] i *They accused him of being a traitor_i; [which_i he undoubtedly was ____i].*
 ii *It turned out that he wasn't the person_i; [who_i I'd thought he was ____i].*

Example [i] belongs to the construction illustrated in [361b], with relativisation of the complement of an auxiliary verb. The complement in this case is a predicative, but we cannot relativise the predicative complement of a lexical verb such as *seem* in this way: **She thinks he's a fool, which indeed he seems*. The relativised predicative in the *which* construction will generally be of the ascriptive type, as in this example: the clause is concerned with the person's properties, what kind of a person he was, not his identity. *Who* would be impossible here, but is used in the integrated relative clause of [ii], with *be* used in its specifying sense: the issue is the identity of the person (I thought he was person *x*, but he turned out not to be). Note that in both [i] and [ii] the antecedent is in predicative complement function as well as the pronoun.

⁴Ch. 5 (§16.2.3) also deals with the choice between nominative *who* and accusative *whom*.

Complement of *have* (got)

- [45] i *They've got a chief executive who can provide strong leadership, which we certainly haven't got at the moment.*
 ii *Remember that they have a house-keeper, which we don't have.*

Again there is no issue of identity involved here: it is not that we have not got the same chief executive or house-keeper, but the same kind of chief executive, or just the same kind of thing (a house-keeper). This construction is found only with supplementary relatives, but it differs from [44i] in that *which* is not complement of an auxiliary verb.

■ Coordination of personal and non-personal antecedent nouns

- [46] i *She spoke of the people and books which had brought her the greatest pleasure.*
 ii *She spoke of the books and people who had brought her the greatest pleasure.*

Here the antecedent is a coordination of nouns differing with respect to the personal vs non-personal contrast. The conflict is typically resolved by means of the principle of proximity, with the gender of the pronoun determined by the last noun in the coordination. The conflict can of course be avoided by using a non-*wh* relative, in this example a *that* relative.

3.5.2 *Whose*

■ Used with both personal and non-personal antecedents

The contrast between personal *who* and non-personal *which* is neutralised in the genitive, where *whose* is the only form. It occurs with both personal and non-personal antecedents:

- [47] i *She started a home for women [whose husbands were in prison].* [personal]
 ii *The report contains statements [whose factual truth is doubtful].* [non-personal]

■ Alternation with *of* construction

We have seen (Ch. 5, §16.5.2) that with non-relatives, a genitive determiner characteristically alternates with a construction containing *the* + post-head *of* phrase:

- [48] i a. *The child's parents were constantly quarrelling.*
 b. *The parents of the child were constantly quarrelling.*
 ii a. *The house's roof had been damaged in the storm.*
 b. *The roof of the house had been damaged in the storm.*

The same alternation is found with *whose*, except that here we have two versions of the *of* construction, one with the *of* PP in post-head position, one where it is separated from the head:

- [49] i a. *a child [whose parents were constantly quarrelling]* [genitive]
 b. *a child [the parents of whom were constantly quarrelling]* [post-head *of* PP]
 c. *a child [of whom the parents were constantly quarrelling]* [separated *of* PP]
 ii a. *a house [whose roof had been damaged in the storm]* [genitive]
 b. *a house [the roof of which had been damaged in the storm]* [post-head *of* PP]
 c. *a house [of which the roof had been damaged in the storm]* [separated *of* PP]

In the post-head *of* PP construction the relative phrase is the whole NP, so that there is upward percolation of Type II, from PP to NP. In the separated *of* PP version the relative phrase is just that *of* PP, with Type II percolation not applying.

With non-relatives the genitive alternant is more likely with personal nouns than with non-personals, and this general tendency applies with relatives too, where it may well be strengthened by the morphological resemblance between *whose* and *who*: the great majority of instances of *whose* have personal antecedents. In [49i], therefore, the genitive alternant [a] is much the most likely of the three. With non-personal antecedents one or other of the *of* constructions will often be preferred, but it must be emphasised that genitives like [49iia] are completely grammatical and by no means exceptional.⁵ One genre where they occur very readily is scientific writing: examples like *a triangle whose sides are of equal length* are commonplace.

■ Distributional restrictions on relative *whose*

Relative *whose* does not occur in the full range of genitive constructions (see Ch. 5, §16.3). It is permitted in the oblique genitive (*a friend of whose*), but otherwise occurs only as determiner in NP structure. Compare, for example:

- | | | |
|------|--|--|
| [50] | SUBJECT-DETERMINER GENITIVE | PREDICATIVE GENITIVE |
| i | a. It was <u>the doctor's</u> car. | b. The car was <u>the doctor's</u> . |
| ii | a. the doctor [<u>whose car</u> it was] | b. *the doctor [<u>whose</u> the car was] |

Note that there is no *of* alternant available in [ib/iib] (**The car was of the doctor*, **the doctor of whom the car was*), so the meaning has to be expressed by quite different means (e.g. *the doctor who owned the car* / *to whom the car belonged*).

3.5.3 Other relative words

Other words belonging to the relative class are *where*, *when*, *while*, *why*, *whence*, and various compounds consisting of *where* + preposition.⁶

■ *Where*

- [51] i *She wanted to see the house; [where; she had grown up].*
 ii *They met in the journalists' club; [where; he went every Sunday afternoon].*
 iii *She often climbed the knoll behind the mission; [from where; she could look down on roofs and people].*

Where takes locative expressions as antecedent; within the relative clause it functions as adjunct of spatial location, goal complement, or complement of a locative preposition. A 'double-variable' representation of [i] is "She wanted to see house *x*; she had grown up in *x*": the "in" component is contributed by *where* together with its spatial location function, with the antecedent determining the value of the variable *x*. In [ii] we understand "to *x*", with the "to" component derivable from the goal function. And in [iii] we have "from *x*", with the "from" component overtly expressed. Analogously for the examples below.

⁵ It is interesting to note that a number of usage manuals feel it necessary to point out that relative *whose* can have a non-personal antecedent: there are apparently some speakers who are inclined to think that it is restricted to personal antecedents.

⁶ In traditional grammar, all these are classified as adverbs; in the present grammar, we take *why* as an adverb and the others as prepositions: see Ch. 7, §2.4.

■ **When**

- [52] i *It happened at a time; [when_i I was living alone].*
 ii *In those days_i, [when_i he was still a student,] he used to babysit for us.*
 iii *He left college in 1982_i, [since when_i I've only seen him twice].*

When takes a temporal expression as antecedent; it generally functions as an adjunct of temporal location within the relative clause, but it can also appear as complement to a temporal preposition such as *since*.

■ **While**

- [53] i *From 1981 to 1987_i, [while_i his uncle lived with them,] she had a full-time job.*
 ii *%He wrote most of his poetry during the years_i [while_i he was in Paris].*

Relative *while* is mostly found in the fused construction, but it can occur in supplementary relative clauses and, for some speakers, in integrated ones. The antecedent denotes a period of time, and *while* can be replaced by *when* or *during/in which (time)*.

■ **Why**

Relative *why* is used in a very narrow range of constructions – integrated relatives with *reason* as antecedent:

- [54] i *That's the main reason_i; [why_i they won't help us].*
 ii *There was no reason_i; [why_i he should stay at the dance any longer].*
 iii *I can't see any reason_i; [why_i you shouldn't have a little fun].*

The majority of examples are of the types shown in [i–ii]: either the specifying *be* construction, where it is a matter of identifying reasons, or the existential construction, where we're concerned with the existence of reasons. *Why* alternates with *for which*, as in the attested example *The Physical Training and Recreation Act of 1937 deals with the acquisition of playing fields, which may not be absolutely the reason for which an authority would wish to acquire property*. *For which*, however, is comparatively rare and formal: it could not idiomatically replace *why* in ordinary examples like [54].

■ **Whence**

- [55] i *He sent his son with the papers to another congressman's house_i, [whence_i they were spirited to a governor].*
 ii *But this means that the Taniyama-Shimura conjecture is true_i, [whence_i it follows that Fermat's Last Theorem is true].*

Whence belongs to formal style, serving in its primary sense to express spatial source, as in [i]. The “from” meaning can be incorporated in *whence* or expressed separately by the preposition *from*, which is obligatorily fronted. This use is in general somewhat archaic, though it is still found in journalistic writing. *Whence* is also used for logical source, normally in supplementary relatives, as in [ii]; this is the relative counterpart of the most common use of *hence*.

■ **Compounds of *where* + preposition**

There are a number of prepositions formed from *where* and a preposition: *whereat*, *whereby*, *wherefrom*, *wherein*, *whereof*, *whereon*, *whereto*, *whereupon*, and others. They have non-relative counterparts based on *here* and *there* (*thereat*, *hereby*, etc.). Most are

archaic and rare, though *whereby* and to a lesser extent *wherein* and *whereupon* are still regularly used:

- [56] i *His Lordship might make an order; [whereby; each side would bear its own costs].*
 ii *Size segregation occurs when a powder is poured into a heap; [whereby; the larger particles run more easily down the slope of the heap].*
 iii *Try to imagine a market; [wherein; the majority consistently wins what the minority loses].*
 iv *She told him his essay was incoherent; [whereupon; he tore it up and stormed out of the room].*

In integrated relatives *whereby* is equivalent to *by which*, with *by* having approximately the “means” sense: typical antecedent nouns are *agreement*, *arrangement*, *mechanism*, *method*, *plan*, *proposal*, *scheme*, *service*, *suggestion*, etc. In supplementary relatives it can also occur with a clause as antecedent, as in [ii]. *Wherein* is equivalent to *in which*. *Whereupon* means approximately “immediately after which”; it is found only in supplementary relatives whose antecedent is a clause (or larger).

3.5.4 The choice between the *wh* and non-*wh* constructions

In this section we examine the choice between the *wh* and non-*wh* types in non-fused relatives – fused relatives invariably contain a *wh* phrase.

(a) *Wh* type required or strongly favoured in supplementary relatives

Supplementary relatives whose antecedent is an AdjP, VP, or clause, not an NP, always have a relative phrase:

- [57] i *She said he was arrogant, [which I don't think he is].* [AdjP]
 ii *He set out to redeem himself, [which he eventually did].* [VP]
 iii *He wouldn't let us defend ourselves, [which was completely unfair].* [clause]

Where the antecedent is an NP the *wh* construction is also normally used, but some speakers do allow supplementary *that* relatives, as in the following attested examples:

- [58] i *The patas monkey, [that spends almost all of its time in open grassland,] adopts just such tactics.*
 ii *His heart, [that had lifted at the sight of Joanna,] had become suddenly heavy at the sight of Ramdez thumping after her.*
 iii *February, [that in other years held intimations of spring,] this year prolonged the bitter weather.*
 iv *She had long been accustomed to the solitary nature of her son's instincts, [that I had tried – and failed – to stifle].*

The remainder of this section will be concerned with integrated relatives.

(b) Upward percolation applies only in *wh* type

We have noted (§3.2) that upward percolation requires the presence of a relative word, and hence applies only in the *wh* type. With the few exceptions dealt with in (c) below, there are therefore no non-*wh* counterparts to clauses with complex relative phrases, such as:

- [59] i *They won't register companies [whose directors are undischarged bankrupts].*
 ii *It's a burden [of which they will never be free].*

Where upward percolation is optional, as in [ii], there will be an alternant with a simple relative phrase (*It's a burden [which they will never be free of]*) and if relevant conditions are satisfied this will have a non-*wh* counterpart (*It's a burden [they will never be free of]*).

(c) Time, reason, place, path, and means

Relatives introduced by *when* or *why* have non-*wh* counterparts, with or without *that*:

- [60] i *I haven't seen them since the day [when/(that) Kim was born].*
 ii *That's the reason [why/(that) she resigned].*

The notation '*when*/(*that*)' indicates a choice between *when* and optional *that*, so we have *the day when Kim was born*, *the day that Kim was born*, or *the day Kim was born*. Relatives introduced by *where*, by contrast, do not in general alternate with the non-*wh* type except where the antecedent is a very general noun such as *place*:

- [61] i *This is much better than the hotel [where we stayed last year].*
 ii *This is much better than the place [where/(that) we stayed last year].*

The '?' annotation in [ii] applies to the version with *that* (*?the place that we stayed last year*); the bare relative (*the place we stayed last year*) is more acceptable.⁷

When the antecedent is *way*, in either the path or the means sense, we have non-*wh* relatives or *wh* relatives introduced by preposition + *which*:

- [62] i *Go back the way [(that)/by which you came].*
 ii *I admired the way [(that)/in which she handled the situation].*

How does not belong to the class of relative words (except very marginally in the fused construction, §6.4), so we cannot have **the way how she handled the situation*.⁸ Note that if *way* is replaced by *manner* the non-*wh* construction is no longer possible: **the manner (that) she handled the situation*.

(d) *That which* and *all who*: obligatory *wh*

- [63] i *That [which we so carefully created] he has wantonly destroyed.*
 ii *All [who heard her speak] were deeply impressed by her sincerity.*

The very formal *that which* ('what') cannot be replaced by either *that that* or *that*, and when pronominal *all* applies to people **who** is required (cf. **all that heard her speak*).

(e) *Anything, all, etc.*: non-*wh* preferred

- [64] i *Anything [(that) you say] may be used in evidence against you.*
 ii *All [(that) I ask for] is a little peace and quiet.*

⁷ The restriction to *wh* relatives does not apply when *where* is complement to stranded *at*: *the hotel where/(that) we stayed at last year*. *Where . . . at* seems to be a blend between *where* and *which . . . at*; note that with *in* we can have *which* but not *where*: *the hotel which/*where we stayed in last year*.

⁸ Some non-standard dialects differ; hence the line *It ain't what you do, it's the way how you do it* in a rock 'n' roll song.

This case covers the compound determinatives (*anything, everything, nothing, something*) and non-personal fused determiner-heads *all, much, most, few, little, some, any*, etc. There is a preference for the non-*wh* type here, but of varying strength, with *everything which*, for example, significantly better than **all which*.

(f) **Nominals with superlative modifiers: non-*wh* preferred**

- [65] i *She gave me the best meal [(that) I'd had for many years].*
 ii *You should take the first appointment [that is available].*
 iii *That fish is the biggest [(that) I've ever seen].*

There's a very strong preference for the non-*wh* type here, especially in fused-head NPs like [iii]. The non-*wh* type is also preferred, though not so strongly, after *only, next*, and *last*.

(g) **Relativised element is ascriptive predicative complement: normally non-*wh***

- [66] i *He's no longer the trustworthy friend [(that) he was in those days].*
 ii *The interview turned out not to be the ordeal [(that) I had thought it would be].*

Which is virtually impossible here; we saw, however, in [44ii] (*It turned out that he wasn't the person who I'd thought he was*) that the *wh* type is permitted when the complement is specifying rather than ascriptive.

(h) **Personal antecedent**

With personal antecedents, there is a preference for *who* when the relativised element is subject, as in *the boy who threw the dart*, and for the non-*wh* type elsewhere, e.g. *the boy (that) they had found hiding in the cupboard*. The non-*wh* here avoids the choice between formal *whom* and informal *who*. It must be emphasised, however, that we are concerned here only with preferences: a phrase like *the boy that threw the dart* is certainly fully grammatical.

(i) **Complexity**

Increasing the distance between the relative clause and the head noun, notably by adding other post-head modifiers, favours the *wh* type (just as, within the non-*wh* type, it favours *that* over a bare relative). Thus *a material of great tensile strength and very remarkable electroconductive properties which has been widely used in the aviation industry* is preferred over the version with *that* in place of *which*.

3.5.5 Non-*wh* relatives: presence or absence of *that*

That relatives and bare relatives differ with respect to the presence or absence of the subordinator *that*. In its relative use, as with its use to mark declarative content clauses, *that* can very often be omitted, and in these cases we have alternation between the two types of non-*wh* relative.

■ **Restrictions on omission of *that***

With the rather marginal exception of examples like [61ii] above, there are no constructions where *that* has to be absent: it is normally possible to add *that* to any bare relative to

obtain a grammatical *that* relative. However, the converse does not hold: under certain very limited conditions, the subordinator cannot be omitted from a *that* relative without loss of grammaticality.

The relativised element is subject

That cannot normally be omitted if the relativised element is subject of the relative clause:

- | | | |
|------|--|--|
| [67] | NON-SUBJECT | SUBJECT |
| i | a. <i>The car [that I took __] was Ed's.</i> | b. <i>The car [that __ hit us] was Ed's.</i> |
| ii | a. <i>The car [I took __] was Ed's.</i> | b. <i>*The car [__ hit us] was Ed's.</i> |

The [a] cases represent the default: *that* can be omitted from [ia] to produce the grammatical [iia]. In this example the relativised element is object, but any other non-subject would similarly allow omission of *that*: *He's not the man (that) he was a few years ago* (predicative complement); *I can't find the book (that) you asked for* (complement of preposition); *He's the one (that) they think was responsible for the first attack* (embedded subject), and so on. In all these cases *that* precedes the subject, but when the subject itself is the relativised element, and hence missing, *that* must be retained, as in [b].

The prohibition on dropping the *that* with relativised subjects is associated with the need to distinguish the subordinate relative clause from the matrix predicate. Since *hit us* in [ib] immediately follows *the car*, there is nothing to stop the listener construing *hit us* as the main clause predicate, with *the car* as its subject: *that* prevents such a misconstrual by explicitly signalling the start of a subordinate clause. This is not to suggest that there would always be a danger of misconstrual if *that* were omitted from clauses with a relativised subject. In **We didn't take the number of the car __ hit us*, for example, *the car* is complement of *of* and hence not a possible subject for a predicate *hit us*. The grammatical restriction preventing subject relativisation with bare relatives covers a wider range of cases, but the point is that it includes those where *that* serves a role in aiding perception of the structure.

Some varieties of English do allow *that* to be omitted from clauses with relativised subjects under certain conditions:

- | | | |
|------|---|---------------------|
| [68] | i <i>'It was my father [__ did most of the talking].</i> | [<i>it</i> -cleft] |
| | ii <i>'There's someone at the door [__ wants to talk to you].</i> | [existential] |
| | iii <i>'Anyone wants this can have it.</i> | |

Most such cases are clearly non-standard, like [iii]. The status of [i–ii], where the relative clause functions within an *it*-cleft and existential construction respectively, is less certain: they fall at the boundary between very informal and non-standard. Note that the position of the relative clause in [i–ii] is such that it could not be misconstrued as predicate of the matrix clause.

That not omissible when not adjacent to the subject

A second, less important, exception to the optionality of *that* is seen in examples like:

- [69] *I found I needed a file [that only the day before I had sent to be shredded].*

That is needed here to mark the beginning of the subordinate clause: without it there would be the potential for the following adjunct to be misconstrued as belonging in the matrix clause. Bare relatives always have the subject in initial position.

That not omissible in supplementary relatives

We have noted that although supplementary relatives are normally of the *wh* type, examples with *that* are also found, as in [58] above. But it is quite impossible to omit the *that* in such cases (cf. **She had long been accustomed to the solitary nature of her son's instincts, I had tried – and failed – to stifle*).

■ Factors favouring or disfavouring the omission of *that*

In contexts other than the above, *that* is grammatically optional. It is somewhat more likely to be omitted in informal than formal style, and when the antecedent and the relative clause, or at least its subject, are both short.

In the following, where the antecedent is indicated by underlining, [i–ii] involve a slightly special case where a bare relative is preferred, while the others illustrate the kind of structure where dropping *that* is very strongly disfavoured:

- [70] i I'll go back the way [I came].
 ii I haven't seen her since the day [Kim was born].
 iii It was with considerable misgivings [that her parents agreed to this proposal].
 iv It was in order to avoid this kind of misunderstanding [that I circulated a draft version of the report].
 v Something has cropped up [that I hadn't expected].

In [i–ii] the relativised element is respectively a path and time adjunct, and the antecedent is both short and prototypical for that kind of adjunct. Examples [iii–iv] belong to the cleft construction: the relativised element is an adjunct of a type that cannot be relativised in integrated or supplementary relatives and the antecedent, especially in [iv], is a relatively complex expression. In [v] the relative clause is postposed, so that it is not adjacent to its antecedent: *that* is here very strongly favoured, though a bare relative cannot be completely excluded.

3.5.6 *That* as a subordinator (not a relative pronoun)

Traditional grammar analyses the *that* which introduces relative clauses as a relative pronoun, comparable to *which* and *who*, but we believe that there is a good case for identifying it with the subordinator *that* which introduces declarative content clauses.

(a) Wide range of antecedent types and relativised elements

If *that* were a pronoun, or pro-form, its use would be much wider than that of the uncontroversial relative pronouns, or indeed of any pro-form at all in the language. Compare:

- [71] i They gave the prize to the girl [that spoke first]. [who]
 ii Have you seen the book [that she was reading]? [which]
 iii He was due to leave the day [that she arrived]. [when]
 iv He followed her to every town [that she went]. [where]
 v That's not the reason [that she resigned]. [why]
 vi I was impressed by the way [that she controlled the crowd]. [*how]
 vii It wasn't to you [that I was referring]. [no *wh* form]
 viii She seems to be the happiest [that she has ever been]. [no *wh* form]

It would not only cover the ground of all the simple ‘*wh*’ words put together, as shown in [i–v]: it would also appear in a variety of constructions where no ‘*wh*’ word could replace it, as in [vi–viii]. Particularly important here is the cleft construction shown in [vii], and in [70iii–iv] above. Note that, leaving aside the disputed case of the relative construction, there is no pro-form in English that takes as antecedent such complements and adjuncts as *to you* (in the sense it has in [71vii]), *with considerable misgivings*, *in order to avoid this kind of misunderstanding*, and the like. Instead of postulating a pro-form with such an exceptional range of use, we are saying that *that* relatives do not contain any overt pro-form linked to the antecedent: they simply have an anaphoric gap, like bare relatives.

(b) Lack of upward percolation

There are no *that* relatives matching *wh* relatives with a complex relative phrase:

- [72] i a. *the woman* [whose turn it was] b. **the woman* [that’s turn it was]
 ii a. *the knife* [with which he cut it] b. **the knife* [with that he cut it]

If *that* were a pronoun we would have to stipulate that it has no genitive form, and that it never occurs as complement of a preposition – or rather that when it is complement of a preposition the latter must be stranded, for *the knife that he cut it with* is quite grammatical. The severe restrictions here stand in sharp contrast to the remarkable versatility of the putative pronoun *that* illustrated in (a). In the analysis where *that* is a subordinator the ungrammaticality of [72ib/iib] is predictable. Subordinators do not inflect and must occupy initial position; there is no relative word and hence no possibility of the relative feature percolating upwards into a larger constituent.⁹

(c) Finiteness

That relatives are always finite, as are the declarative content clauses introduced by *that*. Note, then, that we cannot insert *that* into non-*wh* relative infinitivals like *a knife to cut it with* – cf. **a knife that to cut it with*. If *that* were a pronoun this would be a special fact needing explanation, but under the subordinator analysis it is exactly what we would expect, given that *that* is a finite clause subordinator.¹⁰

(d) Omissibility

As we have noted, *that* can be regarded as very largely omissible in relative clauses in the same way as in declarative content clauses. The conditions under which omission is prohibited are not the same in the two cases (those for content clauses are given in Ch. 11, §3.1), but in both they have it in common that they are related to the need to mark explicitly the beginning of a subordinate clause under certain structural conditions. And in both cases, moreover, *that* is more readily omitted in simple structures than in complex ones. There is no pro-form in English that is systematically omissible under remotely similar conditions.

⁹There are non-standard regional dialects of English in which *that’s* does occur, as in *the man that’s leg was broken*. We do not believe that such examples necessitate a pronoun analysis for the dialects concerned, and certainly they do not establish this analysis as valid for all dialects.

¹⁰The force of this argument is diminished by the fact that *which* can’t occur here either: we have *a knife with which to cut it*, not **a knife which to cut it with*. The absence of **a knife with that to cut it* is then already covered under point (b). Nevertheless, the analysis of *that* as a finite clause subordinator does provide a very general account of why the only type of bare relative that can’t be expanded by means of *that* should be the infinitival one.

4 The distinction between integrated and supplementary relative clauses

These two types of relative clause are illustrated in:

- [1] i a. *They interviewed every student who had lent money to the victim.* [integrated]
 b. *They interviewed Jill, who had lent money to the victim.* [supplementary]
 ii a. *The necklace which her mother gave to her is in the safe.* [integrated]
 b. *The necklace, which her mother gave to her, is in the safe.* [supplementary]

The terms **integrated** and **supplementary** indicate the key difference between them: an integrated relative is tightly integrated into the matrix construction in terms of prosody, syntax, and meaning, whereas a supplementary relative clause is related only loosely to the surrounding structure.

(a) Prosody and punctuation

A supplementary relative is marked off prosodically from the rest of the sentence by having a separate intonation contour; there is typically a slight pause separating it from what precedes and, if it is non-final in the sentence, from what follows. The pitch contour tends to match that of the one preceding it and containing the antecedent. An integrated relative, on the other hand, is prosodically bound to its antecedent, falling within the same intonation contour.

This prosodic difference is largely reflected in writing by a difference in punctuation. A supplementary relative is characteristically preceded and (if non-final) followed by a comma, or, less often, by a dash, or the clause may be enclosed within parentheses. Conversely, an integrated relative is not separated from its antecedent by a comma or other punctuation mark. In this chapter we consistently mark the distinction in this way, but it must be emphasised that punctuation is elsewhere not a wholly reliable guide: it is by no means uncommon to find clauses that are not marked off punctuationally even though the syntax and/or meaning requires that they be interpreted as supplementary.

(b) Syntax

An integrated relative clause usually functions as modifier within the structure of an NP. Those in [11a/iia], for example, are constituents of the NPs *every student who had lent money to the victim* and *the necklace which her mother gave to her*. Note that *every student* and *the necklace* do not themselves constitute NPs in these examples.

The syntactic structure of sentences containing supplementary relatives is less clear: the relative clauses are only loosely incorporated into the sentence. In [11b/iib] *Jill* and *the necklace* constitute NPs by themselves, but the supplementary relatives do not combine with them to form larger NPs. We suggest in Ch. 15, §5.1, that the antecedent + relative clause here is a special case of a **supplementation** construction, which is distinct from a head + dependent construction. The supplement is in construction with an **anchor** (in this case the antecedent), but does not combine with it to form a syntactic constituent.

(c) Meaning

The content of an integrated relative is presented as an integral part of the meaning of the clause containing it, whereas the content of a supplementary relative is presented as a

separate unit of information, parenthetical or additional. We will see that there can be a range of reasons why the content of a relative should be presented as integral to the larger message, but our initial examples illustrate two very obvious cases. In [1ia] dropping the relative would drastically change the meaning: I would be saying that they wanted to interview every student, not just those who had lent money to the victim. And [1iia] implicates that there was more than one necklace, so if the relative were dropped it would be unclear which one I was referring to. The supplementary relatives here, by contrast, can be omitted without affecting the meaning of the remainder. Example [1ib] says that they interviewed Jill, and it would still say that if we dropped the relative. Example [1iib] says that the necklace was still in the safe, where I assume the necklace I'm referring to is identifiable in the context, and again the same would hold if the relative were dropped.

4.1 Major syntactic differences

(a) Differences with respect to the formal types

[2]	INTEGRATED	SUPPLEMENTARY
i <i>Wh</i> relatives	Yes	Yes
ii <i>That</i> relatives	Yes	Marginal
iii Bare relatives	Yes	No

All three types occur as integrated relatives, whereas only the *wh* type occurs freely in the supplementary construction. Supplementary relatives with *that* are found, as illustrated in [58] of §3, but they are comparatively rare and of questionable acceptability for many speakers.

(b) Differences with respect to relative words and phrases

[3]	INTEGRATED	SUPPLEMENTARY
i <i>Which</i> as determiner	No	Yes
ii Upward percolation, Types III–V	No	Yes
iii <i>Whereupon</i>	No	Yes
iv <i>Why</i>	Yes	No

Supplementary relatives allow a wider range of complex relative phrases than integrated ones. Complex relative phrases are those containing more than just the relative word itself: we have described these in terms of the concept of upward percolation (§3.2). Most importantly, phrases containing *which* + head noun (upward percolation Type VII) are found only in supplementary relatives:

- [4] *He spent all breaks either riding racehorses – he won three steeplechases – or skiing, [in which sport he won a European under-18 downhill race].*

Rarer constructions involving upward percolation into an AdjP (*prominent among which*), an infinitival VP (*to refute which*), or a gerund-participial (*passing which*) are likewise limited to supplementary relatives. The same applies to such partitive expressions as *none/most/all/both of which*, etc.: *The new bedrooms, each of which will have its own private bath or shower, are all on the first floor.* Among the simple relative phrases, *whereupon* occurs only in supplementary relatives, *why* only in integrated ones, with **reason** as antecedent (cf. [56iv] and [54] of §3).

(c) Differences with respect to antecedents

The above differences concern the internal structure of the relative clause; in addition there are differences in their distribution, in the range of antecedents they can have. The most important of these are as follows:

Clauses

Only supplementary relatives can have a clause as antecedent:

- [5] *He said he'd drafted the report, which I knew to be untrue.* [supplementary]

The antecedent of *which* is the clause *he'd drafted the report*; the relative clause in such cases can only be of the supplementary type, with a separate intonation contour.

Proper names

These occur readily as antecedent of a supplementary relative; they cannot normally take an integrated relative unless preceded by a determiner:

- [6] i *You should speak to Sue Jones, who was here the whole time.* [supplementary]
 ii *She is obviously not the Sue Jones they are looking for.* [integrated]

Sue Jones forms a full NP in [i], but not in [ii], where it is only a nominal. Example [i] represents the primary use of a proper name – to refer to the bearer of the name; [ii] involves a secondary use, which may be glossed in this example as “person called Sue Jones”.

Quantification with *no*, *any*, *every*

Expressions consisting of *no*, *any*, or *every* morphologically compounded with *·one*, *·body*, or *·thing*, or syntactically combined with a head noun, have non-referential interpretations and cannot serve as antecedent of a supplementary relative, but they can be followed by integrated relatives:

- [7] i **No candidate, who scored 40% or more, was ever failed.* [supplementary]
 ii *No candidate who scored 40% or more was ever failed.* [integrated]

Superlatives and interrogative prepositions

Integrated relative clauses almost always have nominals as antecedent, but there are other possibilities:

- [8] i *He's now the fattest that he's ever been.*
 ii *She ran the fastest that she's ever run.*
 iii *When that wouldn't be too inconvenient for you could we hold the meeting?*
 iv *Where can we go for lunch that isn't too expensive?*

That relatives of a very restricted type are also found in superlative AdjPs or AdvPs, as in [i–ii]. And the interrogative prepositions *when* and *where* – like nominal *time* and *place* – can serve as antecedents for integrated *that* relatives, which occur most readily in postposed position, as in [iv].

(d) Stacking possible only with integrated relatives

- [9] i *I like those ties you wear that your sister knits for you.*
 ii **They've given the job to Max, who has no qualifications, who starts next month.*

The integrated relative construction is recursive: an integrated relative can combine with its antecedent to form a larger unit which is antecedent for a second integrated relative. In [i], for example, *you wear* combines with its antecedent *ties* to give *ties you wear* and this is then the antecedent for the second relative, *that your sister knits for you*. This kind of recursion is known as **stacking**. It is limited to the integrated construction: antecedent + supplementary relative cannot serve as antecedent for a second supplementary relative, as illustrated in [ii].

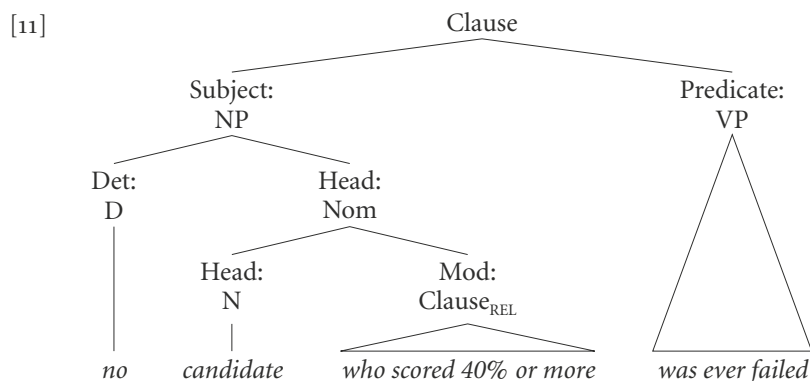
(e) Non-declaratives and question tags found only with supplementary relatives

- [10] i *He said he'd show a few slides towards the end of his talk, at which point please remember to dim the lights.*
 ii *It may clear up, in which case would you mind hanging the washing out?*
 iii *She may have her parents with her, in which case where am I going to sleep?*
 iv *I didn't get much response from Ed, who seemed rather out of sorts, didn't he?*

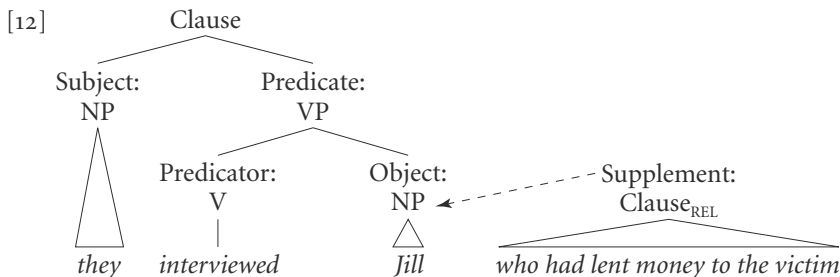
Relative clauses mostly belong to the default declarative clause type, but with supplementary relatives other clause types are possible. Those in [i–iii], for example, are respectively imperative, closed interrogative, and open interrogative. And declaratives can have question tags attached, as in [iv]. These constructions are quite impossible with integrated relatives.

■ Analysis

The antecedents of integrated relatives are sub-phrasal, parts of a phrase. In the great majority of cases, the antecedent of an integrated relative is a nominal, and the relative clause combines with it to form a larger nominal, as in the following structure that we propose for [7ii]:



With supplementary relatives, on the other hand, the antecedents are full phrases, such as NPs, or larger constituents, such as clauses, and the relative clause does not function as a dependent of the antecedent. The structure we propose for [11b] is as follows (and for [11ib] see Ch. 15: [52ii] of §5):



Consider these structures in the light of some of the syntactic differences noted above.

Non-declaratives

The non-declarative clauses in [10] provide evidence for the view that supplementary relatives are not dependents of a head. Except for the relativisation, the structures are like those found in main clauses, not clauses in dependent function – compare *At that point please remember to dim the lights*; *In that case would you mind hanging the washing out?*; and so on.

Stacking

The structure proposed for integrated relatives predicts the possibility of stacking. In [9i] *ties* is a nominal which combines with *you wear* to form a larger nominal *ties you wear*, and this in turn combines with *that your sister knits for you* to form the further nominal *ties you wear that your sister knits for you*, which enters into construction with the determiner *those*. In [9ii], however, the supplementary relative *who has no qualifications* does not form a unit with its antecedent, so *Max, who has no qualifications* is not a possible antecedent for the second *who*.

Quantification with *no*, *any*, *every*

The structure for [7ii] is given as [11]; the antecedent for the integrated relative is *candidate*, not *no candidate* – this is why the relative clause is not interpreted as “No candidate scored 40% or more”.¹¹ In [7i], with a supplementary relative, the antecedent is *no candidate*, yet this NP has no reference – so there is no referent for the relative pronoun *who*. NPs of this kind can no more serve as antecedent for a relative pronoun than they can for a personal pronoun – compare the incoherence of **I have no money; it's on the desk*, if *no money* is taken as antecedent of *it*.

Proper names

In [6i] the *who* of the supplementary relative has as antecedent the NP *Sue Jones*. This refers to the person of that name, and *who* refers to her too: it is coreferential with its antecedent. In [ii] *Sue Jones* is a nominal, not an NP, and as such does not refer; the integrated relative combines with it to form a larger nominal which is not a proper name and hence (given that it is count singular) it requires a determiner.

Definite descriptions

Consider, finally, the *necklace* examples in [1ii]. In the supplementary case [iib] (*The necklace, which her mother gave to her, is in the safe*) the antecedent is *the necklace*: this is marked as definite, indicating that the description *necklace* is assumed to be sufficient in the context to identify the referent. In the integrated case [iia], the antecedent is *necklace*; the relative clause combines with this to form the nominal *necklace which her mother gave to her*, and

¹¹ A more complex case is seen in *Nobody who scored 40% or more was ever failed*. Here there is grammatical fusion of the determiner and the head (see Ch. 5, §9.6), but semantically the negative is again not part of the antecedent.

the indicates that this nominal provides an identifying description of the referent. The relative clause thus forms part of the identifying description in the integrated case but not in the supplementary; hence the implicature in the former but not the latter that there is some other necklace from which the one being referred to needs to be distinguished.

4.2 Meaning and use

■ Supplementary relatives express true or false propositions, integrated ones do not

In describing the semantics of relative clauses, it is useful to consider again our initial examples:

- [13] i *They interviewed every student who had lent money to the victim.* (= [1ia])
 ii *They interviewed Jill, who had lent money to the victim.* (= [1ib])

In an ordinary use of [13ii] the supplementary relative expresses the proposition that Jill had lent money to the victim, and depending on the circumstances this will be true or false. But the integrated relative clause in [i] does not express a proposition that can be evaluated as true or false – in particular it does not express the proposition that every student had lent money to the victim. We represent the propositional content as “*x* had lent money to the victim”, where ‘*x*’ is a variable, and precisely because it is a variable “*x* had lent money to the victim” is an open proposition, one that is not itself either true or false. An integrated relative is comparable to an ascriptive modifier. Compare, for example, *every generous student* and *every student who had lent money to the victim*: it makes no more sense to ask whether the relative clause is true or false than it does to ask whether *generous* is true or false. This difference between the two types of relative clause correlates with the difference in syntactic structure we have proposed. The antecedent for *who* in [ii] is the full NP *Jill*, a referring expression, whereas the antecedent for *who* in [i] is a nominal, and nominals themselves do not refer.

■ Supplementary relatives normally have illocutionary force

We have noted that supplementary relatives select for clause type: they then characteristically have the same illocutionary force as other non-dependent clauses of the same type (cf. Ch. 10). The relative in [13ii], for example, would be used to make a statement, while those in [10i–iii] would be used as directive, indirect directive, and question respectively.

■ Supplementary relatives replaceable by clauses with non-relative anaphoric expressions

Supplementary relatives can be replaced by other kinds of supplements containing non-relative anaphoric expression, notably personal pronouns or demonstratives. Compare the following with the supplementary relatives given above:

- [14] i *They interviewed Jill – she had lent money to the victim.* (cf. [1ib])
 ii *The necklace – her mother gave it to her – is in the safe.* (cf. [1iib])
 iii *He spent all breaks either riding racehorses – he won three steeplechases – or skiing (in this sport he won a European under-18 downhill race).* (cf. [4])
 iv *He said he'd drafted the report; I knew this to be untrue.* (cf. [5])

Note similarly that the deviance of [71] is matched by that of **No candidate – he or she scored 40% or more – was ever failed.*

■ The continuative use of supplementary relatives

- [15] i *I gave it to John, who passed it on to Mary, and she gave it back to me.*
 ii *They come to a cliff, where the deer suddenly stops and throws off the little boy, and boy and dog then fall into a pond.*

These examples illustrate a use of juxtaposed supplementary relatives in narrative contexts that is traditionally referred to as **continuative**: they serve to continue, to develop, the narrative. The effect is like that of *and* + non-relative anaphoric expression: *I gave it to John and he passed it on to Mary, . . .* Whereas elsewhere the information conveyed in a supplementary relative is somewhat backgrounded relative to that conveyed in the clause containing the anchor, the continuative relative has equality of informational status, presenting a further event in a narrative chain.

■ Content of integrated relative an essential component of matrix message

Integrated relatives have it in common that their content is presented as an integral part of the meaning of the clauses containing them. The prototypical integrated relative expresses a distinguishing property, as in:

- [16] i *They only take in overseas students who they think have lots of money.*
 ii *She was offended by the letter that accused her of racism.*

In [i] the relative clause distinguishes a subset of overseas students: the people referred to by *they* do not take in all overseas students, but only those from the subset they believe to have lots of money. In [ii] the relative distinguishes the letter she was offended by from other letters: it serves to identify which letter she was offended by. In cases like these, we find a very sharp contrast between the integrated and supplementary constructions. The supplementary counterparts of the above are:

- [17] i *They only take in overseas students, who they think have lots of money.*
 ii *She was offended by the letter, which accused her of racism.*

This time the relative clause in [i] does not pick out a subset of overseas students, but makes an assertion about overseas students in general. Similarly the supplementary relative in [ii] does not serve to distinguish the letter from other letters, but provides additional information about a letter assumed to be identifiable simply by the description *letter*.

Contrasts like these provide the basis for the traditional classification of relative clauses as ‘restrictive’ ([16]) and ‘non-restrictive’ ([17]). We prefer to distinguish the two classes as integrated vs supplementary because there are many places where the contrast is not a matter of whether or not the relative clause expresses a distinguishing property.¹²

Consider first the following attested example (from a novel) involving a definite NP:

- [18] *The father who had planned my life to the point of my unsought arrival in Brighton took it for granted that in the last three weeks of his legal guardianship I would still act as he directed.*

¹² A term quite widely used instead of ‘non-restrictive’ is ‘appositive’. We find the latter term unsatisfactory because the integrated vs supplementary contrast applies to apposition as well as to relative clauses. Compare, for example, *my brother the heart surgeon* (integrated) and *my brother, the heart surgeon* (supplementary).

The narrator is three weeks short of eighteen and is saying that his father took it for granted that during those three weeks he would continue to do as his father directed. The relative clause here belongs to our integrated class: it cannot be omitted or spoken on a separate intonation contour and allows *that* as an alternant of *who* (albeit somewhat less favoured). Yet it does not serve to distinguish this father from other fathers of the narrator: he has only one father. The reason for presenting the content of the relative clause as an integral part of the message is not, therefore, that it expresses a distinguishing property but that it explains why the father took it for granted that the son would do as he was told.

Compare similarly:

- [19] i *He sounded like the clergyman he was.*
 ii *She had two sons she could rely on for help, and hence was not unduly worried.*

Both underlined clauses are bare relatives and hence necessarily integrated. But we do not understand *he was* in [i] as distinguishing one clergyman from another: it conveys that he was a clergyman, and an obvious reason for presenting this as an integral part of the message is that sounding like a clergyman when you are one is significantly different from sounding like a clergyman when you are not. In [ii] it could be that she had more than two sons (in which case the relative would be serving a distinguishing role), but an at least equally likely context is one where she had only two sons. In this context the property expressed in the relative clause does not distinguish these sons from other sons she has, but is an essential part of the reason for her not being unduly worried.

The relative clause in [19ii] is embedded within an indefinite NP, and here it is very often the case that the crucial factor differentiating the integrated and supplementary constructions has to do with what we are calling information packaging rather than with whether the relative restricts the denotation of the antecedent. Consider:

- [20] i *She had two sons(,) who were studying law at university(,) and a daughter(,) who was still at high school.*
 ii *A: Have you been to Paris? B: Yes, often: I have a brother who lives there.*
 iii *I've been talking to one of the porters, who says the train may be an hour late.*

Example [i] could be spoken/punctuated equally readily with integrated or supplementary relatives in a context where she has just two sons and one daughter. On the supplementary reading the primary information being imparted is that she had two sons and a daughter: the information given in the relative clauses is supplementary, secondary. On the integrated reading, by contrast, the content of the relatives is part of the main information. In [ii] a supplementary reading would be incoherent even if B has only one brother. It would involve presenting “I have a brother” as the primary message, whereas it has in fact no relevance by itself in the context of A's question: the crucial point is that the brother lives in Paris, since this explains B's having frequently been there. Example [iii] has a supplementary relative, dividing the message into two separate pieces of information. But if we replace *one of the porters* by, say, *a guy* it would be much more natural to have the relative integrated. This is because “I've been talking to a guy” is less likely to be considered worth presenting as a self-contained piece of information: the crucial information will be that concerning the train's delay.

4.3 Linear position

The normal position for a relative clause is immediately after the antecedent. Since integrated relatives have sub-phrasal antecedents whereas supplementary ones have phrasal antecedents, we find the sequence integrated + supplementary, but not the reverse:

- [21] i *The contestant who won first prize, who is the judge's brother, sang dreadfully.*
 ii **The contestant, who is the judge's brother, who won first prize sang dreadfully.*

The antecedent for the *who* of the integrated *who won first prize* is a nominal (*contestant*), while that for the *who* of the supplementary *who is the judge's brother* is an NP (*the contestant who won first prize*).

■ Postposing of relative clause

It is also possible, however, for the relative clause to occur in postposed position, at the end of the clause containing its antecedent.

- [22] i *A stranger came into the room who looked just like Uncle Oswald.*
 ii *Kim lent a book to Ed which contained all the information he needed.*
 iii *I met a man the other day who says he knows you.*
 iv *There was a fight reported in Monday's paper that put three people in hospital.*

This construction is most likely when the informational content of the relative clause is greater than that of the material that would follow it in the matrix clause if it occupied the default position following the antecedent.¹³ It will generally be avoided if it would result in possible confusion as to what was the intended antecedent. Compare [i], for example, with *A man was talking to one of the check-out operators who looked just like Uncle Oswald*, where *one of the check-out operators* provides a more salient antecedent than *man*. And *She put a hat on her head that had corks hanging from it* too strongly evokes the picture of the head having corks hanging from it to be used with *hat* as intended antecedent.

Postposed relative clauses are predominantly of the integrated type. For example, [22i] becomes quite unacceptable if we replace *a stranger* by a proper name, which would require the relative to be supplementary: **John came into the room, who looked just like Uncle Oswald*. Nevertheless, postposed supplementary relatives do sometimes occur:

- [23] i *Only the flower is used, which is not poisonous and is attached to the plant with a very fine stem.*
 ii *She could hear her father in the next room, who was angrily complaining about the horrific telephone bill.*

■ Preposing

A supplementary relative with a coordinated clause as antecedent can precede it, following the coordinator:

- [24] *The Net will open up opportunities to exploit tax differences and – which makes it even more of a headache than globalisation – it will make it possible to dodge taxes altogether.*

¹³ There is one case where only the postposed position is possible – the case where we have 'split antecedents' (Ch. 17, §1.3): *There's a boy in Group B and a girl in Group E who have asked to be on the same team.*

5 Infinitival relative clauses

Integrated relatives may have infinitival form, with or without a relative phrase.

■ Wh type infinitivals

The most obvious kind of infinitival relative clause is illustrated in:

- [1] i *I'm looking for an essay question with which to challenge the brighter students.*
- ii *She is the ideal person in whom to confide.*
- iii *The best place from which to set out on the journey is Aberdeen.*

This construction is limited to somewhat formal style. It is found only with integrated relatives, and is subject to the following severe structural restrictions:

- [2] i The relative phrase must consist of preposition + NP.
- ii There can be no expressed subject.

The first restriction excludes examples like **She's the ideal person whom to invite* and **I'm looking for an essay question which to challenge the brighter students with* (where the preposition is stranded rather than being part of the relative phrase). Condition [ii] rules out **She's the ideal person in whom for you to confide*, and the like. There is no evident explanation for the first restriction, but the second is predictable from the properties of *wh* relative clauses and infinitivals taken together: infinitivals allow subjects only when introduced by the subordinator *for*, but this cannot occur in *wh* relatives since both it and the relative phrase require to be in initial position.

■ Non-wh infinitivals

Infinitival relatives without a relative phrase allow a considerably wider range of structures:

- [3] i *She's the ideal person [(for you) to confide in ____].*
- ii *I've found something interesting [(for us) to read ____].*
- iii *A systems analyst wouldn't be such a bad thing [(for her) to be ____].*
- iv *That is not a very good way [(for him) to begin ____].*
- v *You're not the first person [____ to notice the mistake].*

The relativised elements here are respectively complement of a stranded preposition, direct object, predicative complement, manner adjunct, and subject. Except in the latter case a subject can be optionally included, preceded by the subordinator *for*.

Where the relative clause is within an NP functioning as object or complement of a preposition, there is overlap with an infinitival adjunct of purpose. Compare:

- [4] i *He found a video [for the kids to watch].* [relative]
- ii *He got it [for the kids to watch].* [purpose adjunct]
- iii *He got a video [for the kids to watch].* [ambiguous]

In [i] the infinitival is a relative with a meaning close to that of the finite relative *that the kids could watch*. A relative interpretation of this kind is excluded in [ii] because *it* does not permit modification by a relative clause (cf. **He got it that the kids could watch*); [ii] has, rather, a purposive interpretation: "He got it in order that the kids could watch it". This interpretation is not possible in [i] because finding is non-agentive and therefore does not allow purpose adjuncts. In [iii] the conditions for both constructions are met;

it can be construed in either way, though there is little effective difference in meaning between them.

■ Modal meaning

Infinitival relatives characteristically have a modal meaning comparable to that expressed in finites by **can** or **should**. *Here's something interesting for you to read*, for example, is comparable to *Here's something interesting that you can/should read*. This modal meaning is indeed what makes relatives like those in [4] semantically so close to purpose infinitivals. Where the matrix NP is definite there is very often some explicit or implicit evaluative modification, such as *ideal* in [1ii] or *best* in [1iii].

Infinitivals where the relativised element is subject have a somewhat wider range of interpretations than others, allowing non-modal as well as modal meanings:

- [5] i *She's obviously the person to finish the job.* [modal]
 ii *She was the first person to finish the job.* [non-modal]

Example [i] is like the non-subject examples considered above: we understand “best, most appropriate” and “should” (“the person who should finish the job”). But [ii] has no such modal meaning, being equivalent simply to *the first person who finished the job*. Nominals containing relatives with this kind of interpretation usually contain a modifier such as *only*, *next*, *last*, or one of the ordinals *first*, *second*, etc.

6 The fused relative construction

■ Classification

An initial illustration of the range of constructions belonging to the fused relative category is given in [1]:

- | | | | |
|-----|---|---|--------|
| [1] | SIMPLE SERIES | ·EVER SERIES | |
| i | a. <i>I spent <u>what he gave me</u>.</i> | b. <i>I spent <u>whatever he gave me</u>.</i> | } [NP] |
| ii | a. <i>I gave him <u>what money I had</u>.</i> | b. <i>I gave him <u>whatever money I had</u>.</i> | |
| iii | a. <i>I'll go <u>where you go</u>.</i> | b. <i>I'll go <u>wherever you go</u>.</i> | [PP] |

On one dimension we have a contrast between the simple series and the ·ever series, the latter being marked by a relative word ending in ·ever. Cutting across this is the major category contrast: the fused relatives are NPs in [i–ii], PPs in [iii]. And within the NP category we have a further distinction according as the relative word is a pronoun, as in [i], or a determinative, as in [ii].

6.1 Fused relatives as phrases, not clauses

Traditionally, fused relatives are analysed as clauses, but the view taken here is that they are NPs or PPs. Let us focus on the NP case, examining the evidence for treating examples like the fused relatives in [1i–ii] as NPs. The starting-point is the equivalence between pairs like the one given as [6] of §2:

- [2] i *It would mean abandoning that which we hold most dear.* [antecedent + clause]
 ii *It would mean abandoning what we hold most dear.* [fused relative]

The fused relative is equivalent not to the relative clause *which we hold most dear* but to the NP containing it, *that which we hold most dear*. Compare similarly:

- [3] i *The dog quickly ate the scraps that I'd left on my plate.*
 ii *The dog quickly ate what I had left on my plate.*

These are not of course fully equivalent since [i] contains the lexical item *scraps*, but in [ii], no less than in [i], the object of *ate* denotes something concrete, a physical entity. Clauses, by contrast, denote abstract entities: propositions, events, and so on. These points demonstrate the semantic likeness between the fused relatives and NPs, but there is also strong syntactic evidence for analysing these constructions as NPs.

(a) Subject–verb agreement

- [4] a. *What money she has is in the bank.* b. *What books she has are in the attic.*

The verbs here agree with the fused relatives in subject position. The crucial point is that the *are* in [b] shows that *what books she has* is plural, like the uncontroversial NP *all the books she has*. Clauses functioning as subject, by contrast, always belong to the default 3rd person singular category: *That she has so few books is rather surprising.*

(b) Subject–auxiliary inversion

- [5] a. *What she suggests is unreasonable.* b. *Is what she suggests unreasonable?*

Fused relatives can occur in interrogative and other constructions with subject–auxiliary inversion. Again this differentiates them from clauses: compare *That she proposes to go alone is unreasonable* and **Is that she proposes to go alone unreasonable?*

(c) No extraposition

- [6] a. *What she suggests is unreasonable.* b. **It is unreasonable what she suggests.*

Like ordinary NPs, fused relatives do not occur in the extraposition construction. Here too they differ from clauses: compare *That we should have to do it ourselves is unreasonable* and *It is unreasonable that we should have to do it ourselves.*

(d) No fronting of preposition

- | | | |
|-----|--|---|
| [7] | FUSED RELATIVE | INTEGRATED RELATIVE |
| i | a. <i><u>What she referred to</u> was Riga.</i> | b. <i>The city <u>which she referred to</u> was Riga.</i> |
| ii | a. <i>*<u>To what she referred</u> was Riga.</i> | b. <i>The city <u>to which she referred</u> was Riga.</i> |

When the relativised element is complement of a preposition the fused construction requires that the preposition be stranded, as in [ia]: it cannot be fronted along with its complement, as it can in the integrated relative construction [iib]. The difference in grammaticality here reflects the fact that *which she referred to* is a clause while *what she referred to* is an NP. Fronting the preposition in the integrated construction places it at the beginning of the clause, while fronting it in the fused construction places it before the NP. The deviance of [iia] is thus comparable to that of **To the city which she referred was Riga*. In the integrated case the antecedent *city* and the relative pronoun *which* are distinct and the preposition can come between them, but in the fused case the antecedent and relative pronoun are not distinct and hence there is no place for a fronted preposition to occupy.

(e) Functional range of NPs

Fused relatives occur with the functions that ordinary NPs take:

- [8] i *What he said* was outrageous. [subject]
 ii They criticise *whatever I do*. [direct object]
 iii We'll give *whoever needs it* a second chance. [indirect object]
 iv Things aren't always *what they seem to be*. [subjective predicative comp]
 v She made him *what he is*. [objective predicative comp]
 vi I was ashamed of *what I had done*. [comp of prep]

And, most distinctively, they cannot occur as complement of a noun or adjective (except with exceptional adjectives such as *worth* that take NP complements: see Ch. 7, §2.2). Compare, for example:

- [9] i I'm sorry *that you were inconvenienced*. [clause]
 ii *I'm sorry *the inconvenience / what I did*. [NP]

Sorry can take a clause as complement, but not an NP: an NP can occur only as an oblique complement, related by a preposition, as in *I'm sorry for the inconvenience / for what I did*.

(f) Occurrence with integrated relative

- [10] i *Whatever they gave him that he didn't need* he passed on to me. [integrated]
 ii He told me he had done it himself, *which was quite untrue*. [supplementary]

That he didn't need is an integrated relative with the nominal *whatever they gave him* as antecedent: it is part of the NP functioning as object of *passed*. As we have already noted, clauses can only be antecedent for supplementary relatives. This is seen in [ii], where the antecedent for *which* is *he had done it himself*, and where the relative clause has to be supplementary. The crucial point, then, is that a fused relative, like ordinary nominal expressions but unlike a clause, can take an integrated relative as modifier.

6.2 Fused relatives contrasted with open interrogatives

There is a considerable degree of overlap between fused relatives and subordinate open interrogative clauses. Compare, for example:

- [11] i I really liked *what she wrote*. [fused relative]
 ii I can't help wondering *what she wrote*. [open interrogative]
 iii *What she wrote* is completely unclear. [ambiguous]

In [i] the complement of *liked* is an NP approximately equivalent to one with an antecedent nominal + integrated relative clause, such as *the material which she wrote*. In [ii] *what she wrote* expresses an embedded question: it is the subordinate counterpart of *What did she write?* An approximate paraphrase is "I can't help asking myself the question 'What did she write?'". But [iii] can be interpreted in either way. With a fused relative as subject, the meaning is "The material she wrote is completely unclear" (she failed to write clearly); with a subordinate interrogative as subject, [iii] means "The answer to the question 'What did she write?' is completely unclear" (e.g. it is unclear which parts of some book, article, or whatever were written by her). There is no ambiguity in [i] because *like* cannot take an interrogative clause as complement, while [ii] is unambiguous because *wonder* cannot (with irrelevant exceptions) take an NP as complement.

Open interrogatives, whether main clauses (e.g. *What did she write?*) or subordinate (*what she wrote*) normally express what we have called variable questions (Ch. 10, §4.5). The propositional content of such questions contains a variable (“She wrote *x*”), and the answers specify values of the variable (*She wrote the preface*; *She wrote a textbook on phonetics*, etc.). We have also analysed integrated relatives as containing variables, but here the variable is anaphorically bound to an antecedent. In the earlier *no candidate who scored 40% or more*, for example, we have an analysis along the lines of “no candidate *x* [*x* scored 40% or more]”, i.e. “no candidate *x* such that *x* scored 40% or more”. In the case of fused relatives the antecedent and pronoun are not syntactically discrete, but we still have linked occurrences of the variable in the interpretation, e.g. for [11i] “I liked the *x* such that she wrote *x*”. Both relative and interrogative thus contain the “she wrote *x*” component: in the relative case, the variable is bound to an antecedent, whereas in the interrogative case the value of the variable is to be given in the answer to the question.

Consider the following further examples in the light of this account:

- | | | |
|--------|---|----------------------|
| [12] i | <i>The dogs wouldn't eat <u>what she gave them</u>.</i> | [fused relative] |
| ii | <i>I told him <u>what she gave them</u>.</i> | [open interrogative] |
| iii | <i>I told him <u>what she suggested I tell him</u>.</i> | [ambiguous] |

Again, the fused relative is roughly equivalent to an NP containing antecedent + integrated relative, e.g. *the food which she gave them*, so we might analyse [i] as “The dogs wouldn’t eat the *x* such that she gave them *x*”. There is again no ambiguity here because *eat* cannot take clausal complements. Example [ii] can be glossed as “I told him the answer to the question ‘What did she give them?’” – i.e. “I told him the value of the variable in ‘She gave them *x*’”.

Tell can take NP complements, as in *I told him the news*, but the things you can tell are distinct from the things you can give, so there is no fused relative interpretation “I told him the *x* such that she gave them *x*”. However, if we change the example to remove this incompatibility, we can get an ambiguity with *tell*, as in [12iii]. The interrogative interpretation matches that for [ii]: “I told him the answer to the question ‘What did she suggest I tell him?’” – i.e. “I told him the value of the variable in ‘She suggested I tell him *x*’”. And the fused relative interpretation is “I told him the *x* such that she suggested I tell him *x*”.

The difference can be brought out by imagining the case where she suggested I tell him that his offer would have to be raised. In this scenario the interrogative interpretation of [12iii] is equivalent to *I told him that she suggested I tell him that his offer would have to be raised* (and I thereby implicitly distance myself from this evaluation of his offer), while the fused relative interpretation is equivalent to *I told him that his offer would have to be raised* (i.e. the value of *x* in “I told him the *x* such that she suggested I tell him *x*” is “his offer would have to be raised”).

We have focused above on the semantic difference between the constructions. We now turn to the syntactic differences.

(a) NP vs clause

We have shown that fused relatives (other than the prepositional ones introduced by *where*, *when*, etc.) are NPs; interrogatives, however, are not: they are clauses. The points made in §6.1 above concerning agreement, subject–auxiliary inversion and extraposition, preposition fronting, and adjective complementation can therefore be applied to the

distinction between fused relatives and interrogatives:

- | | | |
|-----------|---|------------------|
| [13] i a. | <i>What ideas he has to offer are likely to be half-baked.</i> | [fused relative] |
| b. | <i>What ideas he has to offer remains to be seen.</i> | [interrogative] |
| ii a. | <i>Is what she wrote unclear?</i> | [fused relative] |
| b. | <i>It is unclear what she wrote.</i> | [interrogative] |
| iii a. | <i>What he's referring to / *To what he's referring is Riga.</i> | [fused relative] |
| b. | <i>I can't imagine what he's referring to / to what he's referring.</i> | [interrogative] |
| iv | <i>He's not sure what he should say.</i> | [interrogative] |

The subject of [1a] is plural and must therefore be an NP: the corresponding clause in [1b] belongs to the default 3rd person singular category. In [1ii] we have subject–auxiliary inversion in [a], so *what she wrote* must be an NP, and in [b] we have extraposition, so here *what she wrote* must be a clause. Note that both examples lack the ambiguity of *What she wrote is completely unclear* ([11iii]). In [13iii] the possibility of fronting the preposition in [b] shows that the complement of *imagine* is a clause, not an NP.¹⁴ And the complement of the adjective *sure* in [13iv] can only be interrogative, matching the interpretation “He is not sure about the answer to the question ‘What should he say?’”.

(b) Differences in unbounded dependency words

Who, whom, whose, which, why, and how are found in fused relatives only under very restrictive conditions (described below), but they occur freely in interrogatives. The contrast between fused relatives and interrogatives is quite clear:

- | | | | |
|-----------|-------------------------------------|---|-------------------|
| [14] i a. | <i>I agree with what she wrote.</i> | b. <i>*I agree with who spoke last.</i> | } [relative] |
| ii a. | <i>I accepted what he offered.</i> | b. <i>*I accepted which he offered.</i> | |
| iii a. | <i>I wonder what she wrote.</i> | b. <i>I wonder who spoke last.</i> | } [interrogative] |
| iv a. | <i>I know what he offered.</i> | b. <i>I know which he offered.</i> | |

Conversely the *-ever* series of forms occur freely in fused relatives, but they are generally not permitted in interrogatives:¹⁵

- | | | |
|-----------|--|-------------------|
| [15] i a. | <i>He accepted what/whatever she offered.</i> | } [relative] |
| b. | <i>He planted roses where/wherever there was enough space.</i> | |
| ii a. | <i>He didn't tell me what/*whatever she offered.</i> | } [interrogative] |
| b. | <i>He went to see where/*wherever there was enough space.</i> | |

(c) Elliptical reduction

Open interrogatives (whether main or subordinate) can be reduced to an interrogative phrase if the rest of the clause is recoverable anaphorically, but such reduction is quite impossible with fused relatives, just as it is with non-fused ones. Compare:

¹⁴This last point is of only limited value as a distinguishing test because the stranded preposition construction is often strongly preferred or else the only option even in the subordinate interrogative construction (cf. Ch. 7, §4.1), as in *I can't imagine what he's getting at / *at what he's getting*.

¹⁵We ignore here cases where *ever* (often written as a separate word) has a quite different sense, like that of *on earth*: *I can't imagine what ever he was thinking about*. There is, however, one type of interrogative where the *-ever* forms are found, namely interrogatives functioning as exhaustive conditional adjuncts, as in *He won't be satisfied, whatever you give him*. This construction is discussed (and contrasted with the fused relative) in Ch. 11, §5.3.6.

- [16] i a. A: *Jill gave him something last night.* B: *What?* } [interrogative]
 b. *Jill gave him something last night, but I don't know what.* }
 ii a. **Jill gave him something last night, but he lost what.* [fused relative]
 b. **Jill gave him a book last night, but he lost the book which.* [integrated relative]

In [ia] *what* is equivalent to interrogative *What did she give him?*, while [iia] shows that relative *what she gave him* cannot similarly be reduced to *what*. Analogously in [ib/iib].

(d) Infinitivals restricted to the interrogative construction

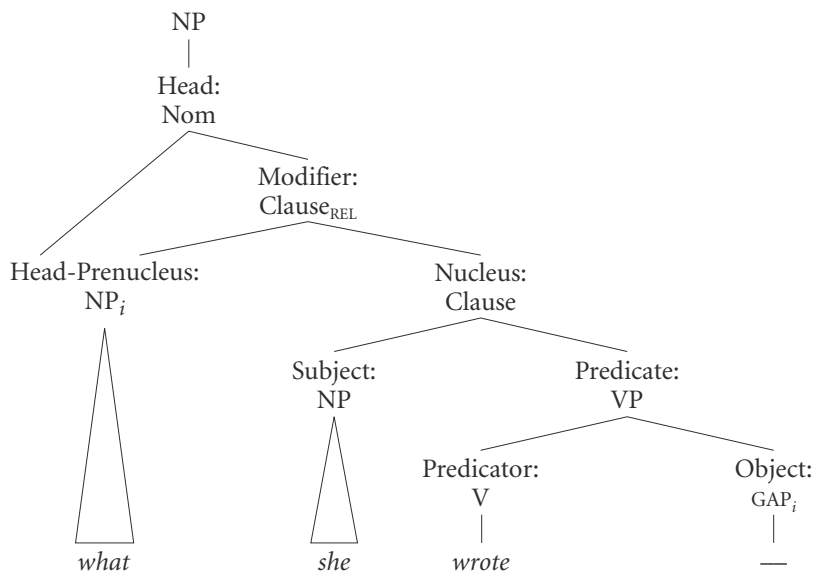
A further difference between open interrogatives and fused relatives is that only the former can be infinitival in form: *I wonder what to buy*, but not, say, **I can't afford what to buy* ('I can't afford that which I should buy').

6.3 Syntactic analysis

The analysis of NP structure given in Ch. 5 allows for the head to fuse with an adjacent dependent, i.e. for the two functions to be realised jointly. In *Many would agree with you*, for example, the determinative *many* jointly realises the determiner and head functions. As implied by the term, we invoke the same concept of functional fusion in our analysis of fused relatives. This time the head of an NP fuses with the relativised element in a relative clause.

As an example, take *what she wrote* as in [11i] above, *I really liked what she wrote*. We have demonstrated that the fused relative is an NP, and we take *what* to realise simultaneously the head of that NP and the prenuclear element in the relative clause:

[17]



■ Case

The pronoun *what* in [17] is simultaneously head of the whole NP and object (in prenuclear position) in the relative clause. In constructions with personal *who* and *whoever*, the pronoun has to satisfy the case requirements of both the relative clause and

the matrix clause in which the whole NP is functioning. Compare:

- [18] i [*Whoever is responsible for the damage*] *must pay for it.*
- ii *He will criticise [whomever she brings home].*
- iii *?[Whomever he marries] will have to be very tolerant.*
- iv *?She lunches with [whomever is going her way after morning classes].*

In [i] both the whole NP (bracketed) and the relativised element (underlined) are subject of their respective clauses: the nominative form matches both requirements. In [ii] both the whole NP and the relativised element are objects, and accusative is fully acceptable though somewhat formal in style. In [iii–iv], however, there is a clash between the function of the whole NP and that of the relativised element – respectively subject and object in [iii], object of a preposition and subject in [iv] – and the result is at best very questionable. *Whoever* would be preferable in both, but many would regard it as less than fully acceptable in formal style.

6.4 Relative words in the fused construction

The relative words used in the fused construction are as follows:¹⁶

- [19] i SIMPLE **who** *what* *which* *where* *when* *how* *while*
- ii COMPLEX **whoever** *whatever* *whichever* *wherever* *whenever* *however*

Who and **whoever** have distinct nominative and accusative forms, illustrated for **whoever** in [18i–ii]; for the genitive of **whoever** see footnote 17.

The properties that distinguish **who**, *what*, and *which* in fused relatives are the same as in interrogatives, so that the system is significantly different from that found in non-fused relatives:

[20]	FUSED RELATIVES OF OPEN INTERROGATIVES	NON-FUSED RELATIVES
i PRONOUNS		
who	personal	personal
<i>what</i>	non-personal	—
<i>which</i>	—	non-personal
ii DETERMINATIVES		
<i>what</i>	non-selective	—
<i>which</i>	selective	(non-selective)

The gender contrast of personal vs non-personal is thus realised by **who** vs *what*, not **who** vs *which*, as in non-fused relatives. And *which* in fused relatives, as in interrogatives, is a determinative, contrasting with *what* as selective vs non-selective. In non-fused relatives determinative *which* is non-contrastively non-selective (and found only in the supplementary type). The same properties apply to the *-ever* forms, as illustrated in:

- [21] i [*Whoever finishes first*] *will win a prize.* [personal]
- ii [*Whatever you can let us have*] *will be very much appreciated.* [non-personal]
- iii *I'll use [whichever edition I can get hold of].* [selective]
- iv *He appears to have lost [whatever interest he ever had in it].* [non-selective]

¹⁶There are also archaic variants of the *-ever* series with *-so*: *whosoever*, *whatsoever*, etc.

In [iii] it is a matter of selecting one edition from an identifiable set of editions, whereas there is no such feature in [iv]. Fused *which(ever)*, although a determinative, not a pronoun, can function as fused determiner-head, as in:

- [22] *[Whichever of these two finished ahead of the other] would be the undisputed financial leader of the tour.*

Three of the simple items, *who*, *which*, *how*, are virtually restricted to the particular use of the fused relative that we call the **free choice** construction; we will look at this first, and then turn to other uses, taking the *-ever* and simple forms separately.

■ The free choice construction (*You can do whatever/what you want*)

- [23] i *Invite [whoever/whomever/who/whom you like].*
 ii *Liz can go [wherever/where she wants].*

In fused relatives like these the referent of the (overt or understood) subject of the matrix clause is given the freedom to choose: in [i] it is for you to decide who you invite, and in [ii] it is for Liz to choose where she goes. We have used ‘free choice’ to label one sense of *any*, and constructions with *any* + integrated relative are very close in meaning to the above: compare *Invite anyone you like* and *Liz can go anywhere she wants* (but see Ch. 5, §7.14, n. 32, for a slight difference).

There is no detectable difference in meaning between the *-ever* and simple forms in this construction, and since *who*, *which*, and *how* can hardly occur in other kinds of fused relative, it is plausible to see the *-ever* as here omissible by virtue of being redundant: the “any whatever” meaning is entailed by the free choice and does not have to be explicitly expressed in the relative word. The verb in this construction belongs to a small class consisting primarily of *choose*, *like*, *please*, *want*, *wish*, and is interpreted as if it had a clausal complement – e.g. for [ii] “She can go wherever she wants to go”. Note, then, that *Sack who you like* does not mean “Sack the persons that you like”, but “Sack whoever you care to sack”. However, the distinctive syntactic property of the construction – that of allowing certain simple forms which do not normally occur in fused relatives – is generally restricted to the case where the clausal complement is merely implicit, so that we have *Invite who you want*, but hardly **Invite who you want to invite*. Moreover, *please* does not in fact license clausal complements: *Go where you please*, but not, in Present-day English, **He pleased to go to Paris*. And with *like* the meaning differs aspectually from that of a construction with an infinitival complement. *I like to take the biggest portion*, for example, implies repeated taking (cf. Ch. 14, §5.6.1), whereas *Take which you like* does not. There are also constraints on the matrix clause. For example, the fused relative must follow the matrix verb: *I’ll invite who you like* but not **Who you like I’ll invite*.¹⁷

¹⁷ The genitive forms *whosever* and (informal) *whoever’s* are possible but rare in the free choice construction. Thus *Take whosever/whoever’s you like* could serve as a response to the question *Whose bicycle shall I take?* The genitives are not admissible outside the free choice construction – cf. **They want to question whosever/whoever’s dog was barking throughout the night* or **Whosever/Whoever’s car is blocking my driveway must move it immediately*. The close grammatical association between the genitive determiner and the following head noun seems to suggest the anomalous meanings where it is the dog they want to question and the car that must move itself.

■ Further uses of the *-ever* forms

- [24] i [*Whoever* told you that] *can't have read the report carefully.*
 ii I'll accept [*whatever* price you suggest].
 iii I'll go [*wherever* they tell me to go].
 iv [*Whenever* I see her,] *she's reading.*

The *-ever* marks a phrase as non-referential: there is no reference to any particular person, price, place, or time in these examples. Such forms are found in several of the different kinds of non-referential phrases discussed in Ch. 5, §8.3. The bracketed phrase in [i] is a descriptive NP: we understand “the person *x* satisfying the description ‘*x* told you that’”, with the implicature that I don’t know who it was. The interpretations in [ii–iii] are non-specific: we are concerned with future acts of suggesting a price and telling me where to go. And in [iv] we have a multiple-situation-bound interpretation: it is a matter of a series of situations such that I see her at time *x* and she is reading at time *x*. The free choice construction shown in [23] is a special case of non-specificity, and the close paraphrase with *any* extends to the non-specifics in [24ii–iii]: cf. *any price you suggest*; *anywhere they tell me to go*. Often (as also with *any*) there is an implicature of “every, all”: *I'll do whatever I can to help you*. This “every” interpretation is more clearly associated with the multiple-situation-bound case: [24iv] can be glossed as “Every time I see her, she’s reading”.

Use in coordination and supplementation

The *-ever* series of fused relatives appear in the expected range of functions of NPs and temporal or locative PPs: subject in [24i], object in [24ii], and so on. Two common uses worth drawing attention to are as the final element in a coordination, or in a supplement:

- [25] i *The central computer will simulate rape scenes or high-speed motor chases or [whatever stimulates their proletarian fancies].*
 ii *There's always something different to do or eat or [whatever it happens to be].*
 iii *They put on old coats or ducking jackets, [whichever they carried behind their saddle cantles].*

Reduction

The construction may be reduced to the relative phrase + an adjectival predicative complement (e.g. *possible, necessary, feasible*) or past participle:¹⁸

- [26] i *They want to assist the impending assault in [whatever way possible].*
 ii *She came to Atlanta, in the fall of 1888, to help [wherever needed].*

■ Further uses of the simple forms

As noted above, *who*, *which*, and *how* hardly occur in fused relatives other than as alternants of the *-ever* forms in the free choice construction. *Who* is found in archaisms preserved by quotation in the contemporary language, like *Who steals my purse steals trash* (from Shakespeare’s *Othello*), but we cannot say, for example, **Who wrote this letter must have been mad*, or (with *which* as the relative word) **He always ordered which (one) was cheaper*. Examples with *how* are found but they are rare and quite marginal:

¹⁸ In the coordination case we often find the *-ever* word on its own: *Disturbed by this telephone call or whatever, she walked out into the night*. We take this to be a simple NP, though it might alternatively be regarded as a fused relative with something like “it was” understood.

%We will not change how we use future contracts during the term of this Prospectus; %I don't like how it looks.

What

The most frequent type of fused relative NP has *what* as fused head. It is found in non-referential NPs, like *whatever*, but it also readily occurs in referential NPs:

- [27] i I'll do [*what I can*] to help you. [non-referential (non-specific)]
 ii They seem pleased with [*what I gave them*]. [referential]

Determinative *what* (leaving aside the free choice construction) is restricted to non-count or plural NPs and has a paucal meaning that can be reinforced by *little* or *few* and is inconsistent with *much* or *many*:

- [28] i This will further erode [*what (little) economic credibility the government has left*].
 ii [*What (few) mistakes she had made*] were all of a minor nature.

The specifying *be* construction

Simple forms of the unbounded dependency words are commonly found within a matrix clause containing *be* in its specifying sense, and here it is by no means a straightforward matter to distinguish between the fused relative and subordinate interrogative constructions. Compare, for example:

- [29] i What caused the trouble was a faulty switch. } [fused relative]
 ii A faulty switch was what caused the trouble. }
 iii That's who I meant. That's not how to do it. } [interrogative]
 iv He's not who she thinks he is. }

Example [i] belongs to the pseudo-cleft construction (Ch. 16, §9.3), which is normally reversible, yielding in this case [ii]. There is no doubt that these involve fused relatives. Note, for example, that we can have subject–auxiliary inversion (*Was what caused the trouble a faulty switch?*) and that preposition fronting is completely impossible (*What I'm referring to is his intransigence*, but not **To what I'm referring is his intransigence*).

The examples in [iii–iv] are not reversible (cf. **How to do it is not that*, etc.), and there are grounds for saying that the underlined expressions are interrogative clauses even though they can be paraphrased by such NPs as *the person I meant*, *the way to do it*, *the person that she thinks he is*. Note first that *who* is found here, but not elsewhere in fused relatives, other than in the free choice construction. In particular, it cannot occur in the pseudo-cleft: **Who caused the trouble was your brother*.¹⁹ Similarly, the infinitival of *how to do it* is not possible in fused relatives. Conversely, the one item that appears in relatives but not interrogatives, *while*, is not found here. *That was while we were in Paris*, for example, is quite different from [29iii]: it does not serve to identify the period during which we were in Paris but locates 'that' within this period.

A further difference between [29iii–iv] and the pseudo-cleft is that only the latter can incorporate an integrated relative (cf. the discussion of [10i]). Compare *What she left me that I treasure most is this little music-box* with **That's who she recommended who has the best qualifications* ('the person she recommended who has the best qualifications').

¹⁹ *Why* (which has no counterpart in *-ever*) appears freely in the interrogative construction, as in *This is why I'm leaving*, but is marginally possible in the pseudo-cleft: *Why I'm leaving is that/because there's no opportunity to use any initiative*. It does not occur elsewhere in fused relatives.

Finally, and most decisively, the specifying *be* construction of [29iii] allows preposition fronting: *That is precisely for what it was designed; That is exactly against what we should be fighting now.* This distinguishes them clearly from the pseudo-cleft construction and indicates that they must be interrogatives.

The likeness in meaning between the relative and interrogative constructions of [29] is consistent with the different syntactic analyses we have proposed. For [i] we have “The *x* such that *x* caused the trouble was a faulty switch”: *a faulty switch* gives the value of the variable defined in the fused relative. And in *That’s who I meant* the subject *that* gives the value of the variable in “He meant person *x*”, the propositional content of the embedded question – i.e. it gives the answer to the question “Who did he mean?”²⁰

The prepositions *when*, *where*, *while*

- [30] i [*When it rains*] *they play in the garage.*
 ii *We must put it [where no one will be able to see it].*
 iii *They insisted on talking [while I was trying to get on with my work].*

These have paraphrases containing noun + integrated relative: *On occasions when it rains, they play in the garage; We must put it in a place where no one will be able to see it; %They insisted on talking during the time while I was trying to get on with my work.*

While differs from the other fused relative words in having no *ever* counterpart and in having no interrogative use.

Fused relatives or preposition + content clause?

An alternative analysis of examples like those in [30] is to treat *when*, *where*, and *while* as prepositions that take content clauses as complements – like *before*, *whereas*, *although*, etc. There are certainly some cases where the latter is the preferable analysis:

- [31] i [*When they weren’t home at six o’clock*] *I began to get worried.*
 ii *Let me know [if and when you need any help].*
 iii [*Where the British Empire was established with musket and gunboat,*] *America’s empire has been achieved with the friendly persuasion of comedian and crooner.*
 iv [*While I don’t agree with what she says,*] *I accept her right to say it.*

In [i] we cannot gloss *when* as “at the time at which” since the temporal adjunct function within the subordinate clause is pre-empted by *at six o’clock*. In [ii] *when* is co-ordinated with *if*, which quite clearly takes a content clause as complement. Example [iii] illustrates a use of *where* that has been bleached of the basic locative meaning: it indicates contrast, like *whereas*. Moreover, it would conflict with the meaning to posit a location adjunct within the subordinate clause: the sentence does not say that America’s empire was established in the same place as the British Empire. Example [iv] is similar: *while* here is used for contrast and its meaning does not involve temporal duration.

On the other hand, we find places where a fused relative analysis is required. The clearest cases are with *where* and *while* in such examples as:

- [32] i *I put the key [where I always put it], in the top drawer.*
 ii *It was fun [while it lasted].*

²⁰ Another case where an interrogative has an interpretation similar to that of a relative construction is illustrated in *There’s an article in the weekend magazine on how to grow orchids.* We might instead say on *the way to grow orchids*, with an NP containing a relative clause. But *how to grow orchids* must be an interrogative, by virtue of the *how* and the infinitival. And again the meaning in fact fits the interrogative analysis: the magazine article is concerned with answering the question “How to grow orchids?”

Here the subordinate clauses must contain complements of goal and duration respectively because of the complementation requirements of the verbs *put* and *last*. Thus *I always put it* and *it lasted* are not themselves structurally complete, and could not occur as complement of a preposition. They must have a gap in final position that is linked to *where* and *while*: *where_i I always put it ___i* and *while_i it lasted ___i*. In the light of examples [31–32], we conclude that both the fused relative and the preposition + content clause analyses are needed; some examples require just one, whereas others are consistent with either.

7 Unbounded dependency constructions

Relative clauses belong to a larger class of constructions known as **unbounded dependency constructions**. In this final section of the chapter we examine the properties of this more general category of constructions.

7.1 Definition and taxonomy

What is meant by an unbounded dependency construction can be seen by considering a set of examples such as those in [1]:

- [1] i *This is the book_i [which_i [she recommended ___i]].*
 ii *This is the book_i [which_i [I think she recommended ___i]].*
 iii *This is the book_i [which_i [I think you said she recommended ___i]].*

The outer brackets enclose the relative clause, while the inner ones enclose the nucleus. The nucleus contains a gap in the position of object of the verb *recommended*, and this gap is linked to the relative phrase *which* in prenuclear position. The relation between the gap and *which* is comparable to that between an anaphoric pronoun and its antecedent – between, for example, *which* and its antecedent *book*. *Which* derives its interpretation from *book*, and the gap derives its interpretation from *which*: a component of the meaning of all three examples is “she recommended *x*”, where *x* is some book. We will say, therefore, that the gap is anaphorically linked to *which*, i.e. that *which* is antecedent for the gap.

This relation between the gap and *which* is a **dependency** relation. Semantically, the gap derives its interpretation from *which*, as we have just seen. And syntactically *which* requires an associated gap: the object of *recommended* cannot be realised by an ordinary NP – compare **This is the book which she recommended ‘War and Peace’*.²¹ The dependency relation between the gap and its antecedent is **unbounded** in the sense that there is no upper bound, or limit, on how deeply embedded within the relative clause the gap may be. In [1i] the gap is object of the topmost verb in the relative clause. In [1iii] it is object of the verb that heads a clause embedded as complement to the topmost verb (*think*). In [1iii] there are two layers of clause embedding: the *recommend* clause is complement in the *say* clause, and the latter is complement in the *think* clause. And there is no grammatical limit on how many such layers of embedding there can be. Adding a third might give, for example, *the book which I think you said Kim persuaded her to*

²¹The dependency relation between a gap and its antecedent is not to be equated with that of a dependent to a head. Dependent and head are functions within a syntactic construction, and the gap is not a dependent of *which* in this sense. The gap and *which* are related anaphorically, not as functions within a construction.

recommend. And further layers still can be added without loss of grammaticality even though they may result in stylistically undesirable complexity.

A second unbounded dependency construction is the open interrogative, illustrated in:

- [2] i *What_i [does he want ___i]?*
 ii *What_i [do you think he wants ___i]?*
 iii *What_i [do you think she said he wants ___i]?*

The gap represents the object of *want* and is anaphorically linked to the interrogative phrase *what* in prenuclear position. This relationship indicates that the question concerns the object of *want*: the meaning contains the component “he wants *x*”, and answers to the question supply a value for the variable *x*. Again, the dependency relation between the gap and the interrogative phrase is unbounded: the examples show the *want* clause progressively more deeply embedded, and again there is no grammatical limit as to how many layers of embedding are permitted.

In the light of these examples we may define an unbounded dependency construction as follows:

- [3] An unbounded dependency construction is one which sanctions within it an anaphoric gap, with no upper bound on how deeply embedded the gap may be.

■ Constructions with and without unbounded dependency words

The two constructions considered so far, *wh* relatives and open interrogatives, have in common that they are marked by the presence of a distinctive type of word functioning as or within the prenuclear element. *Which* in [1] is a relative word and *what* in [2] is an interrogative word. As we have seen, there is a large degree of overlap between relative and interrogative words, and we refer to them jointly as **unbounded dependency words**, i.e. words that are markers of an unbounded dependency construction.²² Exclamative *what* and *how* also belong in this category, for exclamatives are also an unbounded dependency construction, as is evident from such examples as:

- [4] i *What a disaster_i [it was ___i]!*
 ii *What a disaster_i [it turned out to be ___i]!*
 iii *What a disaster_i [it seems to have turned out to be ___i]!*

Not all unbounded dependency constructions are of this kind, however. In preposing, the prenuclear position is filled by a phrase or clause that can also occur in a canonical clause construction. Compare:

- [5] i *The other chapters_i [she wrote ___i herself].*
 ii *The other chapters_i [I think she wrote ___i herself].*
 iii *The other chapters_i [I think she said she wrote ___i herself].*

The other chapters is an ordinary NP, functioning as object in the canonical *She wrote the other chapters herself*, but in [5] it is in an unbounded dependency relation with a gap.

These examples illustrate the main preposing construction, with the preposed element in prenuclear position within a clause. It is also possible for the preposed element to

²² These words are often referred to as ‘*wh* words’; the category, however, is obviously not unique to English, and we prefer to use a more general term.

occupy prenuclear position within a PP (see Ch. 7, §4.4):

- [6] i [*Stupid*_i [*though he is* ___i],] *he saw through their little game.*
 ii [*Stupid*_i [*though you no doubt think he is* ___i]], *he saw through their little game.*
 iii [*Stupid*_i [*though I expect you think he is* ___i]], *he saw through their little game.*

The outer brackets enclose the PP, and the inner ones its nucleus, containing a gap anaphorically linked to the proposed AdjP *stupid*.

■ Constructions with prenuclear and external antecedents

We have now introduced five unbounded dependency constructions: *wh* relatives, open interrogatives, exclamatives, preposing in clause structure, and preposing in PP structure. In all of these, the antecedent for the gap is located in prenuclear position. There are also unbounded dependency constructions where the antecedent is located outside the clause altogether. One clear case is that of non-*wh* relatives:

- [7] i *This is the book*_i [*she recommended* ___i].
 ii *This is the book*_i [*I think she recommended* ___i].
 iii *This is the book*_i [*I think you said she recommended* ___i].

These are just like the *wh* relatives in [1] above, except that they contain no relative phrase in prenuclear position. The gap is thus related directly to the nominal *book*, rather than indirectly, via the relative pronoun *which*. This construction still satisfies the definition given in [3]: the relative clause can contain an anaphoric gap that is embedded indefinitely deeply within it.

Another construction of this type is the comparative clause:

- [8] i *Kim made more mistakes*_i *than* [*Pat made* ___i].
 ii *Kim made more mistakes*_i *than* [*I think Pat made* ___i].
 iii *Kim made more mistakes*_i *than* [*I think you said Pat made* ___i].

Comparative clauses function as complement to a preposition (*than*, *as*, or *like*); the gap is within the comparative clause while the antecedent is outside. Comparative clauses, however, differ in significant ways from other unbounded dependency constructions with respect to the kind of gap allowed and the way it is interpreted: we examine them in detail in Ch. 13, §2, and will pay no further attention to them here.

■ Major and minor unbounded dependency constructions

The final distinction to be made contrasts the major constructions listed above with minor ones, such as hollow clauses:

- [9] i *The machine*_i *was too big* [*to take* ___i *home*].
 ii *The machine*_i *was too big* [*to ever want to take* ___i *home*].
 iii *The machine*_i *was too big* [*to imagine ever wanting to take* ___i *home*].

The gap here is object of *take*, and has an external antecedent, *the machine*. As before, the gap can be embedded indefinitely deeply within the hollow clause. However, examples like [ii–iii] with respectively one and two levels of clause embedding are quite rare. Although there is in principle no limit to the depth of embedding this construction in practice allows deeply embedded gaps much less readily than those discussed above and for this reason can be regarded as a relatively minor member of the set of unbounded dependency constructions. Moreover, when the gap is located within a clause that is

embedded within the hollow clause, the embedded clause must be non-finite, like the hollow clause itself. Compare:

- [10] a. *The problem_i is too difficult [to expect a ten-year-old to be able to solve ___i].*
 b. **The problem_i is too difficult [to expect [that a ten-year-old could solve ___i]].*

While [i] is fully acceptable, [ii] is ungrammatical. This is because the hollow clause (enclosed within the outer pair of brackets) contains a finite clause within it (enclosed within the inner brackets), and the gap is inside this finite clause. The same constraint applies to infinitival relatives and infinitival open interrogatives, and we accordingly include these too in the set of minor unbounded dependency constructions.

■ Summary taxonomy

Unbounded dependency constructions may be classified in terms of the above distinctions as follows:

[11] I	MAJOR CONSTRUCTIONS	
IA	Prenuclear antecedent	
IAi	Contain unbounded dependency word	{ <i>wh</i> relatives (finite), open interrogatives (finite), exclamatives
IAii	No such word	preposing in clause, preposing in concessive PP
IB	External antecedent	
		non- <i>wh</i> relatives (finite), comparatives
II	MINOR CONSTRUCTIONS	
IIA	Prenuclear antecedent	infinitival <i>wh</i> relatives and open interrogatives
IIB	External antecedent	hollow clauses, infinitival non- <i>wh</i> relatives

7.2 Gaps and antecedents

■ The syntactic functions of gaps

Gaps occur in certain functional positions. In most of the examples used in §7.1 the gap represents the object of a verb. This is not of course the only possibility, but there are severe constraints on what functions can be realised by a gap. One general constraint is stated summarily in [12]:

- [12] A gap in an unbounded dependency construction can function only as either:
 (a) a post-head dependent; or
 (b) subject in clause structure (immediate or embedded).

Compare, for example, the following open interrogatives:

[13] i	<i>What_i [did you buy ___i]?</i>	[complement of verb]
ii	<i>What_i [are you referring [to ___i]]?</i>	[complement of preposition]
iii	<i>Where_i [did you see them ___i]?</i>	[adjunct of verb]
iv	<i>Who_i [do you think [___i was responsible]]?</i>	[subject of clause]
v	<i>*Whose_i [did you borrow [___i car]]?</i>	[subject-determiner in NP]
vi	<i>*How many_i [did they receive [___i applications]]?</i>	[determiner]
vii	<i>*How serious_i [will it be [___i a problem]]?</i>	[pre-head modifier in NP]
viii	<i>*Who_i [have they shortlisted [___i and Kim]]?</i>	[coordinate]

The inner brackets in [ii] and [iv–viii] enclose the constituent within which the gap is located: a PP in [ii], content clause in [iv], an NP in [v–vii], and an NP-coordination in [viii]. Examples [v–viii] are ungrammatical because the gap does not have one of the functions permitted by rule [12]. They can be corrected by making the gap conform to [12]:

- | | | |
|--------|---|------------------------|
| [14] i | <i>Whose car_i did you borrow ___i?</i> | } [complement of verb] |
| ii | <i>How many applications_i did they receive ___i?</i> | |
| iii | <i>How serious a problem_i will it be ___i?</i> | |
| iv | <i>Who_i have they shortlisted ___i in addition to Kim?</i> | |

In addition to rule [12], certain more specific conditions apply:

Gaps not normally allowed in indirect object function

As we observed in Ch. 4, §4.3, one of the main syntactic differences between indirect and direct objects is that gaps are more or less excluded from the former function. The qualification ‘more or less’ is needed because there is some variation with respect to acceptability judgements on clauses with indirect object gaps, but for the most part there is a clear difference between the acceptability of direct and indirect object gaps. Compare:

- [15] i a. *This is the CD_i [she got me ___i last Christmas].*
 b. **He's the one_i [she got ___i that CD last Christmas].*
 ii a. *The copies [he sold me ___i] were defective.*
 b. **The person_i [he sold ___i them] seemed satisfied.*
 iii a. *How much_i do you owe them ___i?*
 b. *?How many people_i do you owe ___i more than \$50?*

In each pair the gap is direct object in [a], indirect object in [b]. Most verbs that take indirect objects also occur in an alternative construction with direct object + PP complement, and this construction can be used to express the meanings of the [b] examples: *He's the one_i; she got that CD for ___i last Christmas*, and so on. (The prepositional construction will also often be preferred over a ditransitive one with indirect object + gap in direct object function – e.g. *the story_i that he was reading ___i to his children*, over *the story_i that he was reading his children ___i*.)

Gaps in subject function

As we saw in §3.4, it is necessary to distinguish between an **immediate subject** (i.e. the subject of the topmost verb in the construction) and an **embedded subject** (the subject of a clause embedded within the unbounded dependency construction).

Embedded subject gaps are permitted only in bare content clauses, i.e. declaratives without the subordinator *that* (cf. Ch. 11, §3.1). Compare:

- [16] i *He's the man_i [they think [___i attacked her]].* [bare declarative]
 ii **He's the man_i [they think [that ___i attacked her]].* [expanded declarative]
 iii **He's the man_i [they wonder [whether ___i attacked her]].* [closed interrogative]

With immediate subjects we can have a gap in Type 1B constructions (with external antecedent), but not in Type 1A (with prenuclear antecedent). Compare:

- [17] i *This is the copy_i [that [___i is defective]].* [immediate subject gap]
 ii *This is the copy_i [which_i is defective].*
 iii *Who signed the letter?* } [no gap]

In [i] *that* is the subordinator in prenuclear position, and the subject in the nucleus is realised by a gap anaphorically linked to the antecedent *copy*: this is a Type 1B construction, with the antecedent of the gap external to the relative clause. (As we noted in §3.5.5, the subordinator *that* is generally not omissible when the gap is in immediate subject function.) In [ii–iii], by contrast, the subjects are realised not by a gap but by relative *which* and interrogative *who*: in the absence of convincing evidence to the contrary, we take the structure to be the same as that of the canonical clauses *This copy is defective* and *Kim signed the letter*. Note, moreover, that the preposing construction does not allow preposing of an immediate subject. Compare:

- [18] i *The other chapters_i [she wrote ___i herself].* [preposing of object]
 ii *She wrote the other chapters herself.* [no preposing]

In [i] we have a gap in object position, but there is no gap, no preposing in [ii], where *she* is in its canonical position.

Hollow clauses

In the hollow clause construction the gap can only be complement of a verb or preposition: see Ch. 14, §6.

■ Function of the antecedent

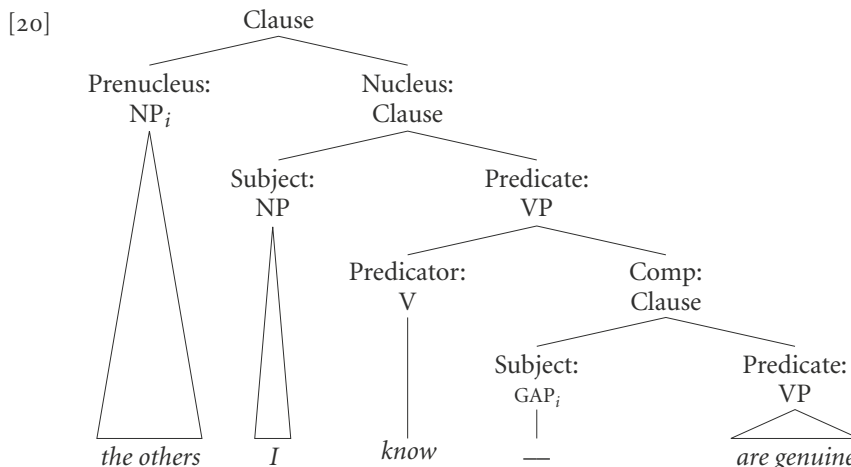
In constructions with an external antecedent, the function of the antecedent is independent of that of the gap. Compare:

- [19] i a. *Have you seen the book_i [I got ___i from the library]?*
 b. *Where's the book_i [I got ___i from the library]?*
 ii a. *Their proposal_i was hard [to accept ___i].*
 b. *We found their proposal_i hard [to accept ___i].*

In [i] the bracketed clauses are non-*wh* relatives with the gap in object function. The antecedent is the nominal *book*, which is head of an NP, and this NP can occur in any NP function: it is, for example, object in [ia], subject in [ib]. In [ii] we have hollow clauses with the gap in object function. The antecedent is the NP *their proposal*, and again the function of this NP does not need to match that of the gap: in [iia] it is subject, while in [iib] it is object.

Prenuclear antecedents inherit function of the gap

The situation with antecedents in prenuclear position is quite different. These elements are located within the unbounded dependency construction itself, and thus do not have a function outside it. Because they fall outside the nucleus the only function that can be assigned directly to them is that of prenuclear dependent. This is shown in the following tree diagram for the preposing construction *The others I know are genuine*, corresponding to canonical *I know the others are genuine*.



We could not label *the others* as subject, for it clearly does not stand in the subject relation to the clause of which it is an immediate constituent. Nevertheless, it is understood as subject of *are genuine*, just as it is in the canonical counterpart *I know the others are genuine*. Notice, moreover, that the verb form *are* agrees with *the others* – again, just as it does in *I know the others are genuine*. We will regard these prenuclear antecedents, therefore, as taking on the function of the associated gap. In a secondary, or derivative, sense, that is to say, *the others* is subject of the content clause whose head (predicate) is *are genuine*. This information is retrievable from the tree diagram as it stands: the secondary function of *the others* is that of the co-indexed gap. Similarly in *The others_i I haven't yet read ___i* we will say that *the others* is, in this derivative sense, object of *read*.

The same applies with constructions where the prenuclear element consists of or contains an unbounded dependency word, as in:

- [21] i *the letters_i [which_i [he says she wrote ___i]]*
 ii *Who_i [do you think ___i wrote the letter]?*

We will say that *which* in [i] is object of *wrote* and *who* in [ii] is subject of *wrote*. This is of course what is said in traditional grammar too: our concern here has been to show how that kind of statement can be reconciled with the tree diagrams that are used to represent syntactic structure in this book. *Which* and *who* are not labelled object and subject directly, but are treated as inheriting this function from the gap with which they are co-indexed.

■ Match between antecedent and potential realisations of the gap function

The anaphoric relation between the gap and the antecedent means that well-formedness is subject to the following condition:

- [22] The syntactic and semantic properties of the antecedent must normally match those of expressions which in other constructions can occur as overt realisations of the gap function.

In the simplest cases, the antecedent expression itself can elsewhere realise the function of the gap. Illustrations of this situation are provided by preposing and hollow clauses:

- [23] i a. *To Kim_i [they gave a bicycle ___i].* [preposing]
 b. *They gave a bicycle to Kim.*
 ii a. *Kim_i is very hard [to please ___i].* [hollow]
 b. *It is very hard to please Kim.*

In [ia] the PP *to Kim* is antecedent for the complement gap in the nucleus, and this PP can itself realise the same complement function, as shown in [ib]. Similarly in [ii]: the gap in [a] is object of *please* and the antecedent for this gap, the NP *Kim*, can elsewhere fill that function, as in [b]. These examples may be contrasted with the following:

- [24] i **To Kim_i [they bought a bicycle ___i].*
 ii **That he comes home so late_i is very hard [to enjoy ___i].*

In [i] the preposed complement contains the wrong preposition: we need *for Kim*, to match *They bought a bicycle for Kim*. In [ii] the antecedent is a content clause but *enjoy* does not license a complement of that kind: we need an NP, such as *his novels*, to match *I enjoy his novels*.

Compare, again, the following examples of the *it*-cleft construction:

- [25] i *It was that jar_i [that she says she put the key in ___i].* [NP ~ NP]
 ii *It was in that jar_i [that she says she put the key ___i].* [PP ~ PP]
 iii **It was that jar_i [that she says she put the key ___i].* [NP ~ PP]
 iv **It was in that jar_i [that she says she put the key in ___i].* [PP ~ NP]

In [i] the antecedent is an NP, and this is the category needed to realise the gap function, object of the preposition *in*. In [ii] the antecedent is a PP, which can realise the function of goal complement in the *put* clause, as in *She put the key in that jar*. The other examples are ungrammatical because the antecedent fails to meet the requirements of the gap function: compare **She put the key that jar* and **She put the key in in that jar*.

Condition [22] is formulated in terms of matching rather than identity: there is no requirement that the antecedent expression itself should be able to realise the gap function. Three very general cases where it can't are illustrated in:

- [26] i *Every book_i [we have consulted ___i] ignores this problem.* [non-*wh* relative]
 ii *That's not the reason [why_i [he did it ___i]].* [*wh* relative]
 iii *___i Don't be so hard [to please ___i].* [hollow clause]

The bracketed clause in [i] is a non-*wh* relative of the integrated type. As explained in §4.1, the antecedent is the nominal *book*, not the sequence *every book*: the sentence doesn't say that we have consulted every book. A nominal as such cannot realise the gap function, which requires a full NP: **We have consulted book*. The antecedent can nevertheless be said to satisfy the matching requirement in that it can realise the gap function if an appropriate determiner is added to make it into a full NP: *We have read a book*.

The outer brackets in [26ii] enclose a *wh* relative clause, and here the relative phrase is required to occupy initial position, so relative *why* could not occur within the nucleus as a realisation of the gap function. The matching requirement is satisfied, however, in that *why* is a reason expression and non-relative expressions of that kind can realise the

gap function, as in *He did it for that reason*. The same applies, of course, to other relative expressions.

In [26iii] the antecedent for the gap in the hollow clause is not overtly expressed. But it is understood, by virtue of being subject of an imperative, as *you*, and this can realise the gap function: *It is hard to please you*. In *Pat_i wants ___i to be hard [to please ___i]*, the antecedent (the subject of the *be* clause) is likewise missing, but this time it is recoverable from the superordinate *want* clause.

Mismatches

There are a number of constructions where the matching requirement [22] is not strictly observed. They are illustrated in [27], but as all are dealt with elsewhere in the book only a summary commentary is needed at this point.

- [27] i *Who_i [did you give it to ___i]?
 ii %*He always chose those [whom_i [he thought ___i were most vulnerable]].
 iii [What_i [I'm hoping ___i]] is that nobody will notice my absence.
 iv *What on earth_i [do you want ___i]?
 v *That no one realised such action might be illegal_i [I find ___i surprising].
 vi *That they'll give him a second chance_i [I wouldn't gamble on ___i].
 vii [*Brilliant advocate_i [though she is ___i],*] *she's unlikely to win this case.******

Examples [27i–ii] show that the inflectional case of prenuclear interrogative and relative **who** does not always match that of pronouns in the position of the gap. Compare the nominative *who* of [i], with accusative *them* in *You gave it to them*, and the accusative *whom* of [ii] with the nominative required in *He thought they were most vulnerable* (see §3.4 above, and Ch. 5, §16.2.3).²³

Fused relative *what* in [27iii] is an NP, but *hope* does not license an NP complement: compare **I was hoping some respite*. *Hope* takes declarative content clause complements, and the presence of such a content clause following the fused relative is apparently necessary for *what* to be admissible: compare **What I was hoping was a little peace and quiet*. The fused relative in [iii] is subject within a pseudo-cleft clause (see Ch. 16, §9.3), and the same extended use of *what* is found with a few other verbs in pseudo-clefts. Compare, for example, *What we decided was to interview all the candidates*. Although *decide* does license NP complements, they don't stand in the same semantic relation to it as *what* does here – compare *The weather will decide the outcome*, but not **We decided an interview*.

Example [27iv] is an open interrogative. Unlike relative phrases, interrogative phrases are not in general required to occupy initial position – compare *And so you want what, exactly?* (cf. Ch. 10, §4.5). Interrogative phrases containing emotive modifiers such as *on earth*, *the hell*, *ever*, etc., however, can only occur initially, hence not in the position of the gap in [iv]: **And so you want what on earth?*

The remaining examples in [27] are preposings. In [v] the function of the gap is that of object in a complex-transitive clause. The preposed content clause could not

²³In constructions with an external antecedent the case of the antecedent will be determined by its function within its own clause, which is independent of the function of the gap. Compare *He_i is hard to get on with ___i* (where **he** is subject and hence nominative) and *I find him_i hard to get on with ___i* (where **he** is object and hence accusative). In [27i–ii], however, **who** is in prenuclear position, so its case does depend on the function of the associated gap.

occur in post-verbal position: instead of **I find that no one realised such action might be illegal surprising* we need the version with extraposition *I find it surprising that no one realised such action might be illegal*. In [vi] the preposed content clause could not replace the gap because the latter is complement of the preposition *on*, which does not license complements of this category: it requires an NP (see Ch. 11, §8.3, for further discussion of this very marginal type). Finally, [vii] has preposing of a predicative complement NP from within a concessive PP. Here there is a more systematic departure from the form found in non-preposed position, with the latter requiring an indefinite article: *Although she is a brilliant advocate, she's unlikely to win this case*.

Combinations of unbounded dependency constructions

It is possible for certain unbounded dependency constructions to combine in such a way that the gap in one is the antecedent in the other. In the following, for example, an open interrogative is combined with a cleft relative:

- [28] i *Which jar_i was it _i [that she says she put the key in _i]?
 ii *In which jar_i was it _i [that she says she put the key _i]?**

These are the open interrogative counterparts of the declarative clefts given in [25i–ii] above. The first gap has the interrogative phrase as its antecedent, and itself serves as antecedent for the second gap. In both examples the matching requirement is satisfied. In [i] the gap in the *put* clause is object of *in*, and hence requires an NP antecedent: this requirement is met because the gap in the *be* clause has the overt NP *which jar* as its antecedent. Similarly in [ii] the gap in the *put* clause requires a PP antecedent, and this requirement is satisfied because the gap in the *be* clause has an overt PP as its antecedent. Interrogative counterparts of the ungrammatical [25iii–iv] will thus be ungrammatical too:

- [29] i **Which jar_i was it _i [that she says she put the key _i]?
 ii **In which jar_i was it _i [that she says she put the key in _i]?**

But there is an additional constraint, illustrated in:

- [30] **Which jar_i was it [in _i]_j [that she says she put the key _j]?*

The antecedent for the gap in the *put* clause is the PP headed by *in*: we have enclosed it in square brackets and co-indexed it with the gap in the relative clause. This PP contains a gap with the interrogative phrase as antecedent. What makes the sentence ungrammatical is that the antecedent for one gap contains another gap within it, so we have two gaps with different interpretations – “which jar” and “in which jar”. Thus while the antecedent for a gap may itself be a gap, as in [28], it cannot merely contain a gap.

7.3 Location of gaps

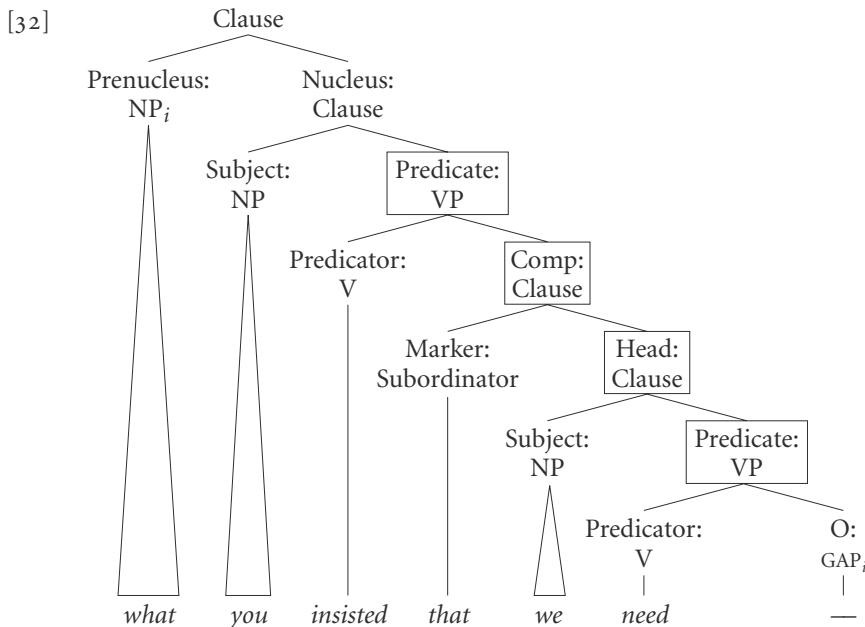
We have said that there is no upper bound on how deeply a gap may be embedded within an unbounded dependency construction. This does not mean, however, that there are no constraints on whereabouts in the construction the gap may occur. Compare, for example:

- [31] i *I told her [what_i [you insisted that we need _i]].
 ii **I told her [what_i [that we need _i is agreed]].**

While [i] is acceptable, [ii] is completely unacceptable. And the cause of the unacceptability is clearly grammatical, not semantic. The meaning of [i] can be given as “I told her

the value of x in the proposition ‘You insisted that we need x ’, and the intended meaning of [ii] is similarly ‘I told her the value of x in the proposition ‘That we need x is agreed’’. This meaning can in fact be expressed by means of the extraposition construction: *I told her what it is agreed that we need.*

The structure for the interrogative clause in [31i] is as follows:



The boxes enclose points in the tree that lie on the path from the top down to the gap, and grammaticality depends on the function and category labels that occur on this path. The deviance of [31ii] is due to the fact that the path to the gap passes through a constituent with the form of a clause and the function of subject: *that we need* __ is subject of *is agreed*. Note that we are concerned here with the path to the gap, not with the gap itself. We noted in §7.2 that (under restricted conditions) the gap can be subject, as in *Who_i [do you think ___i wrote the letter]?*: what is not admissible is for the gap to be part of a larger clause that is functioning as subject.²⁴

In this section we will review a range of constituent types, examining whether or not they may occur on the path leading to the gap. Before we start, however, two general points should be made. In the first place, while the status of [31i–ii] as respectively well-formed and deviant is quite clear, there are many intermediate cases where the status is uncertain. Secondly, while we can confidently say that [31ii] violates a rule of grammar, the acceptability of examples may also be affected by semantic considerations. Compare:

- [33] i *That's a subject_i [that Steven Jay Gould wrote a book about ___i].*
 ii **That's a subject_i [that Steven Jay Gould despises a book about ___i].*

²⁴Constituent types that do not allow gaps within them are often called ‘islands’.

These have the same grammatical structure, differing only lexically, with [i] having *write* and [ii] *despise* as the verb of the relative clause. But they differ significantly in acceptability: [i] is clearly acceptable, while [ii] is very unnatural. This difference has a semantic explanation. The relative clause combines with the antecedent *subject* to form a nominal that denotes a class of subjects. In the case of [i], this class has some coherence: to say of some subject that Steven Jay Gould wrote a book about it points to a selection of significant topics in areas like evolutionary biology, geology, palaeontology, etc. The class denoted by the nominal in [ii] has no such coherence. What would have to be true of a subject in order for it to be an *x* such that Steven Jay Gould despises a book about *x*? Someone, at some time in history, has to have written a book about *x* that Gould despises for some reason (it is badly written, or was plagiarised, or has annoyingly pretentious page design, or is full of mistakes, or whatever reason there might be). The subject in question could be shoes, ships, sealing wax, cabbages, or kings. In other words, there is no sensible characterisation of a class of subjects in [ii] at all, and as a result the example seems anomalous.

Let us turn now to the review of constituent types. In the examples, we use one pair of square brackets to delimit the constituent in question, and another to delimit the unbounded dependency construction if it is less than the whole sentence. Antecedents are underlined if they contain more than the one word that carries the subscript index.

(a) VP in predicate function

- [34] i Most of the criticisms_i; he [accepted ___i with good grace].
 ii I don't know [where_i he [found it ___i]].
 iii It was to her cousin_i; [that she [sold the business ___i]].

VP predicates readily allow gaps within them. In [i] we have a preposing with a direct object gap, in [ii] an open interrogative with an adjunct gap, and in [iii] a cleft relative with a complement gap linked to a PP antecedent.

(b) AdjPs in predicative complement function

- [35] i Whether it's ethical_i; I'm not [so certain ___i].
 ii That's the only crime [of which_i they could find him [guilty ___i]].

Example [i] has preposing of a clausal complement of *certain*. In [ii] the relative PP of *which* is antecedent to the gap functioning as complement of *guilty*.

(c) Declarative content clause in post-head complement function

- [36] i It was here_i [she said [she found the knife ___i]].
 ii I don't know [who_i he thinks [he is ___i]].
 iii Here's a book_i [I think [___i might help us]].
 iv He's the only one_i [that I'm [sure she told ___i]].

Gaps are readily allowed here: an adjunct in [i], predicative complement in [ii], subject in [iii], object in [iv]. The adjunct case has the potential for ambiguity. In the interpretation indicated by the inner brackets in [i], the gap belongs in the *find* clause: it is a matter of where she found the knife. The gap could also be in the *say* clause: *It was here_i [she said [she found the knife] ___i]*. In this interpretation it is a matter of where her utterance took place.

(See Ch. 10, §7.12, for discussion of such ambiguities in open interrogatives.) In [iv] the content clause is complement of an adjective rather than a verb.

(d) Closed interrogative clause in complement function

- [37] i *There are several books_i here [that I'm not sure [if you've read ___i]].*
 ii *The actor had to be careful with the amount of venom poured into a character [who_i in the end we don't know [whether to hate or pity ___i]].*
 iii *[?]The woman boarding in front of me was carrying a huge sports bag_i [that the cabin crew wondered [whether there was going to be enough room for ___i]].*

Interrogative content clauses accept gaps much less readily than declaratives. Examples are rarely found in published material, though [ii] is an attested example from a weekly magazine. Acceptability seems to diminish quite rapidly with increasing complexity, with [iii], for example, quite questionable in comparison with [i–ii].

(e) Open interrogative clauses in complement function

- [38] i *These are the only dishes_i [that they taught me [how_j to cook ___i ___j]].*
 ii *The man in the dock was a hardened criminal_i [that the judge later admitted he didn't know [why_j he had ever released ___i ___j in the first place]].*
 iii *[?]Here's another photograph_i [that I can't remember [where_j we took ___i ___j]].*
 iv **It's Max_i [that I'd like to know [who introduced ___i to your sister]].*

Gaps are permitted in open interrogatives only under quite restrictive conditions. Example [i], with *how* as the questioned element (and with a very short interrogative clause), seems completely acceptable. Example [ii], with *why*, is more or less acceptable in speech but this type would not normally occur in published material. Example [iii], with *where*, is more questionable, whereas [iv] can be regarded as ungrammatical, and the same will apply to other examples where the interrogative phrase is in complement function. It will be noted that in [i–iii] there are two gaps, one associated with the open interrogative construction (and having the index *j*), the other with the relative clause in which the interrogative is embedded: compare the canonical construction *I cook spaghetti bolognese this way*.²⁵

(f) Non-finite clause in post-head complement function

- [39] i *It's you_i [I want [to marry ___i]].*
 ii *What_i did you [tell the police ___i]]?*
 iii *I wonder [what_i they intend [doing ___i about it]].*
 iv *They are the ones [to whom_i he had the weapons [sent ___i]].*

These illustrate all four types of non-finite clause: respectively *to*-infinitival, bare infinitival, gerund-participial, and past-participial. This category includes the non-finite complements of auxiliary verbs, as in [ii] or *What_i are you [reading ___i]]?*, etc.

²⁵In **There are words or terms_i in this Guide [that you may not be sure [what_j they_i really mean ___j]]* (taken with minor and irrelevant modification from an Australian government publication) the personal pronoun *they* is used instead of a gap linked to the antecedent *words or terms*. Pronouns used in place of a gap in relative clauses are known as 'resumptive pronouns'. In some languages they represent a regular feature of relative clause formation, but in English they are ungrammatical, as evident from their inadmissibility in simpler constructions like **words or terms [which_i you may not understand them_i]*.

Examples [i–ii] have the gap itself in complement function, but this time – in contrast to [41] – the result is very clearly ungrammatical. Preposing must apply to the whole NP: *The insinuation that it was my fault_i; I emphatically reject ___i* and *The question how the accident happened_i; they haven't begun to address ___i*.²⁶ In [iii–v] the gap is within the declarative content clause functioning as complement in NP structure. In general, this construction is of low acceptability. There is, for instance, a very sharp difference between [iii–iv] and comparable examples where the clause is complement of a verb: *How much_i; did the secretary report that it would cost ___i?* and *He's someone_i; [that I agree we should not have appointed ___i]*. However, the construction is by no means wholly excluded. It is most acceptable in examples containing collocations of light verb + noun such as *give an assurance*, *make the claim*, *hold the belief*, etc., which have essentially the same meaning as the verbs *assure*, *claim*, and *believe* respectively (cf. Ch. 4, §7). Thus [v] does not differ appreciably in acceptability from *How many staff_i; did he assure you that he would retain ___i?*

The examples in [42] involve content clauses; with infinitival complements gaps are more generally admissible:

- [43] i *What_i had Dr Harris secretly devised [a plan to steal ___i]?*
 ii *It is not clear [which felony_i; he is being charged with [intent to commit ___i]].*

(i) Modifiers

- [44] i *That's the car_i [that I'm saving up [to buy ___i]].*
 ii *Which month_i; are you taking your holidays [in ___i] this year?*
 iii **It's this river_i; [that I want to buy a house [by ___i]].*
 iv **List the commodities_i; [that you have visited countries [which produce ___i]].*

Gaps occur very much less readily in modifiers than in complements. One type of modifier where they are unquestionably allowed, however, is an infinitival clause of purpose in VP structure, as in [i]. Example [ii] shows a gap inside a PP functioning as modifier of temporal location, but we noted in (g) above that the stranded preposition construction has a quite strong preference for PPs in complement function. Modifiers in NP structure very strongly resist internal gaps, as illustrated in [iii–iv]. In [iii] the gap is in a PP modifying *house*, while that in [iv] is in a relative clause modifying *countries*.

(j) Subjects

- [45] i *They have eight children [of whom_i; [five ___i] are still living at home].*
 ii **They have eight children [who_i; [five of ___i] are still living at home].*
 iii **What_i would [to look at ___i too closely] create political problems?*

Gaps are almost wholly excluded from occurring within a subject. The main exception is the construction shown in [i], where the gap is complement within the subject NP and has a PP as antecedent. Examples like [ii–iii] are completely ungrammatical; in [ii] the gap is within a PP dependent in the subject NP, while in [iii] it is within a clause functioning as subject. The clause in this example is infinitival, but the same prohibition

²⁶ Examples like *Why he did it_i; I have no idea ___i* are acceptable, but here we take the interrogative clause to be a complement in the structure of the VP, not the NP: see Ch. 4, §6.

applies to finite clauses, as seen in the example used in the introduction to this section, [31ii].²⁷

(k) Coordinates

We saw in §7.2 that a gap cannot itself function as a coordinate (cf. [13viii]), but there are also constraints on the occurrence of gaps within coordinates. Compare:

- [46] i *Who was the guy_i [that [Jill divorced ___i] [and Sue subsequently married ___i]]?*
 ii **Who was the guy_i [that [Jill divorced Max] [and Sue subsequently married ___i]]?*

In general, a gap can occur within a coordinate element only if a gap with the same antecedent occurs in all other coordinates in the coordination construction. In [i], for example, each of the two coordinates (enclosed by the inner sets of brackets) contains a gap in object function with *guy* as its antecedent. The sentence presupposes that there was some guy *x* such that Jill divorced *x* and Sue subsequently married *x*. Example [ii] is ungrammatical because the gap figures in one coordinate but not the other.

There are certain conditions, however, under which this constraint is relaxed:

- [47] i *There are some letters_i [that I must just [go downstairs] [and check ___i over]].*
 ii *What is the maximum amount_i [I can [contribute ___i] [and still receive a tax deduction]]?*
 iii *He has built up a high level of expectations, [which_i he must [either live up to ___i] [or suffer a backlash]].*

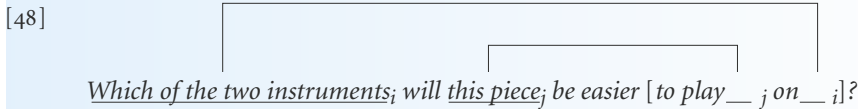
These are cases of asymmetric coordination, i.e. cases where the coordinates are not of equal status from a semantic point of view (see Ch. 15, §§2.2.3–4). This is reflected in the fact that such coordinations have approximate paraphrases where one coordinate is replaced by an adjunct. Compare *I'll go downstairs and check them over* with *I'll go downstairs to check them over*; *I contributed \$1,000 and still received a tax deduction* with *Although I contributed \$1,000, I still received a tax deduction*; *He must either live up to these expectations or suffer a backlash* with *If he doesn't live up to these expectations, he will suffer a backlash*. Note that in each case the gap appears in the coordinate corresponding to the adjunct in the paraphrase. We pointed out at the beginning of this section that the acceptability of gaps in various locations is not determined by purely grammatical factors, and the contrast between [46] and [47] is a clear instance where a grammatical constraint is overridden by semantic factors.

7.4 Nested dependencies

It is possible for a sequence containing a hollow clause gap and its antecedent to be nested between the gap of a major construction and its antecedent. This kind of construction is illustrated in examples like *Which of the two instruments will this piece be easier to play on?*

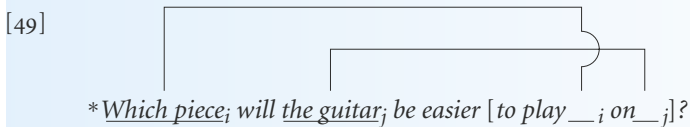
²⁷ The following is a rare attested example of a gap within an infinitival subject, showing that the constraint is not absolute: *The eight dancers and their caller, Laurie Schmidt, make up the Farmall Promenade of nearby Nemaha, a town_i [that [to describe ___i as tiny] would be to overstate its size].*

The analysis of this example is as follows:



The brackets enclose the hollow clause, and the underlining marks the antecedents of the two gaps, one functioning as object of the verb *play*, the other as object of the preposition *on*. One plays pieces of music on instruments, as reflected in a main clause such as *Kim will play the sonata on this piano*. The NP containing the noun *piece* will thus be the antecedent for the gap which is object of *play*, and the NP containing the noun *instruments* will be antecedent for the gap which is object of *on*.

It will be noted from the diagram that the first antecedent is linked to the second gap, and the second antecedent to the first gap: the pair with the *j* index is said to be nested between the pair with the *i* index. The dependency relations are required to be nested one within the other in this way. It is not possible for them to cross each other, as in:



It is plausible to see this constraint as serving to facilitate understanding: if only [48] is an admissible structure, the hearer will know that the first gap encountered will be linked to the most recently perceived antecedent.

7.5 Parasitic gaps

■ Omission of personal pronoun with gap as antecedent

Under certain conditions it is possible to omit a non-reflexive, non-genitive personal pronoun whose antecedent is a gap in an unbounded dependency construction:

- [50] i *They do an annual report_i [that I always throw ___i away without reading it_i].*
 ii *They do an annual report_i [that I always throw ___i away without reading ___i].*

The second gap in [ii] is called a **parasitic gap**. It is 'parasitic' in the sense that a gap is permitted in this position only if the antecedent is also a gap. Thus in *I always throw their annual report_i away without reading it_i* the antecedent of the pronoun *it* is an overt NP, and omission of the pronoun in this case leads to ungrammaticality: **I always throw their annual report away without reading ___i*.

The most clearly acceptable cases of parasitic gaps occur, like that in [50ii], in non-finite clauses located within adjuncts functioning in clause structure.

■ Parasitic gaps distinct from across-the-board gaps

The construction with an ordinary gap + parasitic gap is to be distinguished from that where two ordinary gaps appear in coordinated constituents:

- [51] *It was a proposal_i [that [Kim supported ___i] [but everyone else opposed ___i]].*

Here the second gap cannot be replaced by a personal pronoun. There is thus nothing parasitic about the second gap here: it is required by the rules for coordination. As

explained in Ch. 15, §2.1, a distinctive property of coordination is that such processes as relativisation must apply ‘across the board’: if relativisation applies within one coordinate it must apply within all. This is what accounts for the difference in grammaticality in [46], where [i] satisfies the across-the-board requirement and [ii] violates it.

Parasitic and across-the-board gaps can combine, as in the following attested example, where the parasitic gap is marked by an initial subscript ‘p’:

- [52] *Fairbanks reached for a towel, a clean one and not the scarcely crumpled one; [that Comore himself had [used ___i] [and left ___i thriftily on the ledge below the mirror rather than consign_p___i to the linen basket]].*

The outer brackets enclose a relative clause within which there is a coordination functioning as complement of the perfect auxiliary *have*. The two coordinates, enclosed by the inner pairs of brackets, each have an ordinary gap as object (of *used* and *left* respectively), but in addition the second coordinate has a parasitic gap in the adjunct headed by *rather*. Again, the parasitic gap could be replaced by the personal pronoun *it*, but the ordinary gaps could not.