

deleted and *the* is given the form *that/those* when its head N is deleted; that proposal avoids any necessity to replace a nonconstituent by *that/those*.

24. Working out the details of this observation will require some changes in the analysis of anaphora given in chap. 11, since, with c-command defined as it was in §11d, objects of prepositions do not c-command anything outside the P. Reinhart (1983:176) notes that for purposes of anaphora constraints some prepositions count and others do not, and suggests that those that do not count function as "case markers" rather than as full-fledged lexical items.

25. See Hetzron 1975 for discussion of gaps in inflectional and syntactic paradigms.

26. The graphic representation adopted in (20e) makes clearer than does Chomsky's graphic representation the "double filling" of the determiner position: Chomsky represents *the* not overtly in his diagram but in terms of a feature attached to the Det node.

27. However, Ross (personal communication) notes that there is at least one deletion transformation that is generally not permitted in nominalizations, namely, the "controlled object deletion" of examples like i-iii:

- i. Lucy is pretty to look at  $\emptyset$ .
- i'. \*Lucy's prettiness to look at  $\emptyset$
- ii. This computer is suitable for doing statistics with  $\emptyset$ .
- ii'. ??this computer's suitability for doing statistics with  $\emptyset$
- iii. The chicken is ready to eat  $\emptyset$ .
- iii'. \*the chicken's readiness to eat  $\emptyset$

(The asterisk in iii' relates only to the interpretation in which *the chicken* is coreferential with the understood object of *eat*; iii' is acceptable as an Equi construction, with *the chicken* controlling deletion of the subject of *ready*).

McCauley James: 1988. The syntactic phenomena of English. Chicago: U of C Press.

### ||||| 13. Relative Clauses

#### a. Distinctions among Restrictive and Nonrestrictive Relative Clauses and Their Look-alikes

A number of different types of subordinate clause in English can take a surface form consisting of a **relative expression** (either a relative pronoun such as *who* or *which* or a more complex expression such as *for which* or *during whose reign*, in which a relative pronoun is combined with other material) followed by a truncated S, i.e., something having the general form of a S except for lacking a constituent corresponding to the relative expression:

- (1) a. Restrictive relative  
The person who John asked  $\emptyset$  for help thinks John is an idiot.
- b. Nonrestrictive relative  
Mary, who John asked  $\emptyset$  for help, thinks John is an idiot.
- c. Cleft clause  
It was Mary who John asked  $\emptyset$  for help.
- d. Pseudo-relative (to be explained below)  
There are many people who Fred can't get along with  $\emptyset$ .
- e. Free relative  
I took offense at what John said  $\emptyset$ .
- f. Infinitival relative  
John is the person with whom to consult  $\emptyset$ .

Many of these types of clauses can also take forms having either *that* or nothing at all in place of a relative expression:

- (2) a. The person that/ $\emptyset$  John asked for help thinks John is an idiot.
- b. \*Mary, that/ $\emptyset$  John asked for help, thinks John is an idiot.
- c. It was Mary that/? $\emptyset$  John asked for help.
- d. There are many people that/ $\emptyset$  Fred can't get along with.
- e. \*I took offense at that/ $\emptyset$  John said.
- f. John is the person  $\emptyset$ /\*that to consult with.

These examples show that the clause types listed in (1) do not all behave

alike: restrictive and cleft clauses, but not nonrestrictive or free relative clauses, allow the omission of a relative expression in favor of *that* or  $\emptyset$ . I will devote this section to investigating differences among these constructions and in the process will draw some provisional conclusions about relations among them, e.g., about whether infinitival relatives are to ordinary restrictive relatives as *for-to* complements are to *that* complements.

Let us start by listing some differences between restrictive and nonrestrictive clauses.

(i) As just remarked, restrictive clauses allow the option of having *that* or  $\emptyset$  in place of a relative expression, but nonrestrictive clauses do not. It should be pointed out these options are available not in all restrictive relative clauses but only in those having certain structural characteristics. For example, *that* or  $\emptyset$  can replace only a simple relative pronoun, not a more complex relative expression:

- (3) a. The knife which/that/ $\emptyset$  he stabbed John with had a pearl handle.  
 b. The knife with which he stabbed John had a pearl handle.  
 b'. \*The knife that/ $\emptyset$  he stabbed John had a pearl handle.

The conditions under which these alternative forms can be used will be taken up in §13c.

(ii) A nonrestrictive clause, but not a restrictive clause, takes “comma intonation”: the nonrestrictive clause is separated from the preceding and following material by pauses, or at least delays, and the nonrestrictive clause ends on a falling pitch, after which the pitch level of the host sentence is resumed.

(iii) Restrictive and nonrestrictive clauses are subject to different restrictions on what they can be attached to. Only restrictive clauses can be attached to “indefinite pronouns” such as *everyone* and *nothing*, whereas only nonrestrictive clauses can be attached to proper nouns, <sup>1</sup> to Ss, or to As (or Vs, or Ps):

- (4) a. Everyone who attended the party had a good time.  
 a'. \*Everyone, who attended the party, had a good time.  
 b. Someone who admires Jespersen should write a book about him.  
 b'. \*Someone, who admires Jespersen, should write a book about him.  
 (5) a. John told me that Mary's operation was successful, which I was relieved to hear.  
 b. It says here that George Washington was gay, which I think is a lie.  
 (6) a. Fred Schwartz, who was playing the harp when you came in, has just been hired at Stanford.

c'. \*Fred Schwartz who was playing the harp when you came in has just been hired at Stanford.

- i. Agnes has just moved to Donora, where Stan Mustial grew up.  
 b'. \*Agnes has just moved to Donora where Stan Mustial grew up.  
 (7) a. Fred is very confident of himself, which I am not.  
 a'. \*Fred is very confident of himself which I am not.  
 b. Vivian is more interested in zoology than I am, which you probably are too.  
 b'. \*Vivian is more interested in zoology than I am which you probably are too.

(iv) Restrictive and nonrestrictive clauses attached to predicate NPs are interpreted differently and accordingly are semantically normal under different circumstances:

- (8) a. John is a lawyer who/\*which wins every case.  
 b. John is a lawyer, which/\*who his father is too.

The relative pronoun of the restrictive clause refers to the subject of the predicate NP (i.e., the relative clause in (8a) expresses the proposition that John wins every case), while the relative pronoun of the nonrestrictive clause refers to the property expressed by the predicate noun (i.e., the nonrestrictive clause of (8b) says that John's father is a lawyer, not that he is John).

(v) Restrictive but not nonrestrictive clauses can be extraposed:

- (9) a. A man who was dressed in black walked in.  
 a'. A man walked in who was dressed in black.  
 b. Marcia, who you wanted to meet, has just arrived.  
 b'. \*Marcia has just arrived, who you wanted to meet.

(vi) Restrictive clauses can be “stacked” but nonrestrictive clauses cannot be:<sup>2</sup>

- (10) a. The student who took the qualifying exam who failed it wants to retake it.  
 b. \*Sam Bronowski, who took the qualifying exam, who failed it, wants to retake it.

(vii) When restrictive and nonrestrictive clauses are attached to the same NP, the restrictive clause(s) must precede the nonrestrictive clause:

- (11) a. The contestant who won first prize, who is the judge's brother-in-law, sang dreadfully.

- b. \*The contestant, who is the judge's brother-in-law, who won first prize sang dreadfully.

(viii) Nonrestrictive clauses, but not restrictive clauses, allow the relative expression to have its own head noun:

- (12) a. John belongs to the International Terrorist Fraternity, which organization has been accused of plotting mass murder.

- b. \*John belongs to a society which organization has been accused of plotting mass murder.

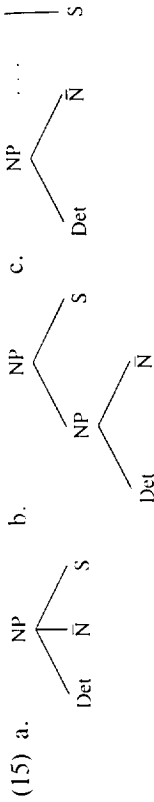
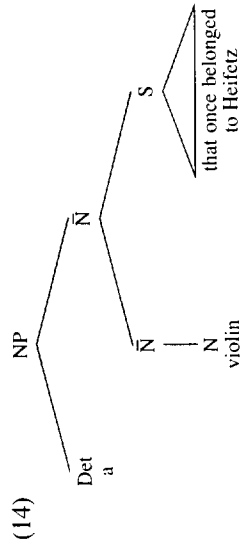
(ix) Another difference, to which I now turn, provides direct evidence that NPs with restrictive clauses and NPs with nonrestrictive clauses differ in surface constituent structure, specifically that an  $\bar{N}$  plus a restrictive relative behaves like a unit (indeed, like an  $\bar{N}$ ) with regard to deletion of a repeated  $\bar{N}$  or replacement of it by *one*, whereas an  $\bar{N}$  plus a nonrestrictive clause does not:

- (13) a. Tom has a violin that once belonged to Heifetz, and Jane has one too.

- a'. Tom has a violin, which once belonged to Heifetz, and Jane has one too.

- b. Tom has the violin that once belonged to Heifetz that was auctioned at Sotheby Parke Bernet, and Jane has the one that the Philharmonic used as a raffle prize.

In (13a, b), the deleted or pronominalized material is *violin that once belonged to Heifetz*. By contrast, in (13a') only *violin* can be the deleted item, i.e., (13a') can only mean '... and Jane has a violin too', not '... and Jane has a violin, which once belonged to Heifetz, too'. This fact provides evidence that restrictive relative constructions have a surface structure as in (14), with an  $\bar{N}$  and a restrictive relative clause making up a larger  $\bar{N}$ , while NPs with a nonrestrictive clause have some other constituent structure in which the  $\bar{N}$  and the nonrestrictive clause do not make up an  $\bar{N}$ , as in the possibilities listed in (15):



I will adopt (14) provisionally as the surface constituent structure for restrictive relative clauses. Later in this section we will attempt to find facts that will provide a basis for a choice among the alternatives in (15) for the surface constituent structure of NPs with a nonrestrictive clause. For the moment, I emphasize that (15c), in which the NP and the nonrestrictive clause do not even make up a constituent, must be considered seriously, i.e., we have as yet no justification for believing that a nonrestrictive clause is a constituent of a NP. There is some sort of syntactic relationship between a nonrestrictive clause and its *target* (as I will henceforth refer to the item that a nonrestrictive clause "modifies"), but we must not jump to the conclusion that that relationship is manifested in constituent structure—it could instead be, say, something like the relation of a pronoun to its antecedent.

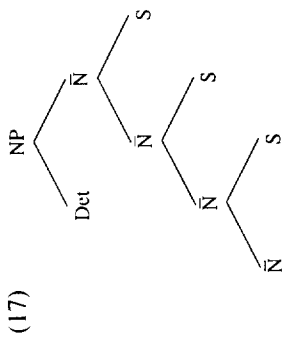
It is misleading to give NPs the central role that they are accorded in the last paragraph. Recall that while restrictive clauses are always associated with a NP, the target of a nonrestrictive clause can be a constituent that is neither a NP nor contained in a NP.<sup>3</sup>

- (16) a. ( $\bar{A}$ ) John is afraid of snakes, which I'm sure Mary is too.  
 b. ( $\bar{P}$ ) Senator Snerd is in Bermuda, where most of his colleagues are too.  
 c. (S) It has been reported that Senator Snerd is in Kuwait, which can't be right.

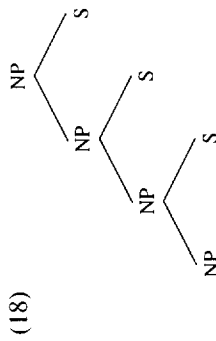
Thus, if nonrestrictive clauses are to fit into surface constituent structure in a uniform way, their role in relation to NPs in examples like *your father, who I admire* should not involve any structural details of NPs that are not shared by the other constituents that can support nonrestrictive clauses. This observation provides additional reason for not assigning to nonrestrictive clauses a structure like (14) and casts some doubt on (15a). By contrast, the structure in (15b-c) can be taken as instances of more general structural configurations that are not restricted to NPs, i.e., (15b) would conform to a treatment of nonrestrictive clauses as modifiers, that is, as always fitting into an [ $X$  S] configuration, with NP being only one of several categories that could fill the role of "X," and (15c) would conform to a treatment in which a nonrestrictive clause was positioned after but

not adjoined to a constituent of any category that supports nonrestrictive clauses.

The hypothesis that restrictive relative clauses fit into a constituent structure as in (14) yields the correct prediction that restrictive relative clauses can be stacked (see (vi) above), since there is nothing to prevent the N of an  $\bar{N}$  S configuration from itself having the form  $\bar{N}$  S:



If the constituent structure for nonrestrictive clauses were as in (15b), we would derive the false prediction that nonrestrictive clauses allow stacking, or at least, it would be necessary to add some restriction or other to the grammar in order to exclude structures in which the NP of an NP S combination was itself of the form NP S:



By contrast, the structures in (15a, c) do not provide directly for stacking: the only way to allow for multiple nonrestrictive clauses in structures of the forms (15a, c) would be to give a rule explicitly allowing arbitrarily many Ss to appear where the single S appears in (15a, c), whereas with the structures in (14) and (15b), multiple Ss are automatically available.

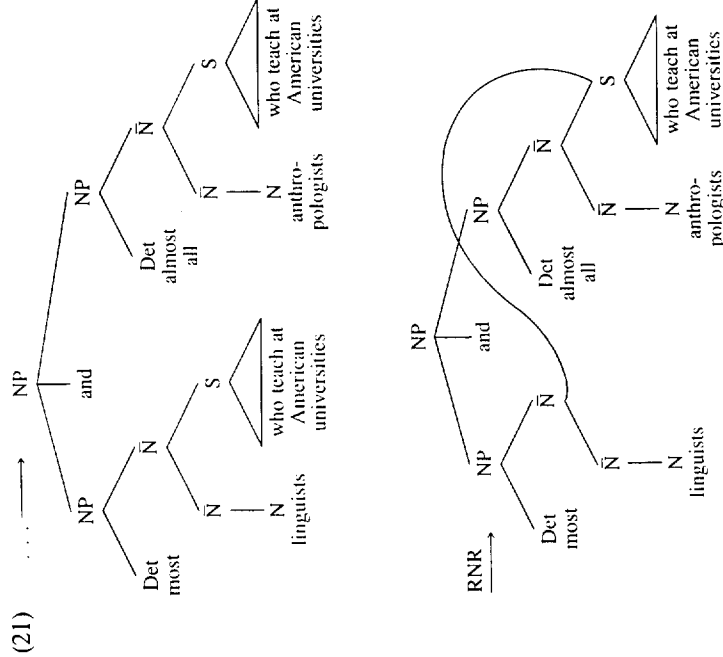
The proposed difference in structure is confirmed by the fact that a combination of  $\bar{N}$  and restrictive clause can serve as a conjunct of a coordinate  $\bar{N}$ , whereas a sequence of  $\bar{N}$  and nonrestrictive clause cannot:

- (19) a. Those [[linguists who wear sweatshirts] and [philosophers who wear suits and ties]] are having another big argument.
- b. \*Those linguists, who wear sweatshirts, and philosophers, who wear suits and ties, are having another big argument.

Examples like (20) seem at first to argue for another constituent structure for restrictive relative clause constructions, with the Det and  $\bar{N}$  making up a constituent:

(20) Most linguists and nearly all anthropologists who teach at American universities think the Bureau of Indian Affairs is imperialistic.

Here a restrictive clause appears to be an adjunct to a conjoined NP. However, (20) can alternatively be viewed as the result of applying Right-node-raising to a conjoined NP in which both  $\bar{N}$ s have identical restrictive relatives, in which case (20) would have a derivation as in (21):<sup>4</sup>

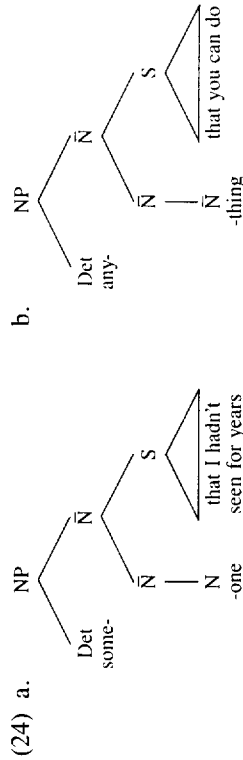


Since the underlying structure posited in (21) fits the meaning of (20) and since the derivation in (21) is available at no cost, a satisfactory account of (20) is available without the positing of any configuration besides [ $\bar{N}$  S] for restrictive relative clauses.

One serious problem for an analysis of restrictive clauses as adjuncts to  $\bar{N}$ s is that they can appear in combination with words such as *someone*, *anything*, *nobody*, and *who* that appear to be not  $\bar{N}$ s but whole NPs:

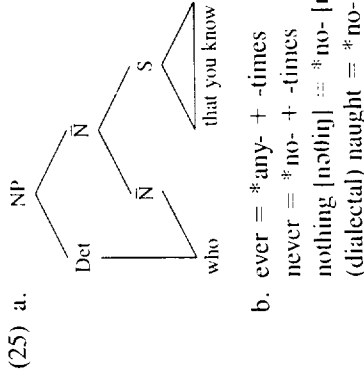
- (22) a. I've just run into someone that I hadn't seen for years.  
 b. Anything that you can do will be appreciated.  
 c. Nobody who has ever met John can believe that he's guilty.  
 d. Who that you know would make a good candidate?
- (23) a. \*I've just run into an interesting someone.  
 b. \*I couldn't find a satisfactory anything.  
 c. \*The most respected nobody in Scarsdale has just had a heart attack.<sup>5</sup>  
 d. \*An incompetent who did you ask for help?

If each word of a sentence must be a constituent in surface structure, then the relative clauses in (22) cannot be adjuncts to an  $\bar{N}$ , since the smallest constituents to which they could be adjuncts would then be NPs (*someone*, etc.). However, if we allow mismatches between syntactic boundaries and word boundaries, we can treat *someone*, *anything*, *nobody*, *everywhere*, etc. as consisting of a Det (*some-*, *any-*, *no-*, *every-*) and an  $\bar{N}$  (*-one*, *-thing*, *-body*, *-where*, *-time*, . . .) and treat the restrictive clause as an adjunct to that  $\bar{N}$ :



The determiner part of these words is in fact synonymous with the corresponding independent determiner,<sup>6</sup> and the noun part, while generally different in meaning from the homophonous independent word (e.g., the *-body* of *somebody* means 'person', not 'body'), can still be paraphrased by a noun.

In the case of *who* and other interrogative pronouns (22d), the cost of maintaining the  $\bar{N}$ -adjunct analysis of restrictive relatives is to allow a mismatch not only between syntactic boundaries and word boundaries but indeed between syntactic boundaries and morphemic boundaries: *who*, *what*, etc. will have to be decomposed into parts that do not correspond to separate morphemes in surface structure (25a); such a treatment of interrogative pronouns should not be dismissed out of hand, since something similar will be needed anyway for certain *any-* and *no-* words that likewise fail to split into morphemes in the neat way that *anything* and *nobody* do (25b):



In addition, the syntax of interrogative pronouns shows some parallels with the syntax of the *some-*, *every-*, *any-*, and *no-* words (26a–b), albeit less than the complete parallelism that would yield a really strong argument for analyzing them into Det + N (26c–d):<sup>7</sup>

- (26) a. Everything else is forbidden.  
 What else is forbidden?  
 \*Several activities else are forbidden.  
 b. He found something/\*someone of yours.  
 What/\*Who did he find of yours?  
 c. Who the hell can fix this dishwasher?  
 \*Someone the hell can fix this dishwasher.  
 d. How else could you fix it?  
 \*I'll fix it somehow else.

I will leave open here the question of whether the generalization that restrictive relatives modify only Ns is worth the price of accepting structures like (25a).

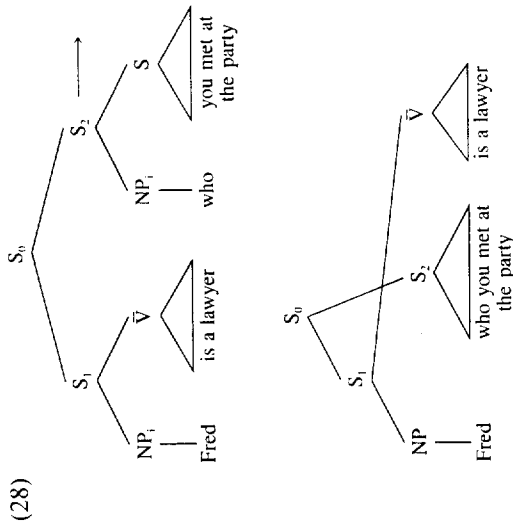
Let us return to the question of the external constituent structure of nonrestrictive clauses. The fact that combinations of target and nonrestrictive clause can appear in predicate position in cleft and pseudo-cleft sentences seems at first to suggest a constituent structure like (15b) in which the nonrestrictive clause and its target make up a constituent:

- (27) a. It was Fred, who you met at my party, that I was just talking to on the phone.  
 b. What Mary likes the most is dancing, which unfortunately doesn't appeal to Roger at all.

However, the existence of sentences like (27) is in fact consistent with the (15c) structure, since under (15c) the sequence "target + nonrestrictive

clause" need not be the predicate constituent of sentences like (27): the target could itself be the predicate constituent and be followed by a nonrestrictive clause just the way that (according to (15c)) nonrestrictive clauses follow but are not adjuncts to their targets.

For clarity's sake, let us consider one specific version of the (15c) hypothesis and see how it allows for sentences like (27). Specifically, let us suppose that nonrestrictive clauses are adjuncts to the whole sentence and that they are moved, without change of constituent structure, to a position immediately following the target.<sup>8</sup>



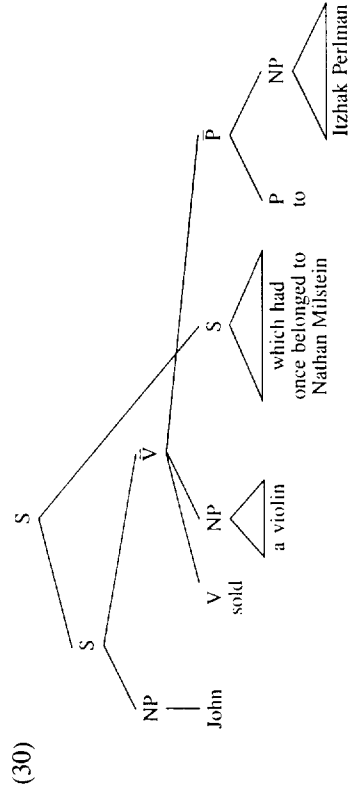
Suppose now that instead of S<sub>1</sub> in (28) we have whatever underlies the cleft sentence *It was Fred that I was just talking to*. According to the cyclic principle, whatever rules are involved in the derivation of the cleft sentence will apply on the S<sub>1</sub> cycle, yielding a derived structure with *Fred* in predicate position, and on the S<sub>0</sub> cycle the rule that positions nonrestrictive clauses applies, moving the nonrestrictive clause to the position immediately following *Fred* exactly the way that it does in derivations such as (28).

A possible piece of positive evidence for a (15c) constituent structure, and indeed, for a version of it as in (28), with the nonrestrictive clause not even part of the same clause as the host, is the interpretation of zero V's when the antecedent contains a nonrestrictive clause:

- (29) a. John sold Mary, who had offered him \$600 an ounce, a pound of gold, and Arthur did  $\emptyset$  too.

- b. John sold a violin, which had once belonged to Nathan Milstein, to Itzhak Perlman, and Mary did  $\emptyset$  too.

The understood  $\bar{V}$ s do not include the nonrestrictive clause, i.e., in (29a) the understood  $\bar{V}$  is *sell Mary a pound of gold*, not *sell Mary, who had offered him \$600 an ounce, a pound of gold*, and in (29b) it is *sell a violin to Itzhak Perlman*, not *sell a violin, which had once belonged to Nathan Milstein, to Itzhak Perlman*. The latter judgment is the clearer of the two: (29b) does not imply that the violin that Mary sold had belonged to Milstein. This provides evidence that (29b) has a constituent structure as in (30), with the nonrestrictive clause not a constituent of the  $\bar{V}$  that it occurs in the middle of:



I will thus tentatively adopt a (15c) constituent structure for nonrestrictive clauses, though I emphasize that the case for it is not overwhelming.

A further difference between restrictive and nonrestrictive clauses, though one whose implications will not be completely clear until a theory of the relationship of syntax to intonation and rhythm is developed, is in the acceptability of sentences in which a parenthetical expression breaks up the construction:

- (31) a. \*Fred was just talking to the person incidentally who asked John for help.  
 a'. \*Dorothy arrived on the day of course when I was in Toledo.  
 b. ?Fred was just talking to Mary, incidentally, who asked John for help.  
 b'. ?Dorothy arrived on Wednesday, of course, when I was in Toledo.

It at least is plausible to take this difference as evidence that nonrestrictive clauses are "less tightly" connected to the preceding material than are restrictive clauses. With cleft clauses, which presumably do not have any

connection with the preceding constituent (the predicate constituent), there is not even the mild awkwardness that one finds in examples like (31b–b’):

- (32) a. It was Fred, incidentally, who asked John for help.  
 b. It was Wednesday, of course, when I was in Toledo.
- There is a class of cases in which what appear at first glance to be restrictive relative clauses behave more like the cleft clauses of (32) than the restrictive relatives of (31a–a’) with regard to placement of parenthetical expressions:
- (33) a. There are many Americans, of course, who distrust politicians.  
 b. Paul has a brother, incidentally, who lives in Toledo.  
 c. Nixon is the only president, as you know, who ever resigned.  
 d. I’ve never met an American, by the way, who didn’t like pizza.

The apparent relative clauses in (33), which I will henceforth refer to as **pseudo-relative clauses**, also differ from ordinary restrictive relatives with regard to a constraint (the Complex NP constraint, to be taken up in chapter 15) that excludes extraction of material from a relative clause construction:

- (34) a. \*Which books did John praise the person who wrote  $\emptyset$ ?  
 b. \*What corporation is Nina the lawyer who represents  $\emptyset$ ?

While sentences in which material is extracted from pseudo-relative clauses often sound somewhat odd, they generally sound far more normal than examples as in (34) in which material is extracted from ordinary restrictive relatives (35), and extractions from pseudo-relatives occur far more often in ordinary speech than do extractions from ordinary restrictive relatives (36):

- (35) a. ?Which persons do you think there are many Americans who distrust  $\emptyset$ ?  
 b. ??What company does John have a brother who works for  $\emptyset$ ?  
 c. ?How many exam papers is Smith the only instructor who hasn’t read yet  $\emptyset$ ?  
 d. Which foods have you never met an American who doesn’t like  $\emptyset$ ?

- (36) a. This is the one that Bob Wall was the only person who hadn’t read  $\emptyset$ .  
 (University of Texas secretary, observed by Susan Schmerling)  
 b. Then you look at what happens in languages that you know and languages that you have a friend who knows  $\emptyset$ . (Charles Ferguson, lecture, May 1971)  
 c. It’s a distinction which I’m sure I’m the only person in the world who has  $\emptyset$ . (Howard Aronson, 31 May 1984)

I turn now to **infinitival relatives**. For most speakers, infinitival relatives allow an overt relative expression only in the form of a prepositional phrase:

- (37) a. a shovel with which to dig the hole  
 a’ a hole (\*which) to fill with earth  
 b. a person to whom to show respect  
 b’ a person (\*who) to respect  
 c. a day on which to relax  
 c’ a day (\*when) to relax  
 d. premises from which to draw interesting conclusions  
 d’ premises (\*which) to draw interesting conclusions from  
 e. %an author whose books to buy

I have used parentheses in (37) to suggest that infinitival relatives with no overt relative expression take the place of structures involving a full relative clause with *who*, *which*, etc. as the relative expression. This conjecture is supported by the fact that infinitival relatives without an overt relative expression exhibit the same sorts of “incomplete constituents” as do full relative clauses and have interpretations parallel to expressions in which a relative pronoun corresponds to the “gap”:

- (38) a. a shovel to dig the hole with  $\emptyset$   
 a’ a shovel which you can dig the hole with  $\emptyset$   
 b. the person to give the money to  $\emptyset$   
 b’ the person who you should give the money to  $\emptyset$   
 c. a topic to write an article about  $\emptyset$   
 c’ a topic which I can write an article about  $\emptyset$

Infinitival relatives without an overt relative expression, but not those with one, allow *for* plus a subject NP:

- (39) a. a shovel for us to dig the hole with  
 a’ \*a shovel with which for us to dig the hole  
 b. the person for you to give the money to  
 b’ \*the person to whom for you to give the money  
 c. a topic for the students to write papers on  
 c’ \*a topic on which for the students to write papers

However, an underlying subject must be posited even for subjectless infinitival relatives, since they can take forms whose derivations require the positing of a S to serve as the domain of application for such transformations as Passive and Raising:

- (40) a. a priest (for us) to be blessed by
- a'. a priest by whom to be blessed
- b. a problem (for us) to start working on
- b'. a problem on which to start working

The combination of  $\bar{N}$  and infinitival relative (of any of the above forms) behaves as a constituent:

- (41) a. John bought several [books for his wife to read] and [records for the children to listen to].
- b. John bought several [knives with which to slice vegetables] and [containers in which to store leftovers].

Indeed, infinitival relatives share most of the properties of restrictive relatives that were listed earlier in this section, e.g., they can be extraposed (42a-a'), they can be stacked, both with other infinitival relatives and with finite restrictive relatives (42b-b'', c-c''), and they do not allow relative expressions containing *which* N (42d):

- (42) a. A knife has been developed with which to peel grapes.
- a'. A knife has been developed for people to peel grapes with.
- b. I've just found a pad to write on on which to compose my sonnet.
- b'. I've found a pad to write on that I can use for taking my notes.
- b''. I've found a pad that has extra-narrow rulings for Alice to take her notes on.
- c. There are several topics on which to do research for us to work on.
- c'. Here's a topic on which to do research that the Bargle Foundation is likely to support.
- c''. Here's a topic that the Bargle Foundation is likely to support on which to do research.
- d. \*John was looking for a hammer with which tool to break open the coconut.

The only characteristic of restrictive relatives listed above that infinitival relatives do not share is the possibility of having *that* in place of a relative expression. This difference can be explained if we adopt a specific policy on the role of *that* in relative clauses. Suppose that we identify the *that* of relative clauses with the complementizer *that* and hypothesize that all relative clauses have an underlying complementizer and that relative expressions either replace the complementizer or are deleted. In that case, a *that* could introduce the surface form of a relative clause if and only if the

relative clause had an underlying complementizer *that* and the relative pronoun was deleted rather than replacing the *that*. Infinitival relatives could then be taken to have an underlying complementizer *for-to*, and no *that* would appear in their surface form because no *that* appeared in their deep structures.

The treatment of *that* in relative clauses as a complementizer (and not, as it is often called, a relative pronoun) explains the fact that it never occurs as the object of a preposition the way that true relative pronouns do:<sup>9</sup>

- (43) a. the knife with which/\*that I sliced the mangoes
- b. the person to whom/\*that Violet sent the letter

There is no way that a complementizer can get to be the object of a preposition. Movement of a relative expression such as *to whom* to the front of the relative clause puts it in place of the complementizer (regardless of whether *that* or *for-to* is the underlying complementizer) and thus leaves no complementizer in the surface form. The proposal accounts for the unacceptability of examples like (39a', b', c'), in which *for* co-occurs with a relative expression, but does not in itself account for why there are no corresponding expressions (such as \**a shovel with which us to dig the hole*) that simply lack the *for*. I will adopt this proposal, noting that it must be supplemented by some account of why simple relative expressions are excluded (\**a book which to read*) and why presence of an overt relative expression in an infinitival relative requires absence of an overt subject.

Consider now free relatives. It is often difficult to distinguish free relatives from interrogative complements, and indeed many examples are ambiguous between the two interpretations:

- (44) John saw what Mary was holding in her hand.

Suppose that Mary was holding an emerald in her hand. Interpreted as involving an interrogative complement, (44) says that John saw that Mary was holding an emerald in her hand. Interpreted as involving a free relative, it says that he saw the emerald but is noncommittal as to whether he saw that it was an emerald. We can get examples that are unambiguously the one or the other by combining the expression in question with either a verb that demands a complement or one demanding a nonsentential object:<sup>10</sup>

- (45) a. I'll ask what he's selling. (Interrogative complement)
- b. I'll buy what he's selling. (Free relative)

Bresnan and Grimshaw (1978) note a number of systematic differences between interrogative complements and free relatives. Only free relatives allow a WH-expression with *-ever*:



- (46) a. I'll buy whatever he's selling.
- b. \*I'll ask whatever he's selling.

Only interrogative complements act like Ss by producing awkwardness when they are in the middle of a sentence:

- (47) a. Is [what you bought] still in the car?
- b. ?Is [how much he bought] of any importance?

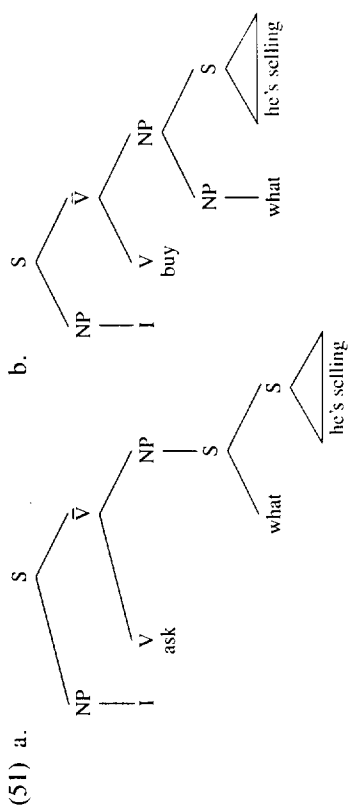
Only interrogative complements can be extraposed (48) and allow the WH-word to be preceded by a preposition (49a-a') or followed by a "pos-sessed" noun (49b-b'):

- (48) a. \*It's still in the car what you bought.
- b. It isn't important how much he bought.
- (49) a. I'll buy what he was pointing at.
- a'. \*I'll buy at what he was pointing.
- I'll ask what he was pointing at.
- I'll ask at what he was pointing.
- b. \*I'll buy whose books he's selling.
- b'. I'll ask whose books he's selling.

And only in free relatives is the grammatical number of the whole NP determined by that of the WH-expression:

- (50) a. What(-ever) books he has written haven't/\*hasn't sold well.
- b. What books he has written hasn't/\*haven't been established.

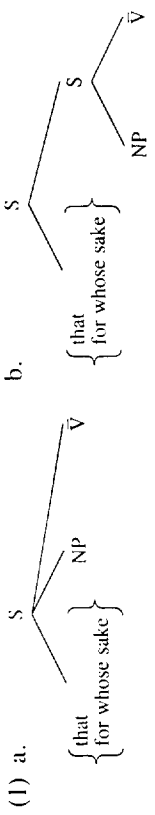
The observations about (47)-(48) provide evidence that interrogative complements are Ss but free relatives are not. The observations in (49)-(50) provide evidence that the WH-expression is the head of a free relative, but not of an interrogative complement. These observations thus suggest that interrogative complements differ in constituent structure from free relatives along roughly the following lines:



b. *The Internal Structure of Relative Clauses*

This section is concerned with two main questions: (i) how does the relative expression (e.g., *for whose sake*) or the *that* fit into the constituent structure of a relative clause, and (ii) where may the "gap" corresponding to the (overt or understood) relative expression occur within the relative clause?

Only two answers to (i) have been seriously advanced: that the relative expression or the *that* is a sister of the NP and  $\bar{V}$  of the relative clause (1a) or that it is their aunt (1b):<sup>11</sup>



The relevant evidence relates to phenomena where the NP and  $\bar{V}$  could function as a unit that did not include the *that* or relative expression. For example, we can argue that both restrictive and nonrestrictive relative clauses have a structure as in (1b) rather than (1a) on the grounds that the NP  $\bar{V}$  sequence behaves as a unit with regard to conjoining:

- (2) a. The book which/[that [[Smith praised] and [Jones panned]]] is on the best-seller list.
- b. A person about whom [[conservatives publish denunciations] and [liberals express serious misgivings]] can't be all bad.
- c. Stalin, by whose orders [[millions were killed] and [hundreds of millions were enslaved]], was feared by all.

Another relevant phenomenon is Right-node-raising. Here the NP and  $\bar{V}$  of a restrictive relative behave like a unit:

- (3) a. Tell him no more than, nor even all that, he'd like to hear.  
(taken from Bresnan 1974)
- b. The reasons for which and the considerations despite which Wilson called for a declaration of war are poorly understood.

RNR likewise provides evidence that free relatives of both of the types discussed in the last section have a surface structure consisting of two constituents, the WH-expression and the remainder (presumably a S):

- (4) a. John will buy whatever books, and Mary will buy whatever records, you want to get rid of.
- b. I was reminiscing about where, and Fred was reminiscing about when, you could get a hot dog for 10 cents.

The NP and  $\bar{V}$  of a nonrestrictive clause do not behave as a unit in that particular way:

- (5) \*Henry VIII, during whose reign, and Paul II, during whose papacy, the exploration of America began, were bitter enemies.

The unacceptability of (5), however, may actually have no bearing on the internal structure of nonrestrictive clauses, since whether RNR can affect constituents within nonrestrictive clauses will depend on the **external** syntax of nonrestrictive clauses, in particular, on whether nonrestrictive relatives are adjuncts to the host constituent (as in §13a (15b)) or do not make up constituents with their hosts (as in §13a (15c)). If nonrestrictive relatives have the latter sort of external syntax, then they are not strictly speaking part of the coordinate structure in (3c) and thus could not be affected by RNR. Since I know of no other relevant facts, and since the small amount of unequivocal evidence supports (1b) over (1a), I will henceforth assume that both restrictive and nonrestrictive clauses have surface constituent structures as in (1b). (In exercise 3, the reader is asked to find examples relevant to determining whether the other clauses having the appearance of relative clauses, e.g., cleft clauses, also have this internal structure.)

Before leaving question (i), I should take up a class of relative clauses that call for a special qualification, namely, those in which the “relativized” constituent is the subject:

- (6) a. The person who/that bought this car is a millionaire.  
 b. John, who has been my neighbor for years, is about to move to Texas.

In such examples, the *that* or relative expression is followed not by a NP  $\bar{V}$  sequence but just by a  $\bar{V}$ . The  $\bar{V}$  is of course as much of a constituent as when it appears in any other sentence. What isn't clear, however, is whether the  $\bar{V}$  in such cases constitutes a S: do all relative clauses have a surface form [X S], or does the underlying S whose subject is relativized lose its S-hood, so that in the surface structure of the relative clauses in question there will be only one S-node rather than the two that are indicated in (1b)?

The most obvious type of example to look at in which it should make a difference whether the  $\bar{V}$  that follows the relative expression in (6) etc. is also a S are examples in which it is conjoined with a S in which a non-subject is relativized, e.g.:

- (7) a. the book which appeared last year and Smith reviewed for the *Post*  
 b. \*the book which Smith reviewed for the *Post* and won a Pulitzer Prize

If the  $\bar{V}$  in the book which appeared last year or the book which won a Pulitzer Prize is also a S, it should be conjoinable with Ss having the same semantic function. The acceptability of such examples depends heavily on the order of the conjuncts, i.e., the conjoining is at most mildly odd when the “subject relative” is the first conjunct, as in (7a), but is quite unacceptable when it is the second conjunct, as in (7b). The fact that the order of conjuncts makes such a difference leads me to conjecture that the unacceptability of (7b) is due not to the conjoining of items of different categories (a characteristic in which it is no different from (7a)) but from the perceptual difficulty caused by the fact that *won a Pulitzer Prize* in (7b) looks as if it is conjoined with the S. I will thus tentatively take examples like (6) to have a (1b) surface structure, with the  $\bar{V}$  making up a surface S.

Let us now turn to question (ii). The relative expression can correspond to a gap arbitrarily far down in the relative clause:

- (8) a. the person who [you talked to  $\emptyset$ ]  
 b. the person who [John says that [you talked to  $\emptyset$ ]]  
 c. the person who [they tell me that [John says that [you talked to  $\emptyset$ ]]]  
 (9) a. the city where [the meeting was held  $\emptyset$ ]  
 b. the city where [it's likely that [the meeting was held  $\emptyset$ ]]  
 c. the city where [I read somewhere that [it's likely that [the meeting was held  $\emptyset$ ]]]  
 d. the city where [Violet tells me that [she read somewhere that [it's likely that [the meeting was held  $\emptyset$ ]]]]]

This is not to say that just any position in a relative clause can be the site of the gap corresponding to the relative expression. There are a number of restrictions that rule out gaps in such examples as the following:

- (10) a. \*the person who [you talked to Oscar and  $\emptyset$ ]  
 b. \*the policeman who [the FBI is looking for the person who killed  $\emptyset$ ]  
 c. \*the city where [that [the meeting will be held  $\emptyset$ ] is likely]  
 d. the person who [John says (\*that) [ $\emptyset$  talked to you]]

The principles that rule out the derivations of these sentences will be taken up in chapter 15. They include the Coordinate Structure Constraint, already taken up in chapter 9, which excludes steps in which a transformation applying to a domain containing a coordinate structure does not affect all conjuncts alike (as in the derivation of (10a), where a relative pronoun is extracted from only one conjunct of *Oscar and who*), as well as constraints excluding the extraction of material from “complex NPs” (10b) or from sentential subjects (10c), or the extraction of the subject of a S whose complementizer is retained (10d).

The material that is moved into the Comp position of a relative clause may consist of more than just a relative pronoun:

- (11) a. the cook from whom I learned this recipe  
 b. the author whose book Roger is reviewing  
 c. the poet from whose best-known work I selected that passage  
 d. an author most of whose works are completely forgotten  
 e. an opera the last three bars of the overture of which contains a fiendishly difficult horn part

Such examples illustrate a general property of movement transformations, namely, that movement of an item (in this case, movement of the relative pronoun into Comp position) is allowed to affect not merely the item itself but a NP or  $\bar{P}$  containing that item. This phenomenon is referred to as **Pied-piping**, to use the term coined by Robin Lakoff (cited in Ross 1967a), in which the item whose movement is called for (here, the relative pronoun) is likened to the Pied-Piper of Hamelin and the material with which it is combined to the rats and/or children. Pied-piping is strictly speaking optional, with the caveat that what is left behind must be able to stand on its own, and thus the option of not doing Pied-piping is excluded in such cases as (12b), in which the relative pronoun is part of the determiner of a NP:

- (12) a. the cook who I learned this recipe from.  
 b. \*the author [who [Roger is reviewing  $\emptyset$ 's book]]  
 b'. \*the author [whose [Roger is reviewing  $\emptyset$  book]]

### c. *Analyses of the Various "Relative" Clauses*

(FINITE) RESTRICTIVE RELATIVES In §13a, it was proposed that restrictive relative clauses have an underlying complementizer (*that* in the case of finite restrictive relatives, *for-to* in the case of infinitival relatives) and that in the course of the derivation the relative expression either replaces the complementizer or is deleted. In the case of finite restrictive relatives (discussion of infinitival relatives will be postponed until later in this section), such an account has at least the following attractions: (i) it correctly accounts for the surface constituent structure of restrictive clauses, since the complementizer is in a [<sub>S</sub> Comp S] configuration and thus any element X that replaces it will be in a [<sub>X</sub> X S] configuration in derived syntactic structure; (ii) it accounts for the fact that *that* cannot be combined with prepositions or other things when it introduces a relative clause (e.g., *the shovel with which/\*that he dug the hole*); and (iii) it accounts for the fact that all relative clauses, whether introduced by a relative expression or by *that*, contain a gap.<sup>12</sup>

To develop this suggestion into a full-fledged analysis of restrictive relative clauses, we need to supplement it with conclusions about what underlies a relative pronoun (Do relative pronouns appear as such in deep structure? Do they correspond in deep structure to "full" NPs such as *the shovel*? Or perhaps instead to personal pronouns?) and about the conditions under which deletion of the relative pronoun or movement of it into the position of the complementizer takes place.

A consideration of the interpretation of (1) provides an argument for treating relative pronouns as derived from personal pronouns having the reference of the host NP:

- (1) We should nominate a person who is a Republican and is proud of it. *Proud of it* here means 'proud (of) that he is a Republican', and if this use of *it* requires a linguistic antecedent (which I wish to maintain), the only plausible candidate for that antecedent is the first conjunct in the structure [a person [he, is a Republican] and [he, is proud that [he, is a Republican] can]], that will underlie the NP according to the proposal that personal pronouns underlie relative pronouns (supplemented by conclusions about coordination from chap. 9).

Let us, however, pay more attention to referential indices such as appear in the structure just cited. To say what exactly underlies a relative pronoun, we will have to deal not only with the question of what morphemes underlie it but also with that of what its reference is. In the simplest case, the reference of the relative pronoun is identical to that of the NP of which it is a constituent, e.g., *who* in (2) refers to the individual who is described as *the student who sang "Norwegian Wood,"* and the relative clause contributes to the meaning of (2) the proposition that that individual sang "Norwegian Wood":

- (2) The student who sang "Norwegian Wood" is in my phonetics class.

However, in (1), the NP does not really purport to refer to a specific individual. Rather, the index *i* in the cited structure corresponds to a "variable" in the logical form of (1), and it is not strictly speaking correct to say that **anything** is "the reference of" *a person who is a Republican and is proud of it* in (1). It is in fact quite common for restrictive relatives to occur within NPs that strictly speaking do not have a reference:

- (3) a. Every person who knows Diane admires her.  
 b. No person who has studied Sanskrit thinks it is easy.  
 c. All concerts at which Mahler symphonies are played are well attended.  
 d. Most persons who love their mothers admire their fathers.

Note that examples like those in (3) have meanings that are not accurately represented by a type of underlying structure that has occasionally been proposed for relative clauses, namely, one in which the deep structure counterpart of the relative pronoun is a NP made up of a Det and a N matching those of the host NP, e.g., underlying the relative clause of (3a) would be *Every person knows Diane*. That would misrepresent the meaning of (3a): (3a) says nothing about the proposition that every person knows Diane (any more than (3b) says anything about the proposition that no person has studied Sanskrit, or than (3c) says anything about the proposition that Mahler symphonies are played at all concerts). The contribution of the relative clause to the meaning of the sentence is what would be represented in formal logic as a propositional function involving a variable, e.g., the logical form of (3a) is roughly (4):

(4) For every person  $x$  such that ( $x$  knows Diane), ( $x$  admires Diane).

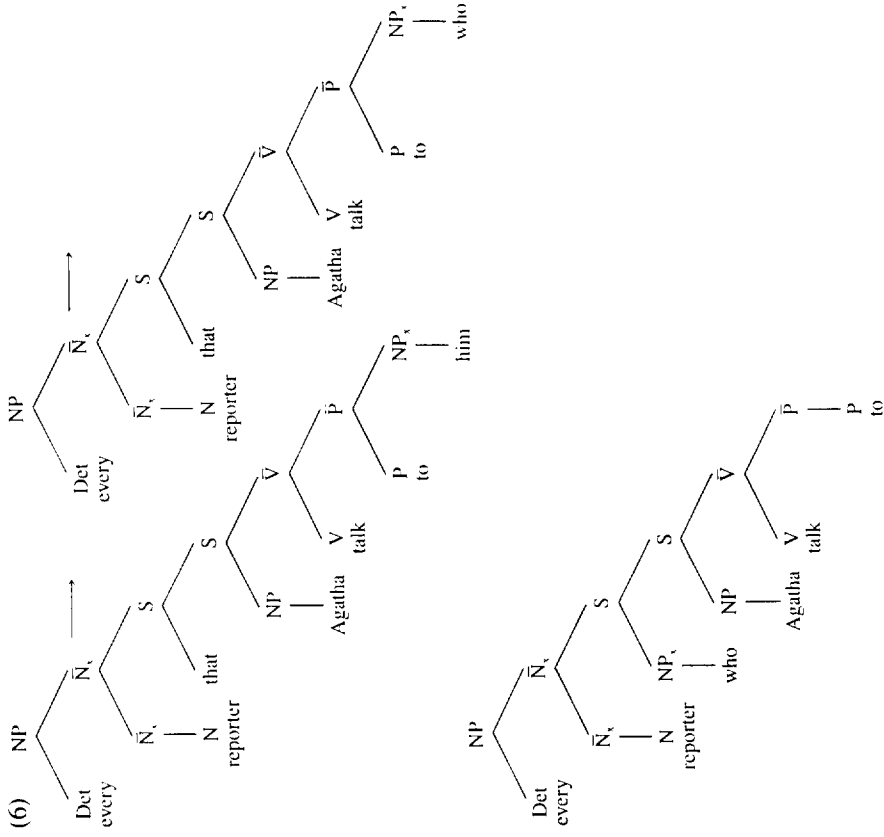
The combination of  $\bar{N}$  and restrictive relative clause in examples like (3) specifies what values the variable is allowed to take, e.g., in (3a) the variable takes as its values those persons who have the property ' $x$  knows Diane', and the sentence says that for every one of those values it is true that ' $x$  admires Diane'. Note that under this description of relative clause constructions, the same variable can correspond to both relative and personal pronouns, e.g., the logical form of (3d) is roughly (5), which has occurrences of  $x$  corresponding to the two occurrences of *them* in (3d):

(5) For most persons  $x$  such that  $x$  loves  $x$ 's mother,  $x$  admires  $x$ 's father.

Variables in logical form in fact correspond to personal pronouns in syntactic structures, in the sense that whenever the surface form of a sentence contains anything that corresponds directly to a variable in logical structure, it is a personal pronoun. If we continue to assume that personal pronouns must bear referential indices that are also borne by their antecedents and any other constituents with which they are coreferential, the most straightforward way of dealing with sentences like (3) is to allow variables to count as referential indices.

Since a clause of logical structure can perfectly well contain more than one variable, it is necessary to specify somehow which of the variables corresponds to the relative pronoun of the relative clause construction. In common notational systems for logical structure, this is generally done simply by mentioning the variable, as when one says not "for every person such that . . . but for every person  $x$  such that . . ." We need to employ some such device in our underlying structures. So as to build such a device into our syntactic structures in such a way that it appears at a place in the structure where it is syntactically relevant, I will adopt the following gen-

eral treatment of restrictive relative clauses: (i) each restrictive relative clause is the S of an underlying [ $\bar{N}$  S] combination; (ii) the  $\bar{N}$  of each such combination bears a variable as an index; and (iii) the relative pronoun corresponds to an underlying personal pronoun bearing that index.<sup>13</sup> Supplementing these hypotheses with the movement transformations for relative expressions that we have posited, we obtain derivations such as (6):



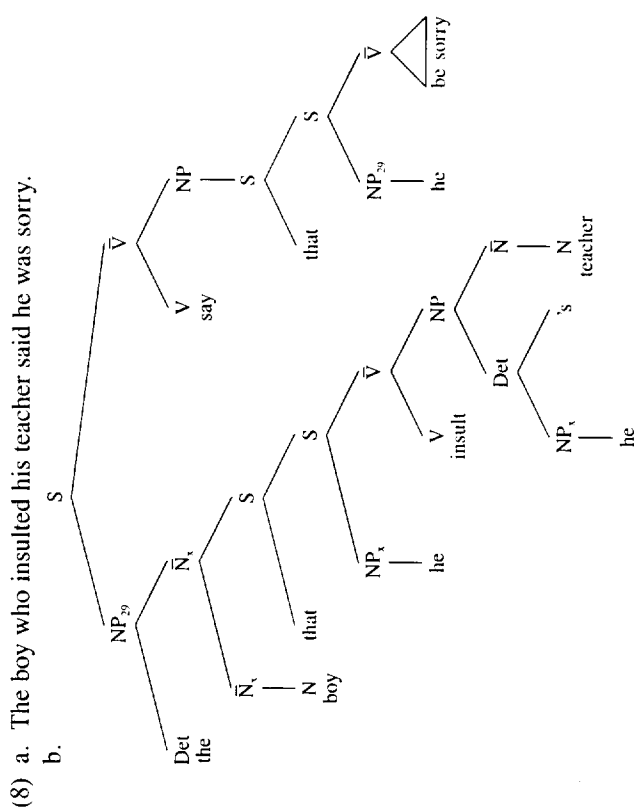
Let us tentatively assume the deep structures and derivations just sketched and determine how movement of relative expressions must then work. Since both **Relative Pronoun Formation** (the transformation that converts an underlying personal pronoun into a relative pronoun) and relative pronoun movement are contingent on identity between the index of the  $\bar{N}$  and the index of the pronoun, they will apply on the  $\bar{N}$  cycle. This means that relative pronouns are moved in a single step from their position within

the relative clause to the complementizer position of the whole relative clause and are not (as claimed by, e.g., Chomsky 1973) moved up the tree one S at a time.<sup>14</sup> For example, in a structure like (7), the conditions for converting a personal pronoun into a relative pronoun and for moving it into the Comp position of S<sub>1</sub> are met only in S<sub>0</sub>,<sup>15</sup> because only in S<sub>0</sub> and not in S<sub>1</sub>, S<sub>2</sub>, or S<sub>3</sub> is it in the [N S] configuration to which those transformations apply:

- (7) [<sub>S<sub>0</sub></sub> I'm looking for the man [<sub>S<sub>1</sub></sub> that someone told me [<sub>S<sub>2</sub></sub> that Ann thinks [<sub>S<sub>3</sub></sub> that Marcia offered the job to him]]]]]

Thus the relative pronoun cannot be moved into the Comp position of S<sub>1</sub> via those of S<sub>2</sub> and S<sub>3</sub> the way that Chomsky's claims demand.

The derivations just sketched satisfactorily cover NPs in which a quantifier is combined with an N-bar that contains a relative clause. Let us see whether they are also applicable to NPs having an article as determiner and to NPs in predicate position. The former case is easy enough to reconcile with this analysis provided that one is careful in the employment of indices. One must distinguish between the variable that appears as an index within the relative clause and on the N-bar and the ordinary referential index that specifies the purported referent of the whole NP. For example, (8a) would have an underlying structure as in (8b), with the *he* of *his teacher* bearing the variable index and the *he* of *he was sorry* a constant index:

- (8) a. The boy who insulted his teacher said he was sorry.  
 b. 
- The syntax tree for (8) shows a root S branching into NP<sub>S<sub>0</sub></sub> and V. NP<sub>S<sub>0</sub></sub> branches into Det 'the' and N-bar. N-bar branches into N 'boy' and S. S branches into NP<sub>S<sub>1</sub></sub> and V. NP<sub>S<sub>1</sub></sub> branches into N-bar and S. N-bar branches into N 'that' and S. S branches into NP<sub>S<sub>2</sub></sub> and V. NP<sub>S<sub>2</sub></sub> branches into N-bar and S. N-bar branches into N 'he' and S. S branches into NP<sub>S<sub>3</sub></sub> and V. NP<sub>S<sub>3</sub></sub> branches into N-bar and S. N-bar branches into N 'he' and S. S branches into V 'be sorry' and a triangle representing a constant index.

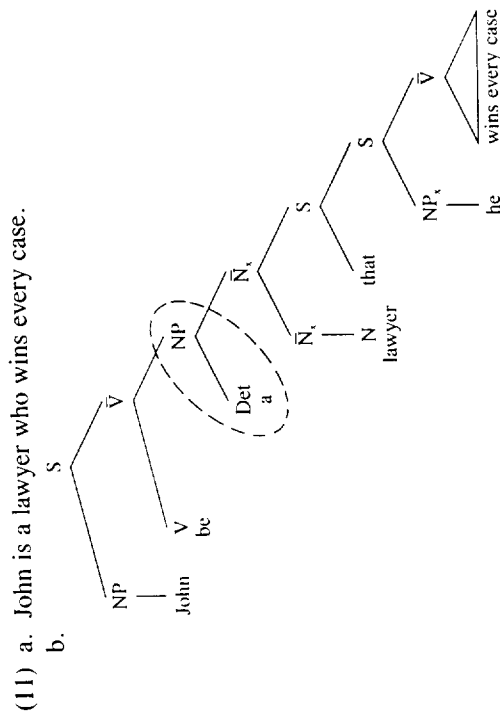
One way of extending this analysis to relative clauses on predicate NPs would be to follow the lead of Quine (1960: 118), who treats the indefinite article of a predicate NP as a quantifier, e.g., he treats (9a) as having a logical form like (9b):

- (9) a. John is a lawyer.  
 b. (For some lawyer x)(John = x)

I find that proposal counterintuitive because it appears to reverse the roles of the semantic constituents of the sentence: it treats (9a) as if it said how John fits into the class of lawyers rather than how lawyerhood applies to John. Furthermore, while quantified NPs can enter into scope relations with other elements of a sentence, predicate NPs cannot, e.g., while (10a) allows an interpretation (10a') in which the negation is in the scope of *a friend of mine*, (10b) does not, that is, it does not allow an interpretation 'There is a friend of mine that John is not' (= 'I have a friend other than John'):

- (10) a. John didn't talk to a friend of mine.  
 a'. (For some y (y a friend of mine)) not (John talked to y) (= 'There is a friend of mine that John didn't talk to')  
 b. John isn't a friend of mine.

I thus wish to treat the articles of predicate NPs as not corresponding to quantifiers; indeed, I would claim that they are semantically empty. There are a number of ways in which this might be done. The first is to treat the N-bar of the predicate NP of such sentences as (11a) as having a deep structure with a variable index (11b) and as denoting a property (here, that of being a lawyer who wins every case),<sup>16</sup> and treat the predicate NP as a whole as not bearing any index:

- (11) a. John is a lawyer who wins every case.  
 b. 
- The syntax tree for (11) shows a root S branching into NP and V. NP branches into N-bar. N-bar branches into N-bar and S. N-bar branches into Det 'a' and NP. NP branches into N-bar and S. N-bar branches into N-bar and S. N-bar branches into N 'lawyer' and S. S branches into NP<sub>S</sub> and V. NP<sub>S</sub> branches into N-bar and S. N-bar branches into N 'he' and S. S branches into V 'wins every case' and a triangle representing a variable index.

A second possibility, actually a fairly minor variant of the first, is to omit the part of (11b) in the dotted circle, i.e., to treat the article as absent entirely from the deep structure (thus in deep structure there is a predicate  $\bar{N}$  but no predicate NP); in this variant, no stipulation need be made that the predicate NP bears no index (since in deep structure there is no predicate NP to bear an index), and a transformation inserting an article in otherwise article-less NPs must be posited.<sup>17</sup> I will in fact assume this second proposal in the remainder of this book.

It was maintained above that the *that* that can introduce a relative clause is the complementizer *that*, and that the relative expression either replaces the *that* or is deleted, with the *that* surfacing only in the latter case. Only if the relative expression is a simple relative pronoun may *that* appear in its place:

- (12) a. the person who/that I talked to  
 b. the book which/that I was reading  
 c. the place where/that I found the money  
 d. the day when/that I went to the zoo  
 e. the reason why/that I left early
- (13) a. the woman with whom John went to the concert  
 a'. \*the woman that John went to the concert  
 b. the conditions under which I'll sign the contract  
 b'. \*the conditions that I'll sign the contract  
 c. the pope during whose reign America was discovered  
 c'. \*the pope that America was discovered  
 d. the president despite whose opposition the Taft-Hartley Act was passed  
 d'. \*the president that the Taft-Hartley Act was passed

This fact probably reflects a general constraint that only **recoverable** deletions are permitted, but I will not attempt here to evaluate that proposal nor to work out the details of an appropriate notion of "recoverability."

There are two versions of the derivation of relative clauses with *that* that immediately suggest themselves: either (i) the relative pronoun is deleted **in situ**, i.e., without being moved to the front of the relative clause, or (ii) the relative pronoun is moved to the Comp position of the relative clause and is deleted from that position. Since deletion of the relative pronoun is supposed to result in retention of the *that*, (ii) requires that one take the movement of the relative expression as creating a derived structure in which both the *that* and the relative expression occupy Comp position, with subsequent derivational steps deleting one or other of the two items. For example, in the version of this analysis adopted by Chomsky and

Lasnik (1977), (12a) goes through an intermediate stage of *the person [who that] I talked to*, either *who* or *that* can be deleted, and unless at least one of them is deleted, there is a violation of a constraint against a "doubly filled Comp position" in surface structure.

The choice between (i) and (ii) is far from clear. An observation that at first glance may appear to require acceptance of (ii) and rejection of (i) is that even the *that* version of relative clauses appears to be subject to the "constraints on movement transformations" discussed in §13b:

- (14) a. \*the person that [you talked to Oscar and  $\emptyset$ ]  
 b. \*the policeman that [the FBI is looking for the person who killed  $\emptyset$ ]  
 c. \*the reporter that [[that John talked to  $\emptyset$ ] is likely]  
 d. \*the person that [John says that [ $\emptyset$  talked to you]]

Thus, if the oddity of these sentences reflects violation of constraints specifically excluding **extraction** from coordinate structures, etc., then the derivations must involve the same movement of the relative pronoun that gives rise to the unacceptability of \**the person who you talked to Oscar and  $\emptyset$* , etc., and thus the derivation must be as in (ii) rather than as in (i). To give such an argument, however, we must justify the claim that the constraints that are violated in (14) are specific to **movement** transformations, i.e., that they do not also apply to deletion transformations. If deletions as well as movements are subject to these constraints, then both (i) and (ii) account equally well for the unacceptability of (14). I will accordingly leave the choice between (i) and (ii) open until I take up in §15c the question of what exactly these constraints constrain. To simplify the exposition in the remainder of this chapter, I will arbitrarily frame the discussion in terms of (i) only, though as far as I know, acceptance of (ii) would not affect any of the points to be made.

In many cases, restrictive relative clauses also allow a form in which neither *that* nor a relative expression occurs. That form is restricted to cases in which *that* is also possible:

- (15) a. the person I was talking to  
 b. the book I was reading  
 c. the place I found the money  
 d. the day I went to the zoo  
 e. the reason I left early
- (16) a. \*the woman John went to the concert  
 b. \*the conditions I'll sign the contract  
 c. \*the pope America was discovered  
 d. \*the president the Taft-Hartley Act was passed

This observation constitutes an argument that relative clauses in which neither *that* nor a relative pronoun appears have derivations in which a *that* is deleted. The deletion of *that* is, however, subject to the constraint that the understood relative pronoun not be the subject of the relative clause, since in that case, unlike those in (15), a relative clause with *that* is acceptable but a corresponding relative clause without the *that* is not:<sup>18</sup>

- (17) a. the person who/*that*/\* $\emptyset$  was talking to me  
 b. the assumption which/*that*/\* $\emptyset$  makes his conclusion plausible

I thus will henceforth assume that *that* is optionally deletable from a relative clause, except that that deletion does not apply to a relative clause of the form [*that* V], i.e., to a relative clause of the form that corresponds to "relativization" of its subject.

An additional possibility that English allows to a limited extent is the use of a **resumptive pronoun**, i.e., a pronoun occupying the position that a relative pronoun would occupy prior to its being moved into Comp position:

- (18) a. the guy who they don't know whether he wants to come.  
 b. the lawyer who he and his wife had dinner here last night  
 c. a student who I can't make any sense out of the papers that he writes

While such relative clauses are fairly marginal in English, they constitute a normal type of relative clause in a number of languages (e.g., Arabic; see Keenan and Comrie, 1977, 1979).

Kroch (1981) notes that the vast bulk of the attestations of resumptive pronouns in English are in examples in which, as in (18), a "normal" relative clause would violate one or other of the constraints alluded to above:

- (19) a. \*the guy who they don't know whether  $\emptyset$  wants to come  
 b. \*the lawyer who  $\emptyset$  and his wife had dinner here last night  
 c. \*a student who I can't make any sense out of the papers that  $\emptyset$  writes

Where normal relative clauses are available, Kroch notes, corresponding sentences with a resumptive pronoun generally sound very odd:

- (20) a. She's the only woman here that I know  $\emptyset$ /\*her well.  
 b. The student that  $\emptyset$ /\*he got the highest score solved the hardest problems.

Kroch argues that English sentences with resumptive pronouns are strictly speaking not "grammatical" but reflect a trick that we employ in order to complete sentences that we may begin but which our grammars do not in themselves provide us with any way of completing.

Resumptive pronouns appear always to correspond to a relative **pronoun**, not to a larger relative expression containing the relative pronoun:

- (21) a. the actress who Tom wondered whether her father is rich  
 a'. \*the actress whose father Tom wondered whether he is rich  
 b. the senator who the *Times* has just published the report that pro-tests against him have been lodged  
 b'. \*the senator protests against whom the *Times* has published the report that they have been lodged

This observation provides an additional, though weak, argument in support of my claim that a relative pronoun corresponds to an underlying personal pronoun. Suppose one makes the (not at all obvious) assumption that the "patches"<sup>19</sup> by which one extends the coverage of a grammar are restricted to units that figure in the underlying and surface forms of normal instances of the construction in question. Then if personal pronouns underlie all relative pronouns, a patch that retains the personal pronoun underlying a relative pronoun would be possible, but a patch that introduces a new personal pronoun would not; the former sort of patch would suffice to derive (21a, b) whereas it would take a patch of the latter type (i.e., one that inserts *he* or *they* in place of *her*/*father* or *protests against them* as a concomitant to the movement of those expressions into Comp position) to provide "derivations" for (21a', b').<sup>20</sup>

**NONRESTRICTIVE CLAUSES** The observation has often been made that a nonrestrictive clause accomplishes a separate **speech act** from the sentence in which it appears. For example, in (1a) the nonrestrictive clause is not part of the request for information but rather a reminder that one offers in the middle of making that request, and in (1b) the nonrestrictive clause is not part of the order but a separate act of informing that one carries out in the course of giving the order:

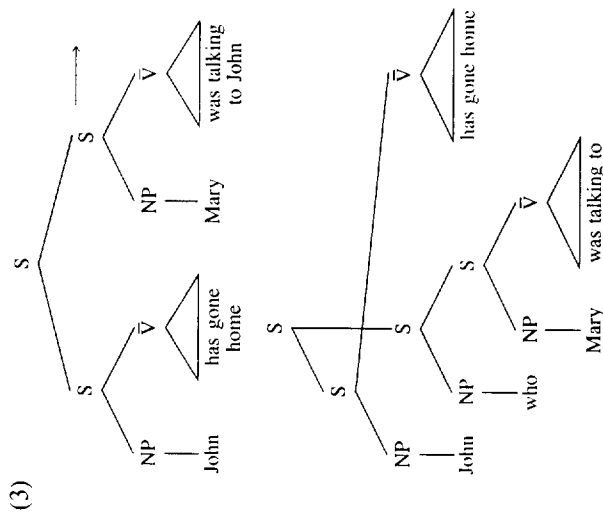
- (1) a. Has John, who was talking to Mary a minute ago, gone home?  
 b. Put the turkey, which is in the refrigerator, into the oven.

Indeed, to a large extent, sentences with nonrestrictive clauses are interchangeable with sequences of sentences, one of which accomplishes the sort of speech act (reminding, giving incidental information) that can be accomplished with nonrestrictive clauses:

- (2) a. Has John gone home? He was talking to Mary a minute ago.  
 b. Put the turkey in the oven. It's in the refrigerator.

These observations, in conjunction with the conclusions of §13a (that nonrestrictive clauses do not combine into constituents with the items that

they “modify” and that the latter items can be of quite diverse syntactic categories) suggest the following analysis of nonrestrictive clauses: (i) in deep structure the host S and the nonrestrictive clause are separate from one another; (ii) conversion of one of the two Ss into a nonrestrictive clause is contingent on that S corresponding to a speech act of a type that can be performed in nonrestrictive clauses and on its containing a constituent coreferential to some constituent of the other S; and (iii) the derivation involves replacement of the coreferential item in the nonrestrictive clause by the corresponding relative pronoun, movement of the relative pronoun to initial position in the nonrestrictive clause, and movement of the nonrestrictive clause to a position immediately following the coreferential item (its target) in the host S. This sketch is neutral with regard to whether the two Ss even make up a constituent. While I will treat them below as comprising a constituent, largely out of force of habit, the assumption that they make up a constituent plays no role in what follows. The following is then an illustration of the sort of derivation just sketched:



It will be convenient to introduce a term for the sort of movement that is posited in (3), in which a constituent is moved into a position adjacent to a “target” but is not combined with the target into a larger constituent. I suggest the term **adposition** for this, which will contrast with **adjunction**, in which the moved constituent is combined with another item into a larger constituent. The term “adposition” lends itself to the formation of deriva-

tives analogous to those of “adjunction,” e.g., one can speak of a nonrestrictive clause as an **adposit** of its target, the way that one speaks of an extraposed complement as an adjunct of the V.

The condition that there be coreferentiality between items in two separate Ss explains several differences between restrictive and nonrestrictive clauses with regard to what they can combine with. First, since NPs introduced by such quantifiers as *each*, *every*, and *no* cannot be coreferential with NPs in separate Ss, this condition explains why nonrestrictive clauses cannot appear in combination with such NPs:

- (4) a. The doctor gave a lollipop to each child.  
 a'. \*The doctor gave a lollipop to each child, who she examined.  
 b. Susan interviewed every senator.  
 b'. \*Susan interviewed every senator, who is crooked.  
 c. No person<sub>i</sub> is perfect.  
 c'. \*No person<sub>i</sub>, who knows everything, is perfect.

By contrast, the quantifier plays no role in the acceptability of restrictive relatives, since the quantifier is outside the [ $\bar{N}$  S] combination that makes up the restrictive relative clause construction, and the relevant coreferentiality is entirely within that combination:

- (5) a. The doctor gave a lollipop to each child that she examined.  
 b. Susan interviewed every senator who voted for aid to the Contras.  
 c. No person who has a criminal record can get a job here.

Second, while Ss do not have the [Det  $\bar{N}$ ] structure in which restrictive relatives occur, they can be coreferential to constituents of other Ss and for that reason can support nonrestrictive clauses:

- (6) a. John says that Fred and Ethel are breaking up. I hadn't expected that.  
 a'. John says that Fred and Ethel are breaking up, which I hadn't expected.

Third, proper nouns make up a whole NP and thus do not allow for the [ $\bar{N}$  S] configuration of restrictive relatives, but they can be coreferential with NPs in separate Ss and thus can meet the conditions for supporting a nonrestrictive clause:

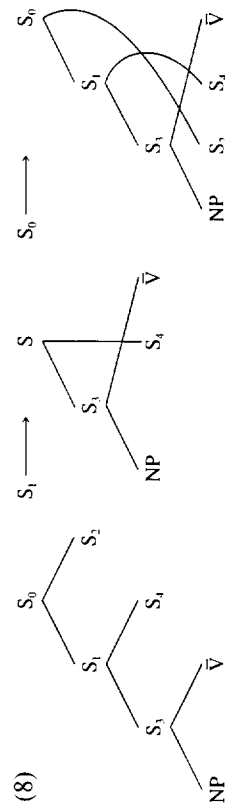
- (7) a. John can't be trusted. You were talking to him a minute ago.  
 a'. John, who you were talking to a minute ago, can't be trusted.

Let us run down the list of other differences between restrictive and nonrestrictive clauses given in §13a and see which of them are accounted for



by the analyses developed so far. The absence of *that* or zero as an introducer of nonrestrictive clauses will be accounted for if we can claim that the underlying *S*s corresponding to nonrestrictive clauses do not allow a *that*-complementizer. Since nonrestrictive clauses are separate main clauses in deep structure, that is a reasonable enough claim, though we have not worked out the underlying distribution of complementizers in enough detail that we can say more than that yet. The "comma intonation" around nonrestrictive clauses must be accounted for in terms of a general theory of the relation of intonation to syntax. While significant advances have been made toward the development of such a theory (see, e.g., Ladd (1980, 1983) and Bing (1979)), I will not attempt to present such a theory here. I note, though, the plausibility of interpreting comma intonation as an "interruptive device for indicating the status of an expression as an "interruption," and observe that in the analysis developed here, nonrestrictive clauses but not restrictive clauses are moved into their host constituents and thus constitute interruptions.

If predicate NPs refer to properties rather than to entities, then a nonrestrictive clause can have a predicate NP as its target only if its relative pronoun refers to that property, as in (8b) of §13a. The fact that nonrestrictive clauses cannot be stacked is a consequence of our assumption that nonrestrictive clauses are put immediately after the target constituent but are not adjoined to it: since a sequence of target and nonrestrictive clause does not make up a constituent, it cannot be coreferential to an item in another *S* and thus cannot serve as target to a second nonrestrictive clause. Another possibility for getting sequences of nonrestrictive clauses still has to be considered, though. Could placement of nonrestrictive clauses put a nonrestrictive clause **between** a constituent and a nonrestrictive clause of which it was the target?



A straightforward way of excluding such derivations, proposed by Emonds (1979), is to require that the nonrestrictive not merely be put directly after its target but that it directly follow its target in surface structure. As Emonds notes, if nonrestrictive clauses and their targets do not make up constituent-

ents, then this constraint rules out sentences in which a putative target is followed by two nonrestrictive clauses: only the first of the two nonrestrictive clauses would directly follow its target and thus the second would violate this condition. Emonds also notes that this condition excludes the extraposition of nonrestrictive clauses: an extraposed nonrestrictive clause would not immediately follow its target.<sup>21</sup>

Where the target of a nonrestrictive clause is a NP, any restrictive clauses must precede the nonrestrictive clause: the restrictive clauses are constituents of the  $\bar{N}$  of the NP, and are thus part of the target that the nonrestrictive clause must immediately follow. But what about the possibility of a nonrestrictive clause having an  $\bar{N}$  as its target? Could a nonrestrictive clause precede a restrictive clause in virtue of being an adposit of the  $\bar{N}$  of which the restrictive clause is an adjunct? In fact such examples are possible and the generalization given in §13a is false—a nonrestrictive clause can precede a restrictive clause in precisely this class of cases:

- (9) Most ophicleides, which are a type of obsolete brass instrument, that are on display in museums are of German manufacture.

The fact that nonrestrictive clauses allow relative expressions of the form *which*  $\bar{N}$  follows from the fact that a NP of the form [Det  $\bar{N}$ ] can be coreferential to a potential target NP in a separate *S*:

- (10) a. John belongs to the International Terrorist Fraternity. That organization has been accused of plotting mass murder.  
 b. John has admitted that he belongs to the International Terrorist Fraternity. That revelation surprises no one.

If formation of the nonrestrictive clause converts as much as possible of the coreferential constituent into a corresponding WH-word, this will yield such expressions as *which organization* and *which revelation* in such cases. By contrast, in the structure underlying restrictive relative clauses, the relative pronoun corresponds to a pronoun that makes up a whole NP, and thus no noun is available to remain in the relative expression.

Finally, the fact that  $\bar{N}$  + restrictive clause functions as a constituent with regard to conjoining and pronominalization, while  $\bar{N}$  + nonrestrictive clause does not, reflects constituent structures that are built into the analyses adopted here: an  $\bar{N}$  and an immediately following restrictive clause make up an  $\bar{N}$ , whereas an  $\bar{N}$  and an immediately following nonrestrictive clause do not even make up a constituent.

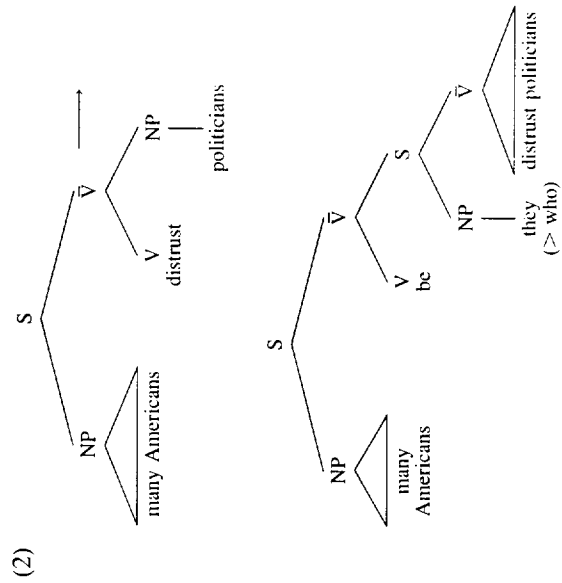
**PSEUDO-RELATIVES** The examples of pseudo-relatives given in §13a have the following characteristics: (i) the apparent relative clause is final in

its host S, and (ii) the sentence can be paraphrased by an existential (or negated existential) sentence whose main clause corresponds to the apparent relative clause:

- (1) a. There are many Americans who distrust politicians.  
 a'. Many Americans distrust politicians.  
 b. Paul has a brother who lives in Toledo.  
 b'. A brother of Paul's lives in Toledo.  
 c. Nixon is the only president who has ever resigned.  
 c'. Aside from Nixon, no president has ever resigned.  
 d. I've never met an American who understood cricket.  
 d'. In my experience, no American has ever understood cricket.

I will not attempt to work out an analysis of pseudo-relatives in this book, since I have brought them up in this chapter only to alert the reader to their existence and to some differences between them and true restrictive relatives, so that we can guard against wrongly drawing inferences about restrictive relatives from facts about another clause type with which they are easily confused.

I in fact wish to suggest tentatively that pseudo-relative constructions have the same deep structures as do paraphrases such as are given in (1) and that a transformation demotes the bulk of the main clause to a subordinate status, leaving the quantified NP as a main clause constituent:



It is in fact quite difficult to work out such an analysis in detail, since the inserted V is not always *be* and the quantified NP is not always the (underlying) subject; thus, clearly more than is present in the deep structure in (2) is necessary to determine what the verb of the derived structure is. I maintain, however, that such a derivation has two important advantages over the most obvious alternative, namely, that of just treating pseudo-relatives as if they were restrictive relatives. First, in §13a it was shown that in several respects the pseudo-relative is "less tightly connected" with the preceding NP than restrictive relatives are with their heads, and a derivation as proposed in (2) provides a derived structure in which the pseudo-relative is outside the preceding NP. And second, Prince (1981:247) has noted that omission of a subject relative pronoun, which is normally not allowed in modern English, is extremely common in a class of cases that appears to coincide with what I call pseudo-relatives here (examples adapted from those cited by Prince):

- (3) a. I have a friend  $\emptyset$  called me yesterday.  
 b. We got a lot of fancy Cadillacs  $\emptyset$  don't tip. (Terkel, *Working*, 298)

Indeed, Prince states that "In [Anthony Kroch's] large corpus of oral discourse, all instances of subject relative marker deletion occur in sentences like those of [(3)]." The surface form of sentences like those in (3) is in fact essentially the same as that of a class of Chinese sentences that are used the way that English pseudo-relatives (Huang 1987) are but which are not open to an analysis as relative clauses because in both form and surface position they are unlike relative clauses:

- (4) Wo you yige didi zhuzai Shanghai.  
 I have one brother live-at  
 'I have a brother who lives in Shanghai'.

In Chinese, relative clauses always precede their heads and end with *-de*, unlike the underlined part of (4). In the analysis suggested here, pseudo-relatives can be treated as parallel to their Chinese counterparts, with the use of a relative pronoun being merely a device that (in English but not in Chinese) gives the pseudo-relative clause the surface appearance of a "normal" clause type.

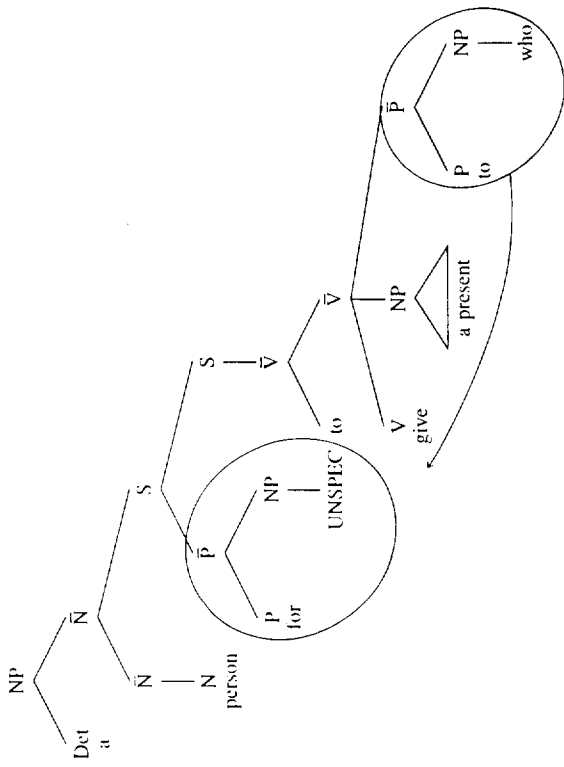
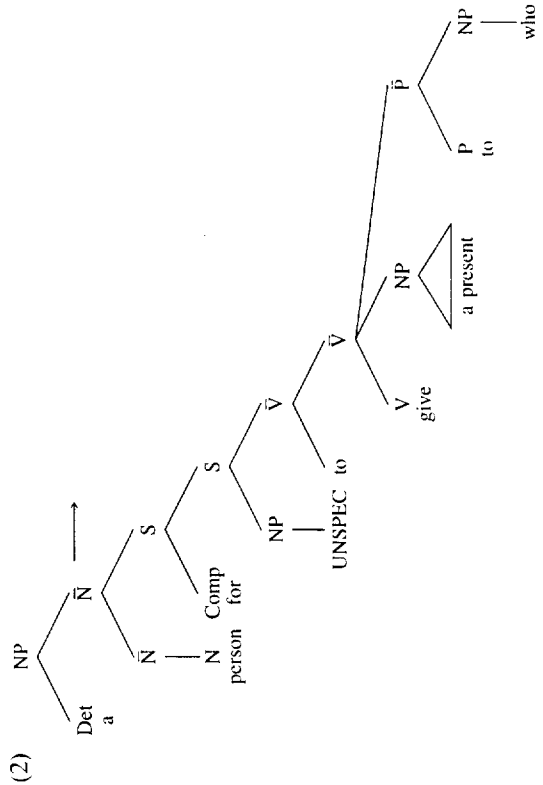
**INFINITIVAL RELATIVES** In the analysis suggested in §13a, infinitival relatives differ in deep structure from (finite) restrictive relatives only in having a *for-to* complementizer instead of a *that* complementizer. That

analysis accounts for the [<sub>N</sub>  $\bar{N}$  S] structure that they exhibit and for the absence of a *that*.

Still unaccounted for are the fact that an overt relative expression can be a  $\bar{P}$  but cannot be merely a relative pronoun and the fact that an overt relative pronoun is incompatible with the presence of an otherwise possible overt subject:

- (1) a. a pen with which to write
- a'. \*a book which to read
- b. a person to whom to give a present
- b'. \*a person who(m) to treat kindly
- c. a book in which (\*for AI) to find the answers to his questions
- c'. a book for AI to find the answers to his questions in

An elegant account of these unexpected gaps in the paradigm of infinitival relatives is given by Emonds (1976), who exploits a treatment of *for-to* complements that differs substantially from the one adopted here. Emonds identifies the complementizer *for* with the preposition *for* and maintains that the subject of a *for-to* complement is attracted into the Comp position to form a  $\bar{P}$  with the *for*. According to the particular conception that he adopts of “structure preserving” transformation, only a  $\bar{P}$  can replace a P, and thus the only possibility for movement of a relative pronoun into Comp position in an infinitival relative is via a derivation like (2):



Under Emonds’s proposal, there are no possible derivations for (1a’, b’) because only a  $\bar{P}$  can replace the  $\bar{P}$  that his analysis has in Comp position in the input to Relative-Pronoun Movement, and there is no derivation for (1c: *for AI*) because the  $\bar{P}$  would replace the *for NP* combination in being moved into Comp position. Recall, however, that we have some prima facie evidence that *for* and a subject NP do not form a surface constituent, namely, the possibility of conjoining the [NP to  $\bar{V}$ ] part of a *for-to* complement:

- (3) It would be stupid for [John to quit his job or Mary to stop going to school].

I accordingly take no position on the correctness of Emonds’s proposal: it has considerable appeal, but I know of no way to reconcile it with a treatment of *for-to* complements that otherwise appears to be required. However, I know of no alternative way to exclude such expressions as (1a’, b’) and (1c: *for AI*) other than by brute force, e.g., a surface constraint requiring a relative expression in an infinitival relative to be a  $\bar{P}$ . I note finally that if such a constraint is required, its details vary somewhat from speaker to speaker. For most speakers only  $\bar{P}$ s are acceptable as the relative expression of an infinitival relative, but other speakers accept and spontaneously produce infinitival relatives in which the relative expression is a NP introduced by *whose*:

- (4) a. %Rudy is a good person whose brain to pick.  
 b. %Freudians aren't my idea of persons whose word to take about speech errors.  
 c. %I can think of worse people whose work to rediscover.

The brief discussion of infinitival relatives in this chapter has not touched on the fact (noted by Berman (1974)) that the occurrence of infinitival relatives is heavily restricted, e.g. (examples taken from Berman):

- (5) a. John bought/\*lost a book for Mary to read.  
 b. Sam has/\*broke a toy for you to play with.

Berman also notes that certain types of sentences that ought to be acceptable if infinitival relatives are simply a nonfinite form of restrictive relatives are in fact systematically excluded:

- (6) a. \*He has some books for there to be in the library.  
 b. \*Here is an opportunity for advantage to be taken of.

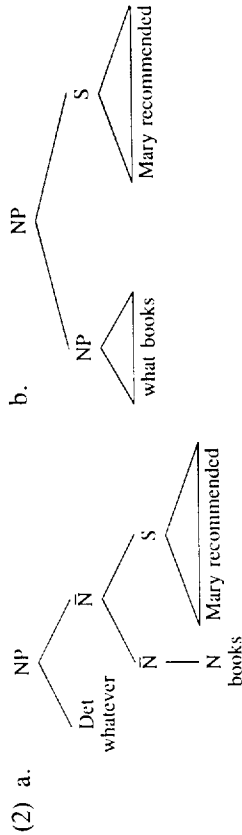
Berman uses these observations as the basis for a very different analysis of infinitival relatives than is proposed here. The interested reader is referred to her paper.

**FREE RELATIVES** In §13a, I tentatively adopted a surface constituent structure for free relatives in which the WH-expression was the "head" and the remainder an adjunct to it. If that is in fact the constituent structure, then it should not be possible for free relatives to be followed by restrictive relatives, since (under the analysis of restrictive relatives argued for above) a restrictive relative is an adjunct to an  $\bar{N}$ , and a free relative does not end in an  $\bar{N}$  according to the structure given in §13a. Free relative constructions do, however, support restrictive relatives, though apparently only when the free relative is in the *-ever* form:<sup>22</sup>

- (1) a. I'm going to do whatever John wants that I'm able to do.  
 a'. I'm going to do what John wants (??that I'm able to do).  
 b. I bought whatever books Mary recommended that I could afford.  
 b'. I bought what books Mary recommended (??that I could afford).  
 c. I traveled to wherever I hadn't been before where I expected the food to be good.  
 c'. I traveled to where I hadn't been before (\*where I expected the food to be good).

This observation provides reason to posit different constituent structures for the two varieties of free relative—one containing an  $\bar{N}$  for the restrictive relative to attach to in cases like (1a) and one as in §13a in cases like (1a').

The most obvious way to do this is to distinguish them as in (2):



The following examples confirm that the  $\bar{N}$  + S sequence in such free relatives is an  $\bar{N}$ , while the corresponding sequence in *what books John wants* is not:

- (3) a. Whatever books John wants that are in print will be easier to find than whatever ones that are out of print.  
 b. Whatever [books John wants] and [records Mary has requested] are sure to cost us a lot.  
 b'. ??What [books John wanted and records Mary requested] were easy to obtain.

Let us tentatively adopt these structures and take up the question of what sorts of deep structures and derivations the two kinds of free relatives have. In both cases there is a WH-expression and a S with a gap that matches the WH-expression. In either case we need to consider both the possibility of a "movement analysis," in which the WH-expression is an underlying constituent of the S and is extracted from and adjoined to the S, and that of a "deletion analysis," in which the deep structure of the free relative consists of the WH-expression plus the S and the derivation involves a step deleting from the S a constituent matching the WH-expression. Bresnan and Grimshaw (1978) note that under a movement analysis, free relatives should manifest the same possibilities for pied-piping as do restrictive relatives:

- (4) a. any books which you defaced the covers of  
 a'. any books of which you defaced the covers  
 a''. any books the covers of which you defaced  
 b. You should avoid whatever man you were drawing caricatures of.  
 b'. \*You should avoid of whatever man you were drawing caricatures.  
 b''. \*You should avoid [caricatures of whatever man] [you were drawing].

A deletion analysis correctly excludes derivations for such sentences as

(4b' - b''), which a movement analysis would not in itself exclude. Only free relatives with *-ever* are considered in (4), but in fact those without *-ever* behave the same way:

- (5) a. What books they defaced the covers of were easy to replace.
- a'. \*Of what books they defaced the covers were easy to replace.
- a''. \*[The covers of what books] they defaced were easy to replace.

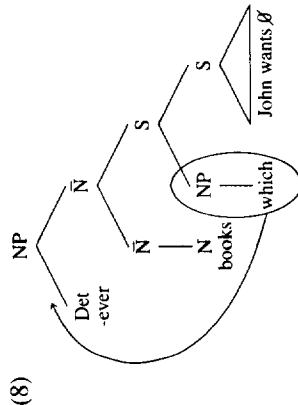
Bresnan and Grimshaw also argue that whereas a deletion analysis correctly makes the WH-expression the controller of number agreement, a movement analysis (at least of the sort found in ordinary WH-movement, in which the WH-expression is left within the S) would make it unavailable to control agreement, as in the case of interrogative complements:

- (6) a. What(ever) books he defaced were/\*was priceless.
- b. What books he defaced was/\*were not disclosed.

The structure in (2a) looks like a restrictive relative construction except that (i) the putative determiner is something special to free relative constructions, and (ii) the part corresponding to an apparent relative clause does not allow a relative pronoun and only marginally allows *that*:

- (7) You should order whatever books \*which/??that John wants.

It is in fact semantically plausible to treat such constructions as restrictive relative constructions, since they can be paraphrased well with parallel restrictive relatives (e.g., *any books that John wants*). The absence of a relative expression in the S of a structure like (2a) will be explained if we posit incorporation of a normal WH-word into the determiner:



This analysis can be extended to free relatives without an overt head N by allowing the N in a structure like (8) to be phonologically zero.

Note that under the analysis sketched here, the morpheme that *-ever* is combined with should correspond to a relative pronoun such as could introduce a corresponding restrictive relative clause:

- (9) a. wherever/\*whichever he went  
    any place where/??which he went
- b. whenever/\*whichever he got angry  
    any time when/\*which he got angry

That implication is correct, with some important qualifications. First, while *what* does not function as a relative pronoun in English,<sup>23</sup> both *what-ever* and *whichever* occur in free relatives and contrast in meaning the same way that *what* and *which* contrast in questions:

- (10) a. I'll buy whatever/whichever books Tom asks me to buy.
- b. Whatever/??Whichever difficulties they had were easy to resolve.
- b'. What/??Which difficulties did they have?
- c. Whichever/\*Whatever hand he held the chocolate in must be filthy.
- c'. Which/\*What hand did he hold the chocolate in?

Second, *how(ever)* can introduce free relatives but *how* is not allowed as a relative pronoun:

- (11) a. You should behave however they tell you to behave.
- a'. \*the way how John behaved
- b. I like how it looks. (television commercial, 1987)
- b'. \*the way how it looks
- c. My lawyer will be however ruthless their lawyer is.
- c'. \*My lawyer is ruthless how theirs is.

And third, *why* is allowed as a relative pronoun but \**whyever* cannot introduce free relatives:

- (12) a. the reason why I wouldn't help him
- a'. \*You should help me whyever you help those deadbeat drinking companions of yours.

The first two of these qualifications constitute respects in which the WH-expressions of free relatives are more like interrogative than relative pronouns. For the purposes of this book, I will leave this fact unexplained, since I know of no way to fit that fact and the constituent structure argued for above into a single coherent analysis.

If free relatives with *-ever* are treated as relative clause constructions in which the relative pronoun is moved into complementizer position by the usual relative pronoun movement and is then combined with the determiner, we will account not only for the choice among *wherever*, *whatever*, etc., but also for the absence of a *that*: the application of relative pronoun movement posited here will (as usual) replace the underlying *that* by the relative pronoun.<sup>24</sup> This treatment is strictly speaking a movement analysis

rather than a deletion analysis, but it is immune to the objections to movement analyses raised above: since only simple relative pronouns can fuse with the determiner, pied-piping would not yield an output consistent with English morphology, and since this analysis posits an underlying head noun, it does not require that anything in an embedded S control agreement. For free relatives without *-ever*, I have no grounds for rejecting the deletion analysis proposed by Bresnan and Grimshaw, in which a designated element (say, a pronoun) in the embedded S is deleted under control of a matching WH-expression as head of the NP.

The discussion so far has presupposed that free relative constructions are always NPs. Bresnan and Grimshaw (1978:335) offer examples as in (13) of free relatives that may belong to other categories:

- (13) a. John will be however tall his father was. ( $\bar{A}$ ? Measure expression?)  
 b. I'll word my letter however you word yours. (Adverb)  
 c. I'll put my books wherever you put yours. (Adverb or  $\bar{P}$ )  
 d. John will leave whenever Mary leaves. (Adverb or  $\bar{P}$ )

At least some of these free relatives can be analyzed as NPs by positing an understood P having the given expression as its object, e.g., by treating *wherever you put yours* in (13c) as the object of an understood preposition having the meaning of *at*. Such an analysis (for which Bresnan and Grimshaw argue) is reasonable for expressions like *wherever you put yours* since they can in fact occur as objects of overt prepositions:

- (14) a. I'll move to wherever you want to live.  
 b. John got the tapes from wherever he keeps his books.  
 c. I'll stay here until whenever Denise asks me to join her.

The expressions that can be regarded as NPs allow restrictive relatives and thus **must** be treated as NPs:

- (15) a. I'll move to wherever you want to live that isn't too far from Boston.  
 b. I'll word my reply however I can that won't offend them.  
 c. John will be however deceitful his clients want him to be that won't get him disbarred.

## EXERCISES

1. Give derivations for the following sentences according to the analyses adopted so far in this book:
- The speaker punched the obnoxious heckler who had insulted him.

- Expensive furs, which are hard to identify, are stolen frequently.
  - We have identified the gangster by whose henchmen Smith was murdered and Jones was tortured.
  - Ken bought some toys with which to amuse the children.
  - I've found a pad to write on that has wide margins, which most pads don't have.
  - I want to buy whatever books you have that were given good reviews by Buckley.
- There is considerable overlap between the words that function as interrogative pronouns and those that function as relative pronouns in English (e.g., *who*, *when*, and *where* can be used either way). Determine how far this parallelism goes, i.e., find which words can be used both ways and which words, if any, can be used in one of these functions but not the other.
  - Determine which of the words that you dealt with in exercise 2a can introduce free relatives.
  - Use facts about conjuncting and RNR to determine whether the various kinds of relative and relative-like clauses that were not taken up explicitly in §13b also have a surface structure like §13b(1b).
  - Jespersen (1924:113) applies the term "continuative relative clause" to examples like the following:

He gave the letter to the clerk, who then copied it.

Determine what properties such relative clauses have in common with restrictive or nonrestrictive relatives such as were discussed in this chapter.

- Construct an argument for treating *what* as derived from a structure containing *something*, on the lines of the arguments based on §13a(26), using facts about the expression *the matter with*, as in *Something is the matter with you*.
- Using examples comparable to those in §13c in which free relatives supported restrictive relative clauses, check whether free relatives can be modified by reduced relative clauses.
- NPs like the following illustrate an additional class of relative clauses (over and above those in which a subject NP is relativized) in which *that* cannot be deleted:

- a suggestion that recently John made
- a drastic measure that under certain circumstances we had to resort to

Suggest what the restriction on deletion of *that* is, construct additional examples that will test the correctness of your proposal, and state whether

this restriction and the restriction against deleting *that* from [<sub>S</sub> *that* V] can be subsumed under a single restriction.

8. Do the analyses argued for in this chapter imply that English should allow infinitival free relatives? (Note: Infinitival free relatives are found in Spanish, e.g., *No tengo con qué pagarte*, lit., 'I do not have [with which to pay you].')

9. a. Examine a selection of the combinations in which restrictive relatives can occur (e.g., extraposed, stacked) to see whether there are any combinations in which *that* cannot be deleted (i.e., contexts in which . . . *that/who I talked to* is possible but . . . *I talked to* is not).

b. Under certain conditions, *that* may be omitted from a *that*-complement. Determine whether the restrictions on the omission of *that* from relative clauses that you found in exercise 6a can be interpreted in such a way that they also apply to its omission from complements. (NB: Exercise 9b is concerned with restrictions on the **internal** syntax of relative clauses from which *that* is deleted, while exercise 9a is concerned with restrictions on their **external** syntax.)

## NOTES

1. This restriction relates only to proper nouns that are used as proper nouns. When a proper noun is used as a common noun, it can support a restrictive relative as well as any other noun can:

The Harry Smith who took your phonetics course last year has transferred to Cornell.

2. The term "stacked" is used for multiple relative clauses that have the same head. The statement that nonrestrictive clauses cannot be stacked thus does not exclude sequences of nonrestrictive clauses in which each after the first modifies something in the preceding clause:

Sam Bronowski, who took the qualifying exam, which almost everyone failed, did brilliantly on it.

3. Instead of "target" I could as well have used the term "host," except that it will prove more useful to reserve the latter term for the S within which the nonrestrictive clause appears. In view of the observation in §7c that extraposed Ss are NPs on only one of the dimensions of NP-hood taken up there, the antecedent in (16c) is only loosely speaking a NP.

4. The output of RNR is given here in accord with the conclusions of §16a, where it is argued that the "raised" constituent actually remains a daughter of

whatever nodes it had been a daughter of, so that the output is a discontinuous structure in which that constituent has multiple mothers.

5. There is an acceptable interpretation of (23c) in which *nobody* does not have the meaning and syntactic function that it has in (22c) but functions as a noun meaning "person who is not of any importance."

6. A qualification must be made for the *every*-of *everybody*, etc., which is ambiguous between the senses of *every* and of *all*. Note that words of the *every*-series can be used even in contexts that allow *all* but not *every*:

Köchel compiled a catalog of everything that Mozart wrote.

\*Köchel compiled a catalog of every work that Mozart wrote.

Köchel compiled a catalog of all of Mozart's works.

Everyone is alike.

\*Every linguist is alike.

All linguists are alike.

7. Chomsky (1964: 69–70) and Katz and Postal (1964: 93–94) use examples like (25a–b) as the basis of arguments that the underlying structures of interrogative words contain the corresponding *some*-words.

8. This will result in a discontinuous structure if the target is not at the end of the sentence, a fact that should not alarm one. The question of what exactly underlies nonrestrictive clauses is ignored here. In §13c I will argue that the nonrestrictive clause corresponds to an underlying S containing a constituent coreferential with the target constituent.

9. This argument for treating *that* in relative clauses as a complementizer rather than a relative pronoun is due to Jespersen (1924: 85–86); van der Auwera (1985), in a useful critical survey of the various arguments that have been offered for and against different proposals for the status of *that*, points out that a form of this argument is found as early as Jespersen 1885.

10. These examples and most that follow are from Bresnan and Grimshaw (1978).

11. In this section I am taking up only the question of constituent structure, i.e., I am ignoring the question of whether the two constituents labeled S in (1b) do in fact belong to the same category.

12. An exception to this statement, namely, relative clauses containing a so-called resumptive pronoun, will be taken up at the end of this subsection.

13. Since personal pronouns must generally be taken to be unspecified for person, number, and gender in deep structure (§11e), this means that for all practical purposes what underlies the pronoun is a referential index.

14. Note that in rejecting Chomsky's conclusion that movement of relative pronouns is "successive cyclic," I am not rejecting the conclusion that it is cyclic (as opposed to postcyclic). I reject as flawed the arguments that have occasionally been given (e.g., McCawley 1970) for the conclusion that the various kinds of WH-movement are postcyclic.

15. In view of the conclusions of §6c, the domain to which Relative pronoun

formation and Relative pronoun movement apply is not  $S_0$  but rather the  $[_N \bar{N} S_1]$  constituent.

16. The standard notation for this property is  $(\lambda x)(x \text{ is a lawyer})$  and  $(x \text{ wins every case})$ . In general, an expression " $(\lambda x) S$ " means " $S$ , treated as a property of  $x$ ." The  $\lambda$ -notation is heavily exploited in Montague grammar; see, e.g., Dowty, Wall, and Peters 1981:98–110.

17. The inserted article is not always indefinite, e.g., I would posit insertion of a definite article in *Scott is the author of Waverley*. The article that is inserted is the one that would be less misleading if it were given its normal semantic interpretation. See Pentheroudakis (1977) for detailed discussion of a language (modern Greek) that draws a 3-way distinction among article-less NP, indefinite NP, and definite NP, with the article-less NP generally corresponding to English NPs with a semantically empty indefinite article.

A third possible analysis of relative clauses on predicate NPs, which is defended in McCawley 1981b but will not be pursued further here, is to treat predicate NPs as having no underlying articles, derive relative clauses on predicate NPs from underlying coordinate structures (e.g., derive (11a) from a structure [*John<sub>i</sub> be lawyer and he<sub>i</sub> wins every case*] by adjunction of the second conjunct to the predicate N of the first conjunct) and treat nonpredicate  $\bar{N}$ s as corresponding to deep structure  $[_S x \text{ be } \bar{N}]$  constituents. Since conjoined Ss are possible wherever simple Ss are, the latter part of this proposal would automatically make available deep structures in which the  $[_S x \text{ be } \bar{N}]$  was conjoined with a S such as would underlie a relative clause on a predicate  $\bar{N}$  and would thus provide derivations for relative clauses on non-predicate NPs.

18. There is considerable dialect variation with regard to whether this restriction is operative. It was not observed in Old and Middle English and is not observed in American urban Black English.

19. See §22c for a more protracted discussion of patches.

20. Yet another argument for deriving relative pronouns from underlying personal pronouns is suggested by the observation of Kuroda (1968:§5) that certain NPs that cannot normally be replaced by pronouns likewise do not correspond to relative pronouns:

- (i) a. Tom died on Christmas, and Roger died then too.  
a'. \*Tom died on Christmas, and Roger died on it too.  
b. the day when Roger died  
b'. the day \*which/?that/?/?0 Roger died on
- (ii) a. \*John spoke in an unpleasant manner, and Mary spoke in it too.  
a'. \*the manner which/that/?0 Mary spoke in
- (iii) a. \*John refused for a stupid reason, and Mary refused for it too.  
a'. \*the reason which/that/?0 Mary refused for

Under the proposal that personal pronouns underlie relative pronouns, the anomaly of (ia', ib', iia, iiaa) would be reflected in a corresponding anomaly in examples such as (ia, ib, iia', iiaa') whose underlying structures would involve such personal

pronouns. The argument, unfortunately, cannot be maintained, in view of the considerably greater acceptability of some relative clauses whose personal pronouns are quite anomalous (iv) and the acceptability of examples in which the relative pronoun is pied-piped (v):

- (iv) a. \*John lives in Boston, and Mary lives in it too.  
a'. the city which/that/?0 Mary lives in
- (v) a. the day on which Roger died  
b. the manner in which Mary spoke  
c. the reason for which Mary refused  
d. the city in which Mary lives

Since the proposal that personal pronouns underlie relative pronouns does not distinguish between cases in which there is pied-piping and cases in which there is not, it does not provide any account of why the anomaly of (ia') etc. is not shared by (v.)

21. It will be convenient to introduce the term **neighbor** for a constituent that is immediately adjacent to a given constituent, i.e., two constituents are neighbors if one precedes the other and there is no constituent that follows the one and precedes the other. Emmons's constraint can then be restated as a requirement that every non-restrictive clause be a surface neighbor of its target. We might indeed generalize Emmons's proposal to a universal constraint that all adposits be surface neighbors of their targets, though I know of so few clear cases of adposition that I cannot make that suggestion with much confidence.

22. What is at issue here is interpretations in which the parenthesized expressions are restrictive relatives. Not surprisingly, the analog to (1c') in which that expression is a nonrestrictive clause is perfectly normal. To my knowledge, the possibility of restrictive relatives modifying free relatives was first noted in Weisler (1980).

23. While *what* in standard English does not function as a relative pronoun, its German and Russian counterparts do when the head is an indefinite pronoun:

everything which/that/\*what he said  
alles, was er sagte  
vse, čto on skazal

24. This implication may be a liability rather than a virtue, in view of the extent to which a *that* is acceptable in such examples as Bresnan and Grimshaw 1978:346:

Whatever food that there may be in that pantry is probably infested with moths.