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Governing -ing

In this article I will analyze the class of English gerunds that I will call the *NP-ing construction* (to be distinguished from the so-called *poss(essive)-ing construction*). For example:¹

- (1) a. Elaine's winking at Roddy was fruitless, *he being a confirmed bachelor*.
- b. The hunchback hated *a nice lady being hanged*.
- c. Michael counted on *them finishing the book soon*.
- d. *Them trying to sing a song* was just too horrible.

(1a) contains what is traditionally called a *nominative absolute construction*. (1b) and (1c) exemplify what Horn (1975) calls the *acc(usative)-ing construction*, and (1d) is the result of putting the *NP-ing* construction in subject position. The construction poses a number of interesting questions. For example, what is its categorial status (that is, is it an

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A shorter version of this article was presented at the "Fourth Groningen Round Table" (July 4–8, 1980). Since that time it has gone through various stages; I have considerably revised it in preparing it for this journal, as I felt that the published version should take into account the recent changes in linguistic theory as much as possible. Many people have contributed to the final result, by providing me with data, suggestions, references, or otherwise helpful remarks. I wish to express my thanks to all of them, including Adriana Belletti, Liz Cowper, Ann Farmer, Frank Heny, Osvaldo Jaeggli, Joan Maling, Alec Marantz, Susan Rothstein, Donca Stériade, Tim Stowell, and Amy Weinberg. My special gratitude goes to David Pesetsky and Barry Schein for their comments on the final version, and also to Lori Levin and the other inhabitants of 15 Lawrence Street, Jane Simpson and David Nash. I am very grateful to the anonymous LI readers for their valuable comments. None of these people is responsible for any of the errors.

¹ A brief comment on the data may be useful. There appears to be considerable variation among speakers of English in their judgments on *NP-ing* constructions. Some have a strong preference for *poss-ing* constructions anywhere, while others prefer *poss-ing* in some positions and *NP-ing* in others. Finally, there is a group of speakers for whom *NP-ing* constructions have the distribution whose possibility this article is intended to explain. Consequently, it is the set of judgments of the latter kind of speakers which constitutes the "norm" for present purposes. This norm is based on traditional grammars such as Jespersen (1940/61), Kruisinga and Erades (1911/53), and Poutsma (1929), which in general constitute rich sources of data and insights. Most of the variation can be easily accounted for by parametrizing the main features of the account to be given. For instance, in a very restrictive dialect, *NP-ing* might be confined to absolute positions. In our terms this would follow from setting the parameter of Case assignment by *-ing* in the following way: *-ing* assigns Case only if *-ing* = AG; *-ing* = AG only when it is not structurally governed (cf. the discussion in sections 3.2 and 3.4). Other examples will be discussed below.

Other types of variation are harder to account for. For some speakers, for instance, (1b) is marginal as given; replacing *a nice lady* by a plural (not necessarily one ending in /s/) makes it completely acceptable. For this fact I have no explanation.

expansion of S' or is it an NP)? I shall argue that it is an S', but then other questions arise. How is the lexical subject governed and assigned its Case? Why can lexical NP alternate with PRO? What explains the ways in which anaphors and pronouns in the subject position of this construction interact with the binding theory (Chomsky (1981))? In many of these respects the NP-*ing* construction will be seen to contrast with the NP-to-VP construction in the complement of exceptional Case markers such as *believe*. This too calls for an explanation.

We will see that in some respects NP-*ing* constructions resemble tensed clauses, while in others they are like infinitival clauses. The heart of my proposal will be that -*ing* in the cases illustrated in (1) is a realization of a nominal element in the verbal inflection marker; that is, it realizes Infl in the expansion of S given in Chomsky (1981) (cf. below). To put it more provocatively, I will claim that NP-*ing* constructions are tenseless finite clauses, where the finiteness resides in the fact that an element functioning like an agreement marker is syntactically present and is instrumental in the assignment of Case to the subject.

Although the idea that these clauses are finite may sound somewhat wild, as it did to me when I first started to explore the possibilities, this merely shows that few things are so wild that they haven't been thought of before. In their English grammar published in 1911, Kruisinga and Erades described their approach to the NP-*ing* construction in the following way:

- (2) The verbal *ing* is primarily a form that closely resembles the finite form in its function and meanings. . . .

English would not be the only language in which tensedness and finiteness constitute separate parameters. The same claim has been made for Turkish by George and Kornfilt (1981) and for Portuguese by Rouveret (1979) and Zubizarreta (1980). Hence, the idea cannot be dismissed as a priori implausible. What remains to be shown is that it is in fact true.

This article is organized as follows. Section 1 outlines the theoretical background that I will be assuming. Section 2 reviews a number of arguments bearing on whether NP-*ing* constructions are to be analyzed as S' or NP, showing that they are in fact S's. Section 3 presents an overview of the main properties of NP-*ing* constructions that should be accounted for. On the basis of these properties, I then argue for the adoption of a number of specific theoretical proposals. Finally, the ensuing sections show how these proposals work out in detail in explaining the relevant properties of the several subtypes of NP-*ing* constructions.

1. Theoretical Background

It is obvious, though perhaps not superfluous, to state that the claim that the NP-*ing* construction must be analyzed as a tenseless finite clause derives its import from the theoretical structure of which it is part. The theory I am assuming is the theory of

government and binding, as developed by Chomsky and others (cf. Chomsky (1981) and many of the references cited there).

The main base rules are given in (3); all but (3e) are standard.

- (3) a. $S' \rightarrow \text{Comp } S$
- b. $\text{Comp} \rightarrow [\pm \text{WH}]$
- c. $S \rightarrow \text{NP Infl VP}$
- d. $\text{VP} \rightarrow V \dots$
- e. $\text{Infl} \rightarrow [\pm \text{tense}, \pm \text{AG}]$ (AG is the (possibly abstract) agreement marker of a finite clause)

I will assume that the ellipsed portion of (3d) contains the constituents for which the head of the VP is strictly subcategorized. Since I will not discuss auxiliary verbs here, I omit them from my rendering of the rules.² The expansion of Infl contains $[\pm \text{tense}]$ and $[\pm \text{AG}]$ as separate parameters and hence anticipates the discussion below. The D-structures specified by (3) are mapped onto S-structures by free application of the rule Move α . This rule is subject to Subjacency; the gap it leaves is called its *trace*. The trace must be c-commanded by the constituent moved, its antecedent. The S-structures are mapped onto representations of logical form (LF) by rules assigning scope to quantifiers and coreference between argument expressions not yet determined at S-structure. S-structures are also the input to a component mapping them onto surface structures; this component will contain (for example) deletion rules of a limited power, rules like Affix Hopping (which attaches the inflection marker to the right of the verb), and the rules assigning phonetic interpretation.

Representations must satisfy the Projection Principle and the θ-Criterion (cf. Chomsky (1981)). The Projection Principle is stated as follows:

(4) *Projection Principle*

Representations at each syntactic level (i.e. LF and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.

The θ-Criterion can be informally rendered in the following way:

(5) *θ-Criterion*

Each argument bears one and only one θ-role, and each θ-role is assigned to one and only one argument.

² The absence of a phenomenon like "do-support" in NP-*ing* constructions can be taken to follow from (for instance) an analysis along the lines proposed in Akmajian, Steele, and Wasow (1979)—without accepting their contention that tenseless clauses lack an Aux. It is only natural to restrict the insertion of "supportive do", like that of other auxiliaries, to clauses where Infl is realized as $[+ \text{tense}, + \text{AG}]$. Thus, do-support is excluded under other realizations of Infl. The fact that do-support is not necessary when some element, e.g. Neg, intervenes between Infl and the verb, can be accounted for by assuming that what appears to be an adjacency requirement on "Affix Hopping" is in fact an adjacency requirement on do-deletion or do-replacement only.

It is assumed that an argument expression is assigned the θ -roles of the traces it binds. An expression in argument position and the traces it binds are said to form a chain. Hence, the θ -Criterion also holds true with *chain* substituted for *argument*.

NPs are subject to the Case Filter, which requires them to have Case if they are phonetically realized.

(6) Case Filter

*NP if NP has phonetic content and has no Case.

This Case Filter can be connected with a different formulation of the θ -Criterion, which I will not discuss here. The intuitive idea is that a chain can be assigned a θ -role only if it is headed by PRO, or if one of its members (which for independent reasons can be only its first member, i.e. the antecedent of the traces) has Case. An NP receives its Case from a verb, preposition, or inflection which governs it under conditions to be discussed below.

Complementary to the Case Filter is the Empty Category Principle (henceforth ECP), which requires an NP-trace (the gap left by NP Movement or Wh Movement) to be governed as well. (In fact, a somewhat stronger requirement, i.e. *proper government*, must be met. See the discussion below.)

In essence, government theory captures the relation between the head of a construction and categories dependent on it (cf. Chomsky (1981)). Thus, under any definition of government P will govern NP in the configuration [PP P NP]; similarly, V governs NP in [VP V NP PP PP]. Consider now (7).

- (7) a. [S NP Infl [VP V]]
- b. [S NP* Infl [VP V NP]]

Since a subject NP is not a dependent of the head of the VP, a correct definition of government will have to entail that in (7a) NP is not governed by V; also, since the object NP in (7b) is only dependent on V, government must be defined so that at most NP*, but not NP, is governed by Infl. Notice that in the case of P and V above, the set of positions that they govern coincides with the set of positions for which they are strictly subcategorized.

Next, consider a slightly more complex example such as (8).

- (8) [S* NP* Infl* [VP V* [S' Comp [S NP° Infl [VP V NP]]]]]

(For ease of reference, I have marked certain occurrences of categories with * or °, a usage which I will continue throughout.) It is well known that the value of Comp plays a role in the subcategorization (or perhaps selection) of the matrix verb (cf. Chomsky (1965), Bresnan (1970)): verbs may or may not require or admit an indirect question as a complement. Suppose now that Comp is the head of S', just as N is the head of NP. We might now say that the relation of government really holds between V and the head of its dependent; that is, in (7b) V governs and subcategorizes for a constituent the head of which is N, and in (8) V* governs and subcategorizes for a constituent the head of

which is Comp. Given this intuition we would not expect it to be possible for V* to either govern or subcategorize any constituent farther down. This seems to be generally correct. Moreover, in general government and strict subcategorization go together, except for government by Infl and cases of so-called exceptional government and Case-marking to be discussed later. In the case of the sister NP of Infl there is no strict subcategorization, since there simply is no choice (cf. Chomsky (1981)). However, there is government, although additional requirements may have to be met (cf. the literature on the possibility of empty subjects of which Chomsky (1981) gives an overview).

Following Chomsky, I will assume that in the unmarked case clauses are of two kinds: either tensed or infinitival, the relevant marking being realized on the inflection. Ideally, their distribution in complement position should be free. In fact, there is some idiosyncratic variation; the general picture, however, conforms to what one would expect if subcategorizing for a clausal complement means "subcategorizing a constituent the head of which is Comp". There are also clausal complements lacking a nonnull complementizer. Assuming that in these cases the Comp position is empty at D-structure, the relevant strict subcategorization feature cannot be "take a projection of Comp"; rather, under the assumption that Infl is the head of S, the verb must be taken to be subcategorized for a projection of Infl in such cases. Hence, one would expect the various ways in which Infl can be realized to be relevant for subcategorization only when Comp is empty. This is what we find: most verbs take tensed complements and in addition either *to* complements or *-ing* complements, these two realizing [-tense] Infl. *-ing* constitutes the marked option here; that is, it can appear only if explicitly licensed by the strict subcategorization frame of the matrix verb. When a verb requires a +WH Comp, the "ideal" situation with respect to the choice of the other parameters of the complement is approximated most closely: choice between [+tense] and [-tense] is free, unrestricted by idiosyncrasies, and the marked realization of [-tense], viz. *-ing*, is never available. That is, if the verb requires a +WH Comp, it cannot at the same time specify a value for Infl. The theory of government to be adopted will have to reflect this fact. (Section 3.1.1 presents a more general account of the distribution of *-ing* constructions.)

The leading idea of this approach to government also entails that NP° will not be governed by V* in (8), since the former is not a dependent of the latter, but rather of Infl. The standard case is indeed that even if Comp is absent no government relation obtains between V* and NP° (but see below for exceptional government and Case-marking).

The rules of Case-marking can now be given:

- (9) a. NP has objective Case if governed by V or P.
- b. NP has nominative Case if governed by Infl when Infl = [+AG].

It is possible for an NP to be in the complement of a noun or an adjective and hence to be governed by the latter. Since these categories are governors but not Case assigners, the resulting structure will be ungrammatical, unless the NP complement receives Case

in some other way; that is, either by movement to a Case position or by the application of some default procedure (e.g. *of*-insertion, as in [AP[A proud] (of) John] or [NP[N destruction] (of) the city]).

As mentioned earlier, the ECP requires a trace to be properly governed. Bypassing the discussions of the ECP in the most recent literature, I will pursue the line of Chomsky (1980), where proper government is taken to require government by a lexical category. The set of heads is given by $[\pm N, \pm V]$, Comp, Infl. The proper governors are $[-N, +V] = V$, $[+N, +V] = A$, and $[+N, -V] = N$, as well as $[-N, -V] = P$ when it bears the index of a verb (that is, when it is cosuperscripted with a verb (cf. Kayne (1981a,b), Rouveret and Vergnaud (1980))) and Comp when it bears an index.³ Thus, the position of a subject in the domain of Infl, where it is governed by AG, is set apart, as is the position of an NP in the domain of a preposition lacking a superscript. These positions are not properly governed. This accounts for the impossibility of *Wh* Extraction out of adverbial PPs, as in **who did John leave after t*, where *t* is not properly governed, and for the Comp-trace effect in *who did you say (*that) t came*. The usual type of analysis (based on Pesetsky (forthcoming)) gives the following structure:

- (10) *who_i* did you say [$s'[_{Comp} t_i^*$ (*that*)] [$s t_i^* Infl VP$]]

Since Infl is not a proper governor, t_i^* violates the ECP, unless some additional requirement is met; that is, it must be governed by an indexed Comp. When *that* is present, t_i^* is properly contained in Comp; hence, Comp as such is not indexed, and t_i^* still violates the ECP. If *that* is absent, t_i^* constitutes all of Comp, and hence Comp is a proper governor for the subject trace.

Much of the discussion of the analysis of NP-ing complements will concentrate on the behavior of anaphors and pronouns in subject position with respect to the binding theory. In stating these conditions, which hold at S-structure, I follow the formulation of Chomsky (1981).

- (11) (A) An anaphor is bound in its governing category.
 (B) A pronominal is free in its governing category.
 (C) An R-expression is free.

The conditions apply to NPs in argument positions (i.e. the base-generated NP positions, not operators, Infl, etc.). An argument is bound if it is c-commanded by a coindexed argument. If an argument is not bound in this sense, it is free. Anaphors are lexical NPs such as *each other*, *himself*, etc., the trace of NP Movement, and PRO. Pronominals are NPs such as *he*, *you*, etc., as well as PRO. R-expressions are NPs such as *transformation*, *Joop*, etc., and the variables, i.e. empty categories coindexed with an expression in a nonargument position, such as a *wh*-operator in Comp. The governing category of some NP β is the smallest category α such that α contains β , a governor of β , and

³ But see the discussion in section 3.2.

a SUBJECT accessible to β .⁴ Since adjectives and nouns are governors but not Case markers, it is possible for an NP to have a governing category without being Case-marked. Because PRO is both anaphoric and pronominal, and given conditions (11A-C), it follows that PRO must be ungoverned; it is subject to (A) and (B) simultaneously, requirements which it can meet only if it does not have a governing category.

2. The Categorial Status of NP-ing Constructions

I base my explanation for the properties of NP-ing constructions on the contention that they are clausal. This thesis has, I believe, been convincingly argued in Horn (1975). However, since the literature contains conflicting analyses for at least some subtypes of this construction (Akmajian (1977)), it is perhaps useful to review briefly the existing arguments and to add various considerations that to my knowledge are new. This apart from the fact that to my mind the specific analysis to be given later itself constitutes such an argument.

2.1. Some Relevant Facts from the Literature

Wasow and Roeper (1972) have argued that two classes of gerunds should be distinguished, viz. nominal and verbal gerunds. (Their analysis involves only gerunds without an overt subject.) Taking these results into account, Horn bases his argument on the following considerations. Acc-ing and poss-ing complements have quite different distributions; therefore, they must be assigned different sources. Conjoined poss-ing constructions as the subject of a sentence, like conjoined NPs, induce plural agreement marking on the verb. On the other hand, acc-ing complements behave like *that* and *for-to* complements with respect to plural agreement when conjoined; that is, the agreeing verb is singular. Similarly, acc-ing constructions do not occur in the cleft focus or inverted auxiliary position, as examples (12) and (13) illustrate (= Horn's (118) and (119)).

- (12) a. *It was John kissing Mary that upset everyone.
 b. *Did John kissing Mary {annoy
bother} her parents?
- (13) John playing the piano and Fred singing a song {*were
was} terrifying.

Finally, Horn notes that unlike poss-ing constructions and like *that* and *for-to* comple-

⁴ The definition of accessible SUBJECT follows from these two considerations:

(i) α is accessible to β if and only if β is in the c-command domain of α and assigning the index of α to β would not violate (ii).
 (ii) *[$\gamma \dots \delta \dots]$, where γ and δ bear the same index.

It is assumed that AG is coindexed with the NP it governs. A SUBJECT of a category NP or S is its "most prominent nominal element", i.e. AG if it has one and its traditional subject elsewhere.

ment sentences, *acc-ing* complements allow *Wh* Extraction and do not move like NPs when they occur in postverbal complement position; cf. (14a) and (14b), to be contrasted with (14c).

- (14) a. *Fred singing the national anthem everyone imagined.
- b. What did everyone imagine Fred singing?
- c. *Who did you defend Bill's hitting?

The NP-*ing* constructions' property of allowing *Wh* Extraction is a useful tool for disambiguating these constructions with respect to other possible analyses.

Horn notes incidentally that for some people sentences like *Which movie would you disapprove of my seeing?* are acceptable, with a genitive on the pronoun. The presence of a genitive need not be incompatible with analyzing the clause as being essentially an NP-*ing* construction, under the assumption that, especially when the subject is a pronoun, the nominal character of the inflection may trigger genitive formation, instead of what I will argue to be the general mechanism of Case assignment to the subject position of NP-*ing* constructions, namely, transfer of the inflection's Case.

Williams (1975) contains a "catalog of the properties of gerunds vis-à-vis the two nodes S and NP". Since he takes into account solely the poss-*ing* constructions, I will review his arguments only cursorily and only insofar as they might seem relevant to the main subject of this article. The facts in his section "How Gerunds Are Like Ss" do not require discussion, since they all carry over to NP-*ing* constructions. The facts in the section "How Gerunds Are Like NPs" warrant some comments, however. Even if gerunds are like NPs with respect to Case assignment to their subjects, NP-*ing* constructions are quite unlike them. In fact, we will see that in principle the mechanism is identical to the one operating in ordinary tensed clauses. Williams observes that poss-*ing* complements move like NPs. We have already seen that NP-*ing* constructions do not. Unlike other clausal complements, and like poss-*ing* constructions, NP-*ing* constructions do occur headed by a preposition in a position subcategorized for by a verb. This contrast with other clausal complements follows from the assumption that a preposition cosuperscripted with a verb (Kayne (1981a)) assigns its Case obligatorily. This excludes tensed and infinitival clauses from the domain of prepositions. As we will see, it is for independent reasons that NP-*ing* complements must appear in a Case-marked position—and, crucially, can receive Case—since this Case is instrumental in the mechanism for government of their subjects. The fact that NP-*ing* constructions, like poss-*ing* constructions, cannot be extraposed follows from the same consideration. The construction must appear in a Case-marked position, for the reason just indicated and discussed in more detail below.

In the section "How Gerunds Are Not Like Ss" Williams (1975) lists six properties of Ss not shared by poss-*ing* constructions. In virtually all of these respects, NP-*ing* constructions turn out to behave like Ss. For instance, they do contain certain S-adverbs, which gerunds do not:

- (15) John probably being a spy, Bill thought it wise to avoid him.

Similarly, result clause extraposition, though impossible in poss-*ing* constructions, is much better in the corresponding NP-*ing* complements:

- (16) We were quite surprised at so many people showing up that we had to leave.

As noted earlier, *wh*-items can be extracted from NP-*ing* complements, but from poss-*ing* complements extraction is impossible.

Williams observes that nonmotivational *because*-clauses are odd in poss-*ing* constructions. In NP-*ing* constructions they are not:

- (17) Grass being green because it contains chlorophyll, it is one of the most common types of vegetation employing photosynthesis.

Next, the restriction on the subject of gerunds noted by Williams (namely, that it must be [+specific] and [+animate]) does not hold for NP-*ing* constructions, choice of the subject being almost as free as in the corresponding tensed clauses.

Important evidence that NP-*ing* constructions are clausal is that their subject position is obligatory (cf. Chomsky (1981)); witness the appearance of nonargument subjects such as *there* in (18) or quasi-arguments such as "weather-it" in (19).

- (18) You may count on there being a lot of trouble tonight.

- (19) I wouldn't count on it raining tomorrow.

This crucially distinguishes them from poss-*ing* constructions, and from NPs in general.

Not unexpectedly, NP-*ing* constructions turn out to possess all of the properties of gerunds that Williams discusses in his section "How Gerunds Are Not Like NPs".

I conclude that on the basis of the criteria investigated in this section, NP-*ing* constructions must be analyzed as full clauses.⁵

2.2. Considerations of Logical Form

As mentioned earlier, Akmajian (1977) explicitly argues against a clausal analysis of NP-*ing* constructions, basing the argument on certain properties of perception verb complements. His main thesis is that from an NP-*ing* construction in subject position the part following the NP can be extraposed, as (20) illustrates.

- (20) a. The moon rising over the mountains looks spectacular.
- b. The moon looks spectacular rising over the mountains.

This apparently supports the idea of a head modifier structure, and as a consequence Akmajian proposes to analyze NP-*ing* constructions generally as [NP NP VP]. Apart

⁵ In some cases NP-*ing* constructions appear to resist passivization:

(i) *them trying to sing a song, was remembered *t*,

This observation is due to Joan Bresnan, if my memory is correct. As David Pesetsky has pointed out to me, movement is not ruled out in general (even under passive), since (ii) is grammatical.

(ii) Them trying to sing a song seems to have been remembered by everyone.

I have no explanation for the contrast between (i) and (ii).

from the problems noted by Gee (1977) and the arguments in favor of a clausal analysis presented earlier, another set of decisive arguments can be brought to bear against an NP analysis and in favor of a clausal analysis. Consider the following contrasts.

- (21) a. I hated everyone.
- b. ?I hated everyone I liked.
- (22) a. I hated everyone being hanged.
- b. I hated everyone I liked being hanged.

Clearly, (21b) is odd because of its flavor of contradiction, which is wholly absent from (22b). What is hated is some fact, viz. that everyone I liked was hanged; in (22) *everyone* (*I liked*) does not bear a θ -role assigned by *hate*. Another interesting observation can be made: in (22) the quantifier *everyone* has narrow scope with respect to the matrix verb *hate*. Moreover, this is the standard case. The fact that quantifiers in NP-*ing* constructions have narrow scope follows from a clausal analysis in conjunction with the rule of scope assignment for quantified NPs proposed in May (1977). Under this proposal, a quantified NP is subject to a rule of Quantifier Raising (QR). As a result of QR, the NP is adjoined to S, subject to Subjacency, guaranteeing a grammatical result only if it is adjoined to the minimal S containing that NP. Thus, the difference between (21) and (22) can be crudely represented as shown in (23).

- (23) a. [s (every *x*, . . .) [s I hated *x*]]
- b. I hated [s (every *x*, . . .) [s *x* is hanged]]

If NP-*ing* constructions were to be analyzed as [_{NP} NP VP], as Akmajian proposes, there would be no natural way to represent the difference between (21) and (22), since in both cases the complement would have basically an NP-modifier structure. Akmajian argues that a clausal analysis is impossible because of the existence of both (20a) and (20b). He states that (20a) is derived from (20b) by extraposition of the constituent *rising over the mountain*. If *the moon rising over the mountain* were an S, one would not expect this sort of extraposition to be possible. Akmajian concludes that such data reveal the head-like nature of the subject of the construction. However, on the basis of constructions with quantified NPs, it is easy to see that sentences such as (20a) hide an ambiguity. Consider (24).

- (24) Every plane hitting its target looks horrifying.

This sentence has two readings; one is approximately that every plane looks horrifying when it hits its target, the other that it is a horrible sight when all planes together are hitting their targets. Interestingly, the latter reading disappears when the "VP" has been extraposed:

- (25) Every plane looks horrifying hitting its target.

The pair of sentences in (26) provides an even more striking illustration of the

phenomenon. Here, the quantificational structure of the sentence is only compatible with a clausal interpretation; consequently, the variant with extraposition is ungrammatical.

- (26) a. Every plane hitting its target at the same time was a horrible sight.
- b. *Every plane was a horrible sight hitting its target at the same time.

Obviously, this is because the NP-*ing* constructions are structurally ambiguous between the clausal structure we have been investigating and the structure [_{NP} NP [s'[s PRO-ing VP]]], where -*ing* is a participial affix (cf. the discussion in section 3.1.1). Since the grammar must contain this option in any event, its occurrence in this environment requires no special stipulation. (In order not to burden the exposition with unnecessary complications, this option was omitted from the rendering of the rule expanding Infl in (3e).) Sentences (20b) and (25) are then simply the result of extraposing a modifying S' on the same footing as extraposition of a relative clause. Thus, extraposition is an indication of a head-modifier structure; but this structure precludes a narrow scope interpretation under May's analysis. Therefore, if a narrow scope interpretation is forced, as in (26), the result of extraposition is ungrammatical.

I conclude that the existence of narrow scope for quantified NPs in NP-*ing* constructions, together with related phenomena, provides independent support for their status as clauses.⁶

The existence of sentences like (27), where disjoint reference is not required between *him* and *John*, also argues strongly against a head-modifier structure in these cases.

- (27) Him, having to attend that meeting caused John, not a few moments of anxiety.

Clearly, under a head-modifier structure, the index of *John* would be the index of the whole phrase *him having to attend that meeting*, and hence *John* would not be free as required by the binding theory.

Having conclusively established that NP-*ing* constructions are clauses, I will proceed to show in detail how they are to be analyzed.

3. The Structure of NP-*ing* Constructions and Its Theoretical Implications

As observed in the introduction, NP-*ing* clauses appear in three positions: as absolutives, as subject clauses, and as complements to verbs and prepositions. I will first present an analysis of NP-*ing* clauses as complements of verbs, the acc-*ing* construction.

⁶ Fiengo and Higginbotham (1979) propose a modification of May's theory of QR. In order to account for the fact that narrow scope readings are possible for quantifiers in the complement of a noun, they propose that N' is a possible adjunction site for QR in addition to S. The choice of N' as the adjunction site precludes narrow scope readings for quantifiers in the subject position of NPs. This gives the correct results for the interpretation of poss-*ing* constructions such as *They remembered no one's arriving late*, which has the interpretation that for no *x* they remembered *x*'s arriving late, to be contrasted with *They remembered no one arriving late*. The same holds true for *They remembered everyone's arriving late*.

3.1. Acc-ing Clauses

Any grammar of English must provide an explanation for the following properties of acc-ing constructions.

- (i) The NP in the subject position of this construction is either PRO or lexical. If it is lexical, it has objective Case. This is illustrated in (28).
- (28) a. the architects favored [PRO being placed upon the investigations committee]
b. the architects favored [them being placed upon the investigations committee]
- (ii) The governing category for the NP in subject position is the matrix clause. That is, *them* in (28b) may not be coreferential with *the architects*, and *each other* in (29) may be bound by it.
- (29) the architects favored [each other being placed upon the investigations committee]
- (iii) Long Wh Movement applies freely out of either subject or object position. This is illustrated in (30) (examples taken from Kayne (1981c)).
- (30) a. linguistics is what we'd favor him studying t
b. the only one who we'd favor t studying linguistics is John
- (iv) NP-ing clauses never occur as indirect questions; that is, short Wh Movement is always excluded. This is illustrated quite clearly by the verb *remember*, which takes both *to*-infinitivals as a complement and NP-ing clauses. In the former case it admits indirect questions, in the latter case it does not. The facts are illustrated in (31).
- (31) a. Rudy didn't remember [what [PRO to do t]]
b. *Rudy didn't remember [what [PRO doing t]]
c. Rudy didn't remember [John
PRO reading the letter]
- (v) The subject cannot undergo NP Movement. This can be illustrated by choosing a matrix verb with passive morphology, as in (32).
- (32) a. NP hated [the boys eating the fish]
b. *the boys were hated [t eating the fish]
- (vi) A quantified NP in subject position strongly favors a narrow scope interpretation, as in (33) (cf. also the discussion in section 2).
- (33) a. Cindy hated [everyone eating the fish]
b. Gloria hated [no one coming to her party]

This configuration of properties is quite remarkable. Properties (i) through (iv) suggest some process of exceptional Case-marking; the option of having a PRO instead of a lexical NP in subject position, however, shows that it must be possible for Case not to be assigned. In this respect the pattern is more that of *want*-type verbs than that of *believe*-type verbs. The impossibility of NP Movement under passive and the impossibility of a wide scope interpretation for quantified expressions show that the structure cannot be that of a matrix verb exceptionally governing into its complement. Rather, the complement must contain an element "absorbing" the government in (28a), (32b), and (33) under the wide scope interpretation, in the latter two cases effectively yielding a violation of the ECP.⁷

These facts can be made to follow from two leading ideas: (a) that -ing in these constructions in fact realizes a nominal inflection marker, similar to AG in respects to be discussed below, and (b) that the construction falls under the core case of government, outlined in section 1, rather than under some exception (that is, the domain of -ing is inaccessible to government by a governor outside it).

3.1.1. "-ing" as AG. Following ideas in Rizzi (1979), Rouveret (1979), Taraldsen (1978), Zubizarreta (1980), and many other studies (cf. also my own earlier work, Reuland (1979) and (1981d)), I will assume that AG is a nominal element. Its feature matrix will be abbreviated as [N]. In tensed clauses the presence of the [+tense] feature causes AG to be assigned nominative Case; this Case can then be transmitted to the subject.

⁷ Perception verbs allow a wider range of options. They take bare infinitival complements, small clause complements (cf. Stowell (1981)), and also NP-ing constructions. In a bare infinitive the subject can never be PRO. NP Movement under passive is impossible, however (cf. *The arrow was seen hit the target). This suggests an analysis in which bare infinitives contain an abstract inflection marker which cannot retain Case (cf. Reuland (1981b) for more discussion).

NP-ing constructions in the complement position of perception verbs appear to behave quite differently for many speakers from the standard cases of NP-ing constructions. NP Movement under passive applies quite freely, and wide scope interpretations for quantified NPs in subject position of these constructions are readily available. It must be noted that at least this correlation follows from our analysis. As an example:

- (i) a. John saw everyone coming.
b. everyone was seen t coming

Wh Extraction in conjunction with NP Movement seems to be possible as well:

- (ii) what_i was everyone_j seen t_j doing t_i

The first question is whether examples (ia,b) and (ii) really represent the construction under investigation. The ungrammaticality of the following examples, due to David Pesetsky, shows that they do not.

- (iii) *It was seen raining.
(iv) *There was seen being a riot.

In these examples there cannot be a thematic relation between the moved constituents *it* and *there* and the matrix verb; hence, their only source could have been the subject position of the complement. Our expectation that movement cannot take place from that position is borne out. The remaining question is, then, What is the source of (i) and (ii) if they cannot be analyzed as acc-ing constructions? (Interestingly, Hudson (1971) also suggests that such cases should not be analyzed as involving NP Movement out of an acc-ing construction.) The simplest proposal accounting for the facts appears to be that the complements in (i) and (ii) are in fact small clauses, where the predicate may be taken to be a participial -ing-clause (or perhaps only a VP or an AP); that is, the structure of *Everyone was seen coming* is similar to that of *Everyone was seen in the garden*. In fact, this comes quite close to retaining Akmajian's proposal for some of the cases for which it was developed.

The subject can be lexical only if Case transmission has applied. The conditions under which this process leads to obligatory lexical realization of the subject constitute the pro-drop parameter, which distinguishes languages such as English and Dutch from languages such as Italian or Spanish, where the subject need not be phonetically realized. (See Chomsky (1982), Safir (in preparation), and the references given.) For present purposes it suffices to assume that in a non-pro-drop language the presence of AG will always force the subject to be lexically realized (even if AG is only present on an "abstract" level of representation like S-structure). As discussed in Chomsky (1981; 1982), the presence of AG rules out the possibility that the structure is a control structure; that is, the empty subject cannot be "control-PRO".⁸ Notice that the AG in tensed finite clauses has in fact three characteristic properties: (i) it is nominal, (ii) it assigns Case by transmission, and (iii) it bears an index (which may or may not suffice to identify an empty subject: the pro-drop parameter). These properties need not go together. In fact, we will see that certain instances of the inflection marker *-ing* can best be viewed as sharing the first two properties with AG in tensed clauses, but not the third; other instances of *-ing* will be seen to be associated with all three properties; and finally, some instances of *-ing* share none of these properties of AG.

The morpheme *-ing* in English has a variety of functions. It may be a straightforward nominalizer, as in *The killing of his dog upset the general*. It may be used to indicate progressive aspect; it may enter into the derivation of adjectives. It also has different uses in more clause-like constituents. It appears in participial clauses, but also in poss-ing constructions, in NP-ing constructions where NP is lexical, and in those where NP = PRO. The question may now be raised in what respects the differences between the "clause-like" -ing constructions imply a difference in theoretical status between the occurrences of the morpheme *-ing* they contain.

Participial -ing and the others are in virtually complementary distribution. Participial -ing-clauses do not appear in argument positions; the others appear only in such positions

⁸ This can be made to follow from the assumption that in non-pro-drop languages AG is a nonargument, which must be linked to a chain (or in other words to a thematic role). Consider (i).

(i) [s NP* AG [vp V NP]]
AG being the head of S and having (nominal) features, it will govern NP*. Hence, NP* cannot be PRO (lest the binding theory be violated). It cannot be an anaphoric empty element, since it would have to be A-bound in S, and AG is not a possible binder. It can be a variable, though, if it is bound by an operator outside S, and it can be lexical. Under both options it is required to have Case, since otherwise it cannot be assigned a thematic role. Hence, Case will have to be transmitted from AG to NP*. This establishes coindexing between AG and NP*, thus, AG becomes linked to a chain.

Suppose, alternatively, that AG has undergone Affix Hopping at S-structure, yielding (ii).

(ii) [s NP* e_i [vp V-AG_i NP]]

Here, AG no longer governs NP*; it cannot assign Case. NP* being ungoverned, it could be PRO. The presence of the trace of AG protects it from government by elements outside S. However, although PRO does not violate any principle, the structure is ungrammatical because AG cannot be linked to a chain. (Note that I am assuming the analysis of Chomsky (1982), where the question of the particular component in which Affix Hopping applies (that is, whether it applies in the syntax or in the morphology) is treated as independent from the pro-drop parameter.) In a sense, this treatment dissociates Case assignment by AG from government by AG, an idea adopted from a proposal made in Stowell (1980). A very similar idea is implemented in Safir and Pesetsky (1981). Instead of requiring that AG be in a chain, they propose a filter ruling out AG with Case.

(disregarding the absolute for the moment). A fair approximation of the environments in which the participial *-ing* occurs is given by the principle (34) (*-ing* realizes a participial option of Infl).

(34) *-ing* is participial only if its domain is governed by NP or VP.

That is, a participial clause is basically a modifier; it is an attributive modifier when it can be construed with an NP, an adverbial modifier when it can be construed with a VP. (A clause can be participial only when it can be construed with some category to modify.) The standard case is that the modifier phrase and the constituent modified are sister nodes. Although the requirements on the configuration correspond to the notion of government as introduced so far, the required relation does not fall under the usual formal definitions of government, since these require the governor to be a head. Since it is easy to see how the notion of government as it will be defined below could be modified so as to incorporate the intuition behind (34), I leave this to the reader.

Given that this study is devoted to the NP-ing construction with NP lexical, I will not pursue the details of the analysis of the participial construction. Note though, that the definition as it stands prohibits a clause from being participial if its Comp position is nonempty. That is, it blocks government of S by NP or VP in an S' with a filled Comp, the Comp being the head of S'. We will see that this has correct implications.

The other three cases appear to fall under the generalization (35).

(35) The domain of *-ing* is governed by a Case assigner.

In the case of poss-ing constructions this is what one would expect, since—being NPs in their external and part of their internal grammar—they will fall under the Case Filter. As far as this construction is concerned, (35) is perhaps somewhat misleading, in that no clear evidence exists that *-ing* here is an inflectional affix; since it might well be derivational, assigning it a syntactic domain would be inappropriate. Although their syntactic status is quite different, this construction has parallels with the other two, in that in all cases the occurrence of *-ing* is associated with the presence of nominal characteristics.

According to Wasow and Roeper (1972) there are two kinds of PRO-ing constructions: verbal and nominal. Here, only the verbal PRO-ing constructions will be considered. These basically pattern like acc-ing constructions, with which they in general freely alternate. They allow a constituent they contain to undergo long Wh Movement, as acc-ing constructions do. The PRO-subject they contain is subject to the theory of control, like that of infinitival clauses. Since they pattern like clauses, one would expect them to contain an inflection. This Infl I will take to be *-ing*, which also plays a role in the strict subcategorization of verbs; *hate*, for instance, takes NP-ing complements, whereas *believe* does not. This can be accounted for by associating a subcategorization frame such as (36) with *hate*, but not with *believe*.

(36) *hate*, [+V, + ____ [s . . . -ing . . .], —]

Henceforth, I will assume that verbs admitting *-ing* complements are marked in the lexicon in this way.⁹

The structure of PRO-*ing* complements of the type under consideration can be represented as follows:

$$(37) [s^* \dots [vp \dots V [s' [s NP^* [Infl -ing] [NP]]]]]$$

As we have seen, PRO-*ing* constructions of this type are to be distinguished from the participial PRO-*ing* clauses; they, but not the participial PRO-*ing* constructions, alternate with NP-*ing* constructions where NP is lexical. The basic facts about the distribution of NP-*ing* clauses can be stated in an intuitively very simple way, using the concept of identification. That is, every occurrence of *-ing* must be identifiable as either participial or nominal. *-ing* is identified as participial under (34). The descriptive generalization in (35) can serve as the basis for identifying it as nominal. Since *-ing* as a realization of the sentential inflection is in the head position of its clause, it is *-ing* which is governed if the clause as such is governed. Hence, separating the clausal NP-*ing* complements from the true gerunds (which are NPs), the nominal *-ing* will be identified under (38).

(38) *-ing* can be nominal only if it is in a Case position.

This principle is reminiscent of one of the forms in which the Case Filter has been discussed in the literature, viz. (6') (cf. (6)).

(6') *[_N α], where α includes a phonetic matrix, if N has no Case.

Chomsky (1981) argues that (6') can in fact be derived from (6), the latter being more general since it also holds for NPs that have no lexical N as head (e.g. gerunds, and perhaps clauses in subject position). It is not obvious that (38) is derivable in this manner, given that at least clauses in object position are not generally NPs. As shown in Chomsky (1981), (6) can be derived from a specific formulation of the θ-Criterion, namely, that a chain can have a θ-role only if it is headed by PRO or a Case-marked NP. Note, however, that there is yet some independent content to (6') with respect to (6) as derived in this manner. Under (6) it is possible for an extraposed subject to acquire a θ-role by being cosuperscripted with a Case-marked pronoun in subject position, e.g. *itⁱ was tragic [that Labour lost the elections]ⁱ*. However, this option is limited to subjects that do not themselves require Case. With full NPs, for instance, it is not available: **itⁱ was tragic [Labour's loss at the elections]ⁱ*. (Note that this judgment applies when the sentence is read with normal intonation; with a marked pause between *tragic* and *Labour* the sentence is acceptable as expressing an afterthought; but, crucially, no such pause is required when the extraposed subject is an ordinary clause. Of course, the question can only be framed in this manner if one assumes that cosuperscripting is distinct from cosubscripting

⁹ In some sense the dots could be said to represent string variables. They are, however, finitely specifiable and hence eliminable. Perhaps the following notation is to be preferred, mentioning only the head.

(i) *hate*, [+V, + ____ [Infl -ing]]

and never leads to a violation of the binding conditions.) The difference between these constructions follows from the assumption that the extraposed position is not a Case position, in conjunction with the hypothesis that a tensed clause does not require Case, while an NP does. To put it differently, by the superscripting mechanism the θ-Criterion is satisfied, but (6') is not. NP-*ing* constructions appear to pattern like NPs in this respect: cf. **itⁱ was tragic [Labour losing the elections]ⁱ*. (6) can be viewed as the representation of the Case Filter at the level of logical form, i.e. it involves abstract Case; on the other hand, (6') represents the Case Filter as a morphological principle (cf. Van Riemsdijk (1982)). It is perhaps not really surprising that, although these principles are intrinsically closely related, we have not yet found a perfect way to match them. It appears then, that (6') rather than (6) is needed to account for the distribution of NP-*ing* constructions, with N understood so as to include the nominal *-ing*. The conditions under which (6) and (6') can both be deduced from a slightly modified version of the theory of θ-role assignment are discussed in Reuland (in preparation). Discussion here would lead us too far afield.

Returning to the specific analysis of the PRO-*ing* construction, we see that the structure of (37) cannot be its S-structure, since PRO is governed. However, applying the rule of Affix Hopping (the rule R in Chomsky (1981)) in the syntax yields a structure in which PRO is ungoverned:

$$(39) [s^* \dots [vp \dots V [s' [s NP^* e_i [vp V- [Infl -ing]_i NP]]]]]$$

Here, NP* is no longer governed by *-ing*; nor is it governed by the matrix verb, since it is in the domain of *e_i*, the trace of Infl. In other words, we need assume nothing other than that (39) falls under the core case of government sketched in section 1; namely, that only the head of a given construction can be governed by an outside governor.

The rule of Affix Hopping can be taken to operate freely; if it fails to apply before S-structure, the construction is ruled out since it violates the binding theory. Affix Hopping is allowed to apply in the syntax under the assumption that *-ing* does not bear an index which prevents PRO from being controlled.

Consider now the third case, that of the acc-*ing* complements. To account for their properties, we need say only that *-ing* acts like AG in allowing its Case to be assigned to the NP it governs. That is, in (37) NP* can be lexical just in case V assigns Case to the head of S, viz. *-ing*, and *-ing* in turn assigns this Case to NP*. Hence, I will assume that *-ing* basically is AG, but lacks the "pronominal" characteristics associated with AG. This amounts to the following statement:

(40) Nominal *-ing* governs like AG.

We will see that all of the properties discussed can be derived on the basis of this assumption. It is in this sense that acc-*ing* complements are finite.

*3.1.2. Deriving the Properties of Acc-*ing* Clauses.* The properties of acc-*ing* constructions mentioned in (i)–(vi) of the previous section now follow quite straightforwardly.

Property (i) follows from the option of either having *-ing* = [N] undergo Affix Hopping in the syntax, yielding the PRO case, or else having it assign the Case it received from its governing verb to the subject of the complement. Only then can this subject be lexically realized.

Property (ii) differentiates tensed finite clauses from the tenseless finite clauses discussed here. In a tensed finite clause, the governing category of a subject X is the minimal S containing X; it is this S which contains X and both a governor of X and a SUBJECT accessible to X, both equaling AG in different capacities. However, in an acc-*ing* clause the situation is different. Clearly, the governing category of the subject corresponds to S* in (37): (28b) is ungrammatical under the reading in which *them* is coindexed with *the architects*, and *each other* in (29), though not bound in its minimal S, satisfies the binding conditions with *the architects* in the matrix clause as its antecedent. However, this is precisely what the analysis predicts. Given that *-ing* is not a pronominal AG in the PRO-*ing* cases (it cannot be, or else control would be ruled out)—that is, it is not a SUBJECT—it is a natural assumption that it is not a SUBJECT in the acc-*ing* construction either. Hence, the minimal S containing NP* in (37) is not its governing category, since it does not contain a SUBJECT accessible to NP*. Therefore, its governing category is the matrix S, viz. S*. This accounts for these facts.

Property (iii) follows directly from analyzing the NP-*ing* constructions as clauses. (30a) is well formed, since the trace is properly governed by *studying* and Subjacency is not violated. (Analyzing these constructions as NPs would raise the question of why there is no Subjacency violation.) Assuming successive cyclic Wh Movement and applying it to the NP in subject position as in (30b), we derive the configuration in (41).

- (41) [S wh_i [S . . . V [S t_i [S t_i* -ing [VP V NP]]]]]

Subjacency is not violated. Notice, however, that under the assumption that *-ing* “governs like AG” and is a realization of Infl, it is not a proper governor for t_i*. No violation of the ECP results, however, since the trace t_i in Comp causes it to be met (cf. the discussion in section 1). t_i does not block Case assignment to and government of *-ing* by V, since it is not base-generated there, lacks phonetic content, and is not an operator in the sense of Chomsky (1981).¹⁰

¹⁰ Notice that Wh Extraction of the subject of an acc-*ing* construction is in some sense parallel to Wh Extraction of the subject of an exceptional Case-marking construction. In both cases the assumption of successive cyclic Wh Movement leads to a trace in Comp which intervenes between the matrix verb and the position to which it must assign Case. The latter instance is discussed in Chomsky (1981), where it is suggested that under certain conditions met in the infinitival constructions [S [S does not count for Subjacency and hence movement need not proceed via Comp. In the NP-*ing* construction it is the assumption that local control of the subject position is required which accounts for the difference between long Wh Movement and long QR. Hence, I cannot adopt Chomsky’s proposal as it was formulated. The analysis presented in the text simply expresses the idea that such traces do not count under the conditions given. This is in fact equivalent to saying that Chomsky’s proposal holds, but only with respect to movements that otherwise would have taken place through Comp. Complications of this kind also arise elsewhere: in Dutch “Verb raising” constructions, this rule can apply only when the Comp of the complement is empty. Long Wh Movement does not block verb raising. This suggests that [S [S does not count for Subjacency; yet the verb itself crosses at most one [S [S boundary at a time, suggesting that for verb movement such a boundary still counts for Subjacency. (In Dutch, S is the bounding node.) No doubt these complications in the theory of Subjacency will be obviated as our

Like (i), property (iv) is special to, and typical for, this kind of construction. It cannot be accounted for by saying that accidentally no verb which admits *-ing* complements takes indirect questions, since the verb *remember* used in (31a–c) does take indirect questions when it has a tensed complement (as in *I didn’t remember what I should do*) and similarly when construed with an infinitival complement (as in *Rudy didn’t remember what to do*). Hence, the impossibility of *Rudy didn’t remember what PRO doing t* is not accidental. *What* heading a clause represents a +WH Comp at D-structure. Hence, neither at D-structure nor at S-structure can *remember* govern the Infl of its complement; that is, principle (38) requiring that a nominal *-ing* be governed by a Case marker is violated. Notice that principle (34) is also violated. Because of the presence of *what*, the condition under which *-ing* can be participial cannot be met. Thus, the conditions (34) and (38) do not together exhaust the structural possibilities, and those constructions not sanctioned by one of them are indeed impossible. Notice that in the case considered here, another approach is available as well. One might say that *remember* could never subcategorize an *-ing* complement if its subcategorization frame mentions *Comp*, *-ing* being a marked option that requires explicit mention. Thus, simply on the basis of the core notion of government, and assuming that if X subcategorizes position Y then X must govern Y, (31b) would be ruled out. However, since *-ing*-clauses exhibit the same restriction when they are in a nonsubcategorized position, the approach based on (34)/(38) is more general. As we will see, it would not do to say simply that *-ing* constructions lack a Comp position. Given (34)/(38), which in a sense amount to the requirement that the construction must be properly identifiable, the facts follow.

Property (v) again sets the construction in question apart from another construction. It shows that the way in which the subject of the acc-*ing* complement receives its Case must be different from what happens in the standard cases of exceptional Case-marking. Compare (42) and (43).¹¹

- (42) a. NP understands [S John to depart tomorrow]
- b. John is understood [S t to depart tomorrow]
- (43) a. NP understands [S John departing tomorrow]
- b. *John is understood [S t departing tomorrow]

The passive morphology on the verb (i.e. *understood*) absorbs its Case-assigning properties and the thematic role of its subject position. In (42a) *John* receives its Case from *understand*, which in some way governs across the S. Under passive, *John* has to move and leaves a trace. This trace is still governed across S by the participle *understood*. The latter being a lexical governor, there is no ECP violation, and the sentence is grammatical. The ungrammaticality of (43b) immediately follows under the account presented here. The structure of (43) is given in (44).

¹¹ It is interesting that a difference in meaning is often associated with the choice between *to-infinitivals* and *-ing* constructions as complements to verbs allowing both, like *understand* in this case. *Perceive*, which also exhibits the relevant contrast, is another verb which both appears as an exceptional Case marker with *o-infinitives* and takes acc-*ing* complements. *Feel*, *find*, and *imagine* also take both *to-infinitivals* and NP-*ing* complements (cf. Quirk et al. (1972)).

- (44) [S NP . . . V-ed [S [S t [_{Infl} -ing] VP]]]

Case assignment to the position of *t* depends on the matrix verb assigning Case to *-ing*. Only then can the Case be transmitted. Direct Case assignment is excluded under the assumption that here only the core case of government applies. If the matrix verb is passive, *-ing* will not receive Case; therefore, it will have no Case to transmit to the subject. However, movement as in (44) is also impossible, since the trace left by the subject will not be properly governed: the passive participle cannot govern into the domain of *-ing*, and *-ing* itself is not a proper governor. (In addition, (44) violates (38).) Therefore, NP Movement out of NP-*ing* complements is impossible.

Finally, consider property (vi), which states that a quantified NP in the subject position of an acc-*ing* complement strongly favors a narrow scope interpretation. In section 2 this fact was brought up in order to argue that NP-*ing* constructions cannot be NPs. In fact, this property also bears on the question of how the subject of the NP-*ing* construction is governed. In the exceptional Case-marking constructions, the matrix verb is understood to directly govern the subject of the complement across S. In NP-*ing* constructions, the matrix verb does not govern the subject of the complement at all; rather, only its Case ends up there. Now, the contrast with respect to the interpretation of a quantified NP in subject position is brought out in an interesting way in examples exhibiting an interaction between such an NP and a *wh*-phrase, as in (45).

- (45) a. what did Cindy expect everybody to eat *t*
 b. what did Cindy hate everybody eating *t*

Whereas an appropriate answer to (45a) would be that Cindy expected Bill to eat only peanut butter, John to eat halibut, and Pamela to eat brill, an answer to (45b) could only be something like *The caviar!* (which would, of course, also be appropriate as an answer to (45a)). Thus, interestingly, the behavior of the NP-*ing* construction is more "clausal" than that of the infinitival complement, since Quantifier Raising (QR), as formulated by May, would allow for the narrow scope reading only and not for the wide scope reading manifested by (45a). The only structural difference between the two sentences is that in (45a) *everybody* is governed by the matrix verb, whereas in (45b) it is not (although the matrix clause is still the governing category). Now, whatever principle would allow for the possibility of a wide scope reading for the subject of *to*-infinitivals, one would expect it to apply to *-ing*-clauses as well, unless there were a reason why it could not. Under the analysis given here, the difference immediately follows from the ECP, as a principle applying to logical form. The structure resulting from QR is represented in (46).

- (46) a. [S QP_i [S . . . V [S' [S t_i to VP]]]]
 b. [S QP_i [S . . . V [S' [S t_i -ing VP]]]]

In (46a), *t_i* is directly governed by V, across the clausal boundaries. Hence, it is lexically governed, and the ECP is satisfied. Notice that I assume here, as is usually done, that verbs like *expect* govern in some way which goes beyond the core cases of government.

In (46b), *t_i* is not governed by the verb of the matrix clause, since it is in the domain of the governing *-ing*. However, *-ing* not being a lexical governor, the ECP is violated. Thus, the analysis correctly predicts the absence of a wide scope reading in (45b). A similar difference can be observed with other quantifiers, e.g. *no one* (compare *Cindy hated no one loving her* and *Cindy expected no one to love her*); it can be brought out more clearly by substituting *no one in particular* for *no one*. In the first case, this is impossible; in the second, it yields a perfectly good reading.

I conclude that the assumption that *-ing* governs like AG, and like any other head does not allow government of a constituent in its domain by a governor outside it, has all of the properties needed to account for the facts of the acc-*ing* construction.¹²

3.2. Some Remarks on Government

So far, I have been using the notion of government somewhat loosely, without giving a precise definition. The literature contains quite a few different definitions, all of which coincide in the core cases, with some differences in the means of accounting for exceptions (cf. Chomsky's (1981) discussion of proposals by Sportiche and Aoun, and Belletti and Rizzi (1980)). While a review of the various proposals is beyond the scope of this article, I will formulate a proposal which seems to me basically correct and which will allow us to deal with the problems under discussion.

The core idea that the domain of the head of a construction is opaque to outside governors¹³ can be rendered by making government of *b* by *a* depend on the presence of *b* in the governing domain of *a*. (*Z'* stands for a Z with *i* bars (primes).)

¹² The connection between the rule QR and Subjacency warrants some comment. Under May's original analysis, QR allows only for a narrow scope reading in cases such as (46). Namely, Subjacency prohibits all wide scope readings out of clausal complements; therefore, even (46a) is incorrectly ruled out. There is a general problem with an account based on the version of Subjacency in May (1977), as May himself has remarked, in that tensed complements occasionally do seem to allow wide scope interpretations. Discussion of this can be found in Kayne (1981c) and Chomsky (1981). Although the judgments are subtle, the possibility of a wide scope reading exhibits the expected subject/object asymmetry, explained on the basis of the ECP. I will not pursue the question of what these facts imply, either for the role to be played by Subjacency or for its proper definition; as it stands, it clearly cannot perform the function of an absolute prohibition against the assignment of a wide scope reading, and as a consequence could not be invoked to explain the impossibility of wide scope readings for the subject of NP-*ing* constructions. The question remains whether the fact that the ECP does not apply to *t_i* in (46a) and the fact that Subjacency is not an absolute condition sufficiently account for the status of (45a)/(46a) as compared to (for instance) the possibility of a wide scope reading for a quantified expression in object position, as in (i).

(i) John believed Bill to have beaten everyone.

If a wide scope reading is more readily available for subjects than for objects in infinitival complements, which appears to be the case (Kayne (1981c) gives examples where the subject has wide scope obligatorily), the account given so far is not sufficient. Kayne (1981c) proposes a modification of the Nominative Island Condition which makes use of the fact that the subject of the complement of *believe* is assigned its Case from outside that complement. Under the assumption that Subjacency is relevant, this does not seem to account for the differences either. A possible alternative is that the relevant factor is tied to Subjacency; there is a condition which α must meet if it is to be a bounding node for Subjacency with respect to β , namely, α must contain a governor of β . Under this condition, S is a bounding node for Subjacency with respect to QP_i in (46b), but not in (46a). If this can be maintained, it explains all of the relevant properties that have been discussed.

¹³ For this definition, it is not necessary that the head have lexical content. The trace of a moved head will in itself suffice to set up an opaque domain. On the other hand, if some head (say, Inf1) has been lowered into the VP, its former sisters are no longer in its governing domain.

- (47) *b* is in the governing domain of *a* iff
- a* = X^0 ($X = N, A, V, P$, Comp, Infl);
 - a* and *b* are contained in X^i and *a* is the head of X^i ;
 - there is no *c* such that
 - c* = Y^0 and
 - c* and *b* are contained in Y^i and *c* is the head of Y^i , unless Y^i contains *a*.

A lexical head *a* can subcategorize position *b* only if *b* is in the governing domain of *a*, and if b^i is assigned a thematic role by *a*.

In the discussion of government, two cases must be distinguished: the case where the governor is a head positively specified for at least one lexical feature ($N = [+N, -V]$, $V = [-N, +V]$, $A = [+N, +V]$, and also Infl when it carries nominal features) and the case where it is not, like $P = [-N, -V]$ (cf. Chomsky (1981).)

The definition of *government* can now be given:

- (48) *a* governs *b* if
- b* is in the governing domain of *a* and
 - a. *a* has a lexical feature or is coindexed with *b*,¹⁴ or
 - b. *a* is subcategorized for *b*.

The definition of *proper government* is taken to be (49) (cf. Chomsky 1981, 274)).

- (49) *b* is properly governed by *a* iff *b* is governed by *a* under (a) and *b* is in the complement of *a*.

The requirement that *b* be in the complement of *a* rules out Infl as a proper governor, but allows a coindexed Comp to be a proper governor. Notice that the definition does not explicitly refer to maximal projections as being barriers to government. Under the definition, a nonmaximal projection which contains a head will be a barrier to government as well.

As a consequence, something should be said about exceptional government and Case-marking. Consider the structure in (50).

- (50) John believes [S' @ [S Bill to [VP be a hero]]]

The standard view is that *believe* triggers S' Deletion and then governs across S if @ is null, government across S being possible since S is not a maximal projection. Since *believe* simply is an S'-deleter, PRO instead of a lexical NP as the subject of its complement is excluded. A verb such as *try*, on the other hand, is not an S'-deleter, and hence the subject of its complement is always PRO. We have seen that this picture of exceptional government does not apply in the case of NP-ing complements, where free alternation between a control structure and one with a lexical NP seems to be the rule.

¹⁴ In Stowell (1981) these are reduced to instances of the same principle. However, I will not discuss this here.

Similarly, the cases where a trace in the complement's subject position does not appear to be properly governed do not seem to be compatible with the view that S' Deletion plays a role in the derivation of acc-ing complements.

Under the assumption that *to* realizes inflection, it should create an opaque domain with respect to government by *believe* even after S' Deletion, if we assume the definition of government given in (47). Hence, if this approach is correct, something else must be going on. Independent evidence exists that (47) as it stands is somewhat too strong; facts basically concerning how displaced verbs and inflections in languages such as Dutch, which allow movement and restructuring of verbs, can be allowed to govern NPs which have not been moved along. A full discussion would lead us too far afield. However, it appears that exactly the right result can be obtained by allowing government in the configuration given in (51), order irrelevant. (Cf. Reuland (1981b,c; 1982) for discussion.)

- (51) $[x^n Z X_i^0] Y_i^0$

That is, some *Z* in the domain of X^0 can be governed by Y^0 just in case Y^0 governs the relevant projection of X^0 and Y^0 is coindexed with X^0 . The standard case of (51) is a configuration in which X^0 is the trace of some verb, and Y^0 is that verb (they will be coindexed by movement). To account for the constructions of exceptional Case-marking and government, I will propose that the cosuperscripting between verbs and prepositions in the sense of Rouveret and Vergnaud (1980), Kayne (1981a,b), and Hornstein and Weinberg (1981) is a coindexing as required by (51). In other words, prepositions within the VP in English have the option of not assigning Case. If they do not, they may receive a superscript from the governing verb. Given (51), the verb will then govern into the domain of that preposition. Assuming that the *to* in the Infl position of infinitival clauses is a preposition, which seems reasonable since it is homophonous with the preposition *to*, one would expect it to be amenable to superscripting. Notice that the correspondence of *to* with a preposition is not just an isolated fact about English. A similar observation can be made about Dutch *te* and German *zu*, which not only perform the same function, but also are "the same preposition" in an obvious sense. For Dutch it can in fact be argued independently that the *te* in Infl is a preposition (cf. Reuland (1981b)). Exceptional Case-marking occurs when the verb assigns a superscript to the prepositional head of an adjacent constituent. Hence, (51) will allow the verb to govern into this complement and to assign Case if it is a Case assigner.¹⁵ Whether or not to realize this option is then

¹⁵ Thus, cases (i) and (ii) are taken to be instances of the same process. (Notice that this deviates from the analysis in Reuland (1981b).) The preposition is in both cases the head of a constituent adjacent to the verb.

- (i) Mary_i was [VP depended^v [PP on^v t_i]]]
- (ii) Mary_i was [VP believed^v [S' [S t_i to^v be dependable]]]]
- (iii) John [VP believed^v [S' [S Mary to^v be dependable]]]]

Of course, if the matrix verb is not a Case assigner, like *seem*, it will simply govern into the domain of the coindexed *to*.

a lexically determined property of a given verb. Notice that (51) at the same time allows a trace in the subject position of a complement to be governed (and hence properly so) by a coindexed element in Comp, provided the indexing applies to Comp as a whole.

The relevant structure is (52).

- (52) . . . [s' t_i [s t_i* Infl_i VP]]

Since t_i* has Case from Infl, they are coindexed. Since t_i is the only item dominated by Comp, it governs S; S is the complement of Comp. Since t_i is the trace of the subject, it is coindexed with the latter. Since t_i* is coindexed with Infl, t_i is also coindexed with Infl. Hence, Comp = t_i can govern t_i* in the domain of Infl.

As this concludes the discussion of government, I will now examine NP-ing constructions in the remaining environments.

3.3. NP-ing in Subject Position

As noted in the introduction and in section 1, NP-ing constructions also occur as subjects of clauses. The example given was (1d) (= (53a)). On the basis of the analysis developed so far, its structure will be represented as (53b):

- (53) a. Them trying to sing a song was just too horrible.
 b. [s*[s' @ [s NP° -ing VP]] Infl VP]

Because of principle (38) requiring -ing to be identifiable as the nominal -ing, it must have Case. Since the construction as such is in a Case position, this requirement can be satisfied provided @ is empty. This explains the contrast between *What to do is unclear* and **What doing is unclear*. With what in the position of @, -ing is not governed by Infl, hence does not receive Case, and therefore violates (6') and is not identifiable as the nominal -ing. NP° is lexical if -ing has been assigned Case by the matrix Infl and in turn has transmitted this Case to NP°. It has been noted in the literature (Kruisinga and Erades (1911)) that the NP-ing construction is less common in subject position than in other positions. There is often a preference for the poss-ing construction in this position (and the nominal PRO-ing discussed by Wasow and Roeper (1972)). This is not unexpected, since the construction comes very close to violating the well-formedness condition prohibiting i-within-i indexings ([i . . . i . . .]; cf. fn. 4 and Chomsky (1981)). That is, in order for the construction to avoid containing such a violation, the indexing brought about when Infl Case-marks -ing and the latter assigns its Case to NP° must be as in (54) (collapsing S' and S as @).

- (54) . . . [s*[@ NP_i° -ing_i VP] Infl_i VP]

In other words, it must be possible for Infl to assign its Case to -ing immediately, without having it assigned to @ first, followed by percolation of the Case onto -ing. Following the latter course would lead to the representation [@_i NP_i . . .], which is precisely the one prohibited. It is quite plausible, then, that this is a parameter distin-

guishing English dialects: some allow -ing to be Case-marked directly, with the result that NP-ing in subject position is possible; in other dialects @ is indexed, with percolation of the Case onto -ing. Since -ing is identified, PRO-ing is possible, but lexical NP instead of PRO is ruled out. Such dialects require poss-ing if the subject of the -ing construction is to be lexical.

The options for pronouns and anaphors in the NP° position in (54) are the reverse of what is found in acc-ing clauses in object position. As (27) demonstrated, there is no strong disjoint reference requirement between NP° and NPs within the matrix VP; similarly, NP° cannot be realized as an anaphor, as shown by the ungrammaticality of sentences like **Each other having to sing the solo frightened the boys in the extreme*. It is not necessary to assume that @ is a governing category, and hence that -ing is a SUBJECT, in order to account for these facts. Both follow from the lack of c-command between NP° and any possible antecedent in S*. Given the indexing in (54), the governing category for NP° is S*, since S* contains NP°, a governor of NP°, and a SUBJECT accessible to NP°, viz. Infl_i. This predicts that NP° is not in a transparent position with respect to an antecedent outside S*. Consider now (55a,b).

- (55) a. *they thought [s' that [s*[@ each other singing the solo] would be just too horrible]]
 b. they thought [s' that [s*[NP pictures of each other] would be on sale]]

These sentences exhibit a contrast between acc-ing constructions where the matrix Infl is accessible, and NPs where the matrix Infl is coindexed with the NP as a whole and hence is not accessible for an anaphor inside that NP. The analysis is supported by these facts (that is, if the NP-ing construction in subject position is possible, it is so by virtue of escaping the i-within-i configuration); and then the matrix Infl is accessible, which creates opacity.

Finally, the way in which the Case is realized on NP° deserves some comment. As (53) shows, the Case-marking on the subject (*them*) surfaces in objective form. This is not so strange, since Case-marking on a subject often shows up in this form. For instance, many speakers would use (56a) rather than (56b).

- (56) a. Him and me are going to the party.
 b. He and I are going to the party.

It seems reasonable to hypothesize that again this is a manifestation of the difference between abstract Case and morphological Case, in the sense that there are two morphological Cases associated with the abstract nominative Case, viz. a morphological nominative and a morphological objective Case (or "common Case", to use the traditional term). The morphological nominative shows up only when the pronoun on which it is realized is "close enough" to the Infl which caused it to be assigned. Suppose that sisterhood to Infl is required in order for the abstract nominative to be realized as a morphological nominative. Then we obtain both (56a) and (53). If the result of having a morphological nominative inside an NP-ing construction in subject position is much

worse than (56b), an additional explanation might seem necessary. However, an absolute prohibition would be too much, since according to Jespersen (1940/1961) NP-ing constructions in subject position with a morphological nominative can be found. He cites the following example: *They being her relations too made it so much the worse*. Almost all native speakers of a contemporary English dialect whose judgment I asked for rejected this sentence. However, not all of them did. Taking these facts together, I conclude that the reason why this sentence is ruled out should not be "too deep" and hence should indeed be framed as a condition on morphological Case along the lines suggested. The extent to which Jespersen's example is worse than (56b) can be attributed to the fact that *they* in this example is more remote from the matrix Infl than *I* or *he* in (56b), in an obvious sense.¹⁶

I conclude that the analysis developed here provides a satisfactory account for the main properties of the NP-ing construction in subject position.

3.4. NP-ing in Absolute Positions

I will discuss basically two kinds of absolute constructions: the so-called nominative absolute and absolute constructions introduced by a preposition such as *with* or *without*. They share one important characteristic; namely, neither allows an anaphor in its subject position, and neither requires a pronoun in its subject position to be disjoint in reference from (for example) an NP in the subject position in its matrix clause. Hence, it appears that in all of these cases the absolute NP-ing clause itself is the governing category of its subject.

3.4.1. Nominative Absolutes. Example (57) illustrates the standard case of a nominative absolute.

- (57) Roddy tried to avoid Elaine, he being a confirmed bachelor.

Roddy may be coreferential with *he*. The impossibility of an anaphor is illustrated in (58).

- (58) *The boys kept looking for Elaine and Nancy, each other following at a distance.

The nominative in these constructions must be treated as a "real" nominative synchronically. The fact that for many speakers it alternates with a morphological objective, which for some pronouns may even be clearly the preferred form, may be attributable to the more general loss of the morphological nominative for such speakers.¹⁷ However, it would not do to follow the suggestion of an anonymous LI reviewer and attribute the possibility of the morphological nominative to "hypercorrection". Jespersen (1940/1961) points out that the nominative absolute construction developed from an absolute dative

¹⁶ That is, in (56) the matrix Infl is a sister of a projection of the pronouns. In the NP-ing construction, Infl is not a sister of a projection of NPs.

¹⁷ As Joan Maling has pointed out to me, *I* is quite awkward in this construction, *me* being strongly preferred. Cf. Poutsma (1929) for a literary example with *I*.

construction after the loss of dative inflection. The following quotation taken from Poutsma (1929) is telling:

The dative became to be supplanted by the nominative by the middle of the 15th century. The few instances of the objective met with in writers of the 16th and 17th century are to be considered as deliberate imitations of the obsolete idiom.

The relevant question seems to be, then, How can there be a nominative in this position, and how does this relate to the fact that the absolute construction itself is the governing category of its subject? The possibility of a nominative subject in a tenseless absolute construction is not limited to English. In fact, it appears to be quite widespread among Indo-European languages.¹⁸ In English the nominative is not confined to -ing-clauses (although the formation of absolutes is mainly productive with the -ing construction, cf. Jespersen (1940/1961)).¹⁹

It appears to me that the general properties of absolute constructions can best be captured by postulating that they contain an abstract AG marker, where AG is indeed a SUBJECT in the sense required by the binding theory. Languages must be taken to vary according to the conditions under which AG can occur in tenseless clauses and give rise to "pronominal" inflection (as in Portuguese, where the inflected infinitive occurs in complement position). The nature of the parameter involved is not quite clear to me, and I will not explore it here. Returning to English, given the reported generality of the occurrence of -ing in absolute constructions, I will associate the abstract AG with *ing*, although this is not the only possibility.

I claim, then, that English realizes the option [-tense, +AG] as one of the possibilities for expanding Infl with AG a SUBJECT. In the standard case, it employs the rule (59).

- (59) [-tense, +AG] → -ing

It is on the basis of this rule that I will discuss the conditions under which nominative Case can be assigned to the subject.

There is an interesting limitation on the distribution of nominative absolutes, which is illustrated in the paradigm (60a-d).

¹⁸ I will not attempt to give a survey. Examples are constructions such as *hij hollen* 'he run' in Dutch, where the phenomenon is limited to independent root clauses, used for vivid narration; Latin employed the *infinitivus historicus*, again as an independent clause. Moreover, as Esther Torrego has pointed out to me, nominative subjects in Spanish may appear in dislocated infinitival clauses.

¹⁹ Jespersen also gives absolute constructions with a past participle instead of an -ing form. Quirk et al. (1979) cites (i) and (ii), for example:

- (i) All our savings gone, we started looking for jobs.
- (ii) The whole meeting in uproar, the chairman abandoned the attempt to take a vote.

As the last example indicates, other types of predicates occur as well. This shows that the possibility of a case-bearing subject is in fact inherent to the construction as such; hence my postulating an abstract AG in governed position in general. Nonetheless, the sources suggest that only the absolute construction with an -ing form can be regarded as really free and productive. Therefore, the claim seems justified that a grammatical association specifically with -ing has been developing.

- (60) a. John kept walking slowly, the rain drenching the road.
 b. John kept walking slowly, while the rain was drenching the road.
 c. *John kept walking slowly, while the rain drenching the road.
 d. John kept walking slowly, while PRO drenching the road with insecticides.

Sentences like (60c) are impossible no matter what clause introducer is chosen (unless it is a Case-assigning preposition; cf. section 3.4.3). That is, replacing *while* by *although* or *after* does not change its status. In fact, it turns out that the absolutes may not be introduced by any “adverbial” clause introducer. In Reuland (1979) I have argued on independent grounds that clause introducers such as *while* and *although* are in Comp position. Being in Comp position, they govern the head of their clause (cf. (48), assuming that they have lexical features). The following condition now gives the required result.

- (61) -*ing* has nominative Case if ungoverned.²⁰

The ungrammaticality of (60c) follows from the fact that *while* governs -*ing*, so that (61) cannot apply. Since there is no other way in which -*ing* can acquire Case, it cannot assign Case to its subject, and hence the structure is ill-formed. In fact, the structure is also ruled out because it violates condition (38), which requires a nominal -*ing* to have Case in order to be identifiable.

Given (59) and (61), the other properties follow. Absolute constructions have the internal structure given in (62).

- (62) . . . [S [S NP* [Infl[AG -*ing*]] [VP . . .]]]
 + nominative

AG assigns nominative to NP* just like any other AG. As a consequence, NP* is governed within S, AG is a SUBJECT accessible to NP*, and hence S is the governing category of NP*. Therefore, (57) is grammatical and (58) is not.

In summary: the analysis of the nom-*ing* construction consists of the single stipulation that -*ing* has nominative Case if ungoverned, plus a property associated with this inherent Case-marking, viz. that it entails the presence of an abstract AG which is a SUBJECT.

I might add in this connection that the analysis implies that PRO-*ing* constructions do not exactly correspond to nom-*ing* constructions. Since English is not a pro-drop language, NP* must be lexically realized if the clause contains an AG such as -*ing* is

²⁰ This might seem to create a problem with respect to the function of the Case Filter in control structures. That is, as David Pesetsky has pointed out to me, one would wish to exclude (i).

(i) *John tried [S[@ Bill coming] to become possible]

Given (61), -*ing* and therefore *Bill* have Case. Hence, the Case Filter seems to be satisfied. Again, the distinction between abstract Case and morphological Case appears to be relevant in a sense. In the account in Chomsky (1981), a chain can bear a θ-role if it is headed either by a Case-marked constituent or by PRO. (i) will be excluded if the requirement is added to the first case that the Case-marked element also be governed. In (i) @ is not governed, and hence the structure would be ruled out under this additional requirement. In fact, such a move is implied by the alternative that Chomsky suggests, namely that the notion of Case-marking be replaced by the notion of Case-checking: that is, the Case of *Bill coming* has not been checked, and cannot be, since this is what being in absolute position amounts to. Thus, if a chain can bear a θ-role only if it is headed by PRO or by a constituent with checked Case, (i) is also ruled out.

claimed to be. I think that this consequence is correct, in that PRO-*ing* clauses in this position must be judged to be participial.²¹

3.4.2. Tensed Nonfinite Clauses. Example (60d) poses an interesting problem for the contention that -*ing*-clauses must be identifiable; that is, it seems to violate condition (34). Notice, however, that not all clause introducers are accepted in this position. *If*, for instance, cannot be used to introduce participial clauses. Similarly, another nontemporal subordinating conjunction such as *although* is generally judged infelicitous. Given condition (34), this is what we would expect. Why, then, are *while*, *when*, *before*, *after*, etc., admissible? If our basic intuition as to what governs the distribution of -*ing* is correct, viz. that -*ing* must be identifiable in some sense, temporal subordinating conjunctions must play a role in the identification of -*ing*. This can indeed be argued to be the case. Consider a simple tensed clause introduced by *while*, as in (63), in relation to its matrix clause.

- (63) John was singing while he was dancing.

Abstracting away from other than temporal connotations of the construction, we find that central to its representation on the level of logical form is the fact that *John sings* is true for that moment of time at which *John dances* is true. Given some notation in which the argument position for tense is represented overtly, it seems natural to represent (63) as (64), where *x'* stands for the translation of *x*.

- (64) Sing' (J', ut Dance' (J', t))

Thus, *while* is represented in (64) in the form of the iota operator binding the tense argument of the temporal adverbial clause. Therefore, at the level of logical form the finite, tensed clause *he was dancing* is represented with a bound variable in the position of its tense argument. Consider now (65).

- (65) John was singing while PRO dancing.

As far as I can see, there is no reason for (65) to be represented in logical form in a way different from (64). Thus, *PRO dancing* will also end up with a bound variable in its *tense* position. However, it is then indistinguishable from a tensed clause on that level.

Generalizing, we see that -*ing* must be identified either as being involved in a predication, in pure participial clauses, or else as being associated with an argument position, either by being Case-marked or by being bound. Since Infl as such is primarily associated with *tense*, it is not surprising that it can only be bound by temporal conjunctions. In the latter case, -*ing* is associated with the tense-argument position of the matrix clause.²²

²¹ Jespersen (1940/1961) gives some examples of PRO-*ing* constructions with an absolute flavor which he found in the literature. He considers them awkward, e.g. ??? *PRO being a nice day, we decided to walk*.

²² Cowper (1980) relates the occurrence of -*ing* explicitly to the absence of tense. However, she does not take into account the fact that clause introducers such as *while* must be analyzed as expressing a relation with tense.

For more discussion of the properties of temporal adverbial constructions, see Reuland (1979). There I present an account of the distribution of temporal vs. nontemporal subordinating conjunctions in Dutch, based on the same principles. Cf. also the discussion in Boeckx (1994).

On the basis of these considerations, we arrive at an interesting picture of the relation between the various expansions of Infl and the main clause types of English. The possible expansions of Infl are represented in (66).

- (66) a. [+tense, +AG]
- b. [+tense, -AG]
- c. [-tense, +AG]
- d. [-tense, -AG]

(66a) and (66d) are obviously realized as finite tensed clauses and infinitives, respectively. Nom-*ing* constructions realize (66c). The *while-ing* forms interestingly fill the gap in the paradigm, being [+tense, -AG]. It remains a task for further research to determine on what parameter their occurrence in a language depends. Finally, acc-*ing* constructions basically fit the same position in the paradigm as nom-*ing* constructions, viz. [-tense, +AG], while sharing some properties with the [-tense, -AG] construction.

3.4.3. Absolutive P-NP-ing Constructions. NP-*ing* constructions also occur in the domain of prepositions, which is to be expected given the requirement that *-ing* be in a Case-marked position. In this section I will treat the P-NP-*ing* constructions in absolute position, illustrated in (67). They warrant special treatment alongside the nominative absolutes because of the opacity of their subject position.

- (67) the minister left the pulpit [_{s'} without [_s anything having happened]]

The opacity of the subject position is shown by the ungrammaticality of (68).

- (68) *they arrived [_a without [_b each other knowing it]]

The same point can be made for the preposition *with*, as (69a,b) illustrate.²³

²³ Example (69a) is perhaps somewhat less natural than examples in which the coreferential NP in the matrix clause does not c-command the pronoun; however, it is grammatical. With other prepositions, e.g. *without* instead of *with*, or *because of*, sentences patterned after (69a) appear to be rather worse. The relevant factor might be the "Avoid Pronoun Principle", since such sentences are acceptable when they contain PRO controlled by the subject instead of a coreferential pronoun:

- (i) the minister_i was standing in the pulpit [_{s'} without [_s {_{??} PRO} saying a word]]

If the preposition is *with*, as in (69), the PRO option is not available and the Avoid Pronoun Principle cannot apply.

It is not fully clear to me why there is such a difference between *with* and *without*. Speculating, one might try to relate it to the fact that *with* also readily appears in absolute constructions without an *-ing* form, as in *With John in the pen we'll be safe*. *With*, then, might be seen as the absolute preposition par excellence. Given the relation between the absolute construction and the presence of an abstract AG, *with* might be thought of as incompatible with control. There are also cases where an *-ing*-clause seems to be introduced by a preposition without the latter assigning Case:

- (ii) a. Before PRO leaving the country John hid the documents.
 b. *Before John leaving the country he hid the documents.

The same holds true for *after*. However, as noted above, these items are instead temporal conjunctions in this position. As such they also appear in positions denied to any real preposition, e.g. heading tensed clauses (iii) or as adverbs (iv).

- (69) a. Joep_i got beaten at the game by his rivals, with him, stupidly letting himself be outmaneuvered by the prime minister.
- b. *Joep_i stood his ground badly, with himself_i, maybe impressed, not daring to put up a fight.

The impossibility of *each other* in (68) cannot be attributed to the fact that (68) involves a PP, since PPs are not generally governing categories. This is shown by (70).

- (70) they_i arrived [_{PP} without each other_i]

In order for either *a* or *b* in (68) to be the governing category for *each other*, it must contain *each other*, a SUBJECT accessible to *each other*, and a governor for *each other*. It is an obvious move, then, to hypothesize that the absolute *with* and *without* require the same realization of Infl which was independently needed in the nominative absolutes, as we saw, viz. the realization [-tense, +AG]. The preposition will now mark *-ing* for Case; *-ing* will then assign its Case to the subject. Hence, the subject has Case and is governed in *b*, which also contains AG. Hence, *each other* must be bound in *b*.

In (67) I represented the value of *a* as S'. Nothing in the argument so far hinges on this. One could conceive of prepositions taking S' arguments, just as they take NP arguments. There is, however, at least some *prima facie* evidence that Comp contains a position for prepositions in the fact that in many languages complementizers can be of prepositional origin, like English *for*. In Reuland (1979) I have argued that subordinating conjunctions in Dutch and Frisian such as Du. *nadat*, Fr. *nei't/neidat* 'after that' and Du. *voor(dat)*, Fr. *foar't/foardat* 'before that' must be analyzed as being in Comp and as consisting of a preposition followed by an occurrence of the complementizer *dat*. This analysis is shown there to provide the basis for a straightforward account of the differences in the interaction of preposition and complementizer between Dutch, Frisian, and English. It does not seem accidental that in French as well subordinating conjunctions may consist of a form homophonous to a preposition, such as *après* 'after' followed by a form homophonous to the complementizer *que* 'that'. Although, as mentioned earlier, nothing in the present analysis of absolute P-NP-clauses bears on this issue (the analysis of these constructions could bear on the issue under a different approach to the determination of what the governing categories are, e.g. an approach not using the notion of an accessible SUBJECT in these cases), the assumption that all prepositions in P-NP-*ing* constructions are in Comp explains a surprising contrast between acc-*ing* constructions as complements of verbs and P-acc-*ing* constructions in this position. I will treat this construction type in the next section.

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- (iii) Before John left the country he hid the documents.
(iv) He never told anybody about them after.

Given Stowell's (1981) Case Resistance Principle, *before* could not be a Case assigner in (iii). Hence, it is safe to assume that these items are Case assigners only in the environment [_{PP} ____ NP]. However, there is then no way for *-ing* in (iiib) to be identified as nominal and transmit Case. This leaves (iia) as the only possibility.

3.5. P-NP-ing in Complement Position

Acc-*ing* constructions appear not only as complements of verbs, but also in complement structures involving both a verb and a preposition. There is, however, a remarkable contrast between V-acc-*ing* constructions and V-P-acc-*ing* constructions regarding the possibility of *Wh* Extraction out of their subject position. (This observation, as well as the examples to be given, are due to R. Kayne (1981c).) Consider (71).

- (71) a. linguistics is what we'd favor him studying t
- b. the only one who we'd favor t studying linguistics is John
- c. Mary is the one who I'm counting on him marrying t
- d. *John is the one who I'm counting on t marrying her

As (71a,b) illustrate, *Wh* Movement out of the acc-*ing* complement of a verb is quite free, without a subject/object asymmetry. In the case of V-P-*ing* constructions, on the other hand, this is precisely the asymmetry that we do find. As (71d) shows, extraction of the subject of this construction gives an ungrammatical result. This difference cannot be attributed to the general difference between verbs and prepositions as proper governors, since *count on* is the kind of verb/preposition combination which even allows NP Movement under passive, as in *A favorable outcome has been counted on by everyone involved in the enterprise*. Hence, we must assume that *on* is subject to cosuperscripting with *count*, and hence will allow *count* to govern into its complement. Thus, this approach fails: the difference between *count on* and *favor* when occurring with an acc-*ing* complement does not show up when they take an NP complement. Therefore, if the ECP is involved, it cannot be the preposition alone which causes the violation. To facilitate discussion of the reason for the difference, I will repeat the structure resulting from extraction of the subject in the V-acc-*ing* construction.

- (72) . . . [S' who_i [S we'd favor [S' t_{i1} [S t_{i2} -ing_i [VP study linguistics]]]]]

-*ing* is governed and assigned Case by *favor*. *t_{i2}* is governed by -*ing* and has received Case from it. The fact that -*ing* is not a proper governor is compensated by the fact that *t_{i2}* is governed by *t_{i1}* in Comp. Government is made possible by the fact that *t_{i1}* governs -*ing* and can govern into its domain since it bears the same index. The difference between acc-*ing* and P-acc-*ing* complements can now be seen to follow from the thesis that the preposition associated with a clausal structure is always in Comp, as I earlier claimed to be the case. (73) represents both the D-structure and the S-structure of the P-acc-*ing* construction.

- (73) a. [S' [S . . . count [S' [Comp_P on] Comp] [S* NP* -ing [VP marry her]]]]]
- b. [S' who_i [S . . . count [S' [Comp_P on] [Comp t_{i1}]] [S* t_{i2} -ing [VP . . .]]]]]

I am assuming here that S' expands by the rule S' → Comp S and Comp by the rule Comp → (P) Comp. (The notation expresses my uncertainty regarding the position of Comp in the X' system.) The subject, NP*, has Case, since *on* in Comp position can

assign Case. Assuming cosuperscripting between *on* and *count*, it is in fact the Case of *count* which has been assigned. Hence, the analysis of (73a) is unproblematic under these assumptions. The analysis of (73b), however, is as follows. *t₂* has the Case assigned to and by -*ing*. -*ing* is not a proper governor. *t₁* is in Comp, under the assumption that successive cyclic Wh Movement proceeds by Comp proper, rather than by adjunction to P. Insofar as proper government of a trace in Comp plays a role, *t₁* is in a licit position, since *count* will be able to govern it. The problem is rather the position of *t₁* with respect to -*ing* and *t₂*. Neither *on* nor *count* can govern into the domain of -*ing*, since they are not and could not be coindexed with -*ing*. *t₁*, however, is in a branching Comp. Therefore, it neither governs nor even c-commands -*ing*. Hence, it is not available as a proper governor for *t₂*, which therefore violates the ECP. The structure is thus ruled out, as required.

Kayne's observation therefore provides interesting confirmation of our analysis: it is inconsistent with any analysis which assigns the preposition of a PP and the preposition of a P-NP-*ing* construction the same status, viz. that of head of a PP, and it is inconsistent with any analysis in which the subject of an NP-*ing* construction is governed directly by a governor outside the domain of -*ing*.

The last issue concerning P-NP-*ing* complements is their behavior with respect to opacity. As one might expect, in this respect they behave like acc-*ing* constructions as complements of verbs; that is, the governing category of their subject is the matrix clause. This is to be expected if, as already claimed, the -*ing* in these constructions is not a SUBJECT, the realization of -*ing* as a SUBJECT being confined to the absolute constructions. The facts are illustrated in (74).

- (74) a. *John_i counted on him_i being elected.
- b. The architects_i counted on each other_i being placed upon the investigations committee.

This concludes the discussion of NP-*ing* complements in English.²⁴

²⁴ It is interesting that there appears to be some variation among speakers regarding the acceptability of acc-*ing* complement constructions of either type, with an overt anaphor in the subject position. Kayne (1981c), for instance, gives two question marks to the sentence *They're counting on each other arriving late*. He assigns the same degree of acceptability to the corresponding V-acc-*ing* constructions. For other speakers, such sentences are fully acceptable. It is important to notice that with respect to anaphors in the subject position, in both dialect types acc-*ing* complements behave identically in the domain of verbs and subcategorized prepositions. With respect to *Wh* Extraction out of the subject position, the dialects differ. Extraction of the subject of a P-acc-*ing* complement is invariably judged impossible. Evaluating the situation, one must also take into account that violations of the binding principles in other cases, e.g. with anaphors as subjects of tensed clauses, always lead to full stars. Clearly, then, whatever the reasons may be that some speakers judge lexical anaphors as the subjects of acc-*ing* complements to be less acceptable, this cannot be ascribed to the binding principles. Consequently, the existence of such judgments does not invalidate any aspect of the analysis given in this article.

Nevertheless, one might wish to speculate why again there is a difference between acc-*ing* complements and NP-to complements. As far as I know, there is no dialect in which (for example) the anaphor *each other* in the subject position of a complement of *believe* is less acceptable.

I have assumed so far that -*ing*, although functioning like AG in the way it assigns Case, is not a SUBJECT in the sense required by the binding theory. Notice that I had to assume that the absolute construction does contain an abstract AG which is a SUBJECT. Moreover, this AG has become associated more specifically

4. Conclusion

In this article I have derived a variety of properties of NP-ing constructions on the basis of a number of straightforward assumptions. The most important assumption is that these constructions reflect the core case of government, viz. that no head governs into the domain of another head. A second assumption is that, since -ing serves a variety of purposes in English, its main uses must be identifiable, again on the basis of simple considerations formulated in terms of government. As a special assumption, I have claimed that -ing represents finite inflection in the sense that it governs its subject as AG does. I have claimed as well that the absolute constructions contain an abstract agreement marker, which in principle assigns nominative Case. Although I have not investigated its ramifications, it seems clear that the scope of this claim goes beyond the -ing constructions proper. Finally, an interesting restriction has emerged on Wh Extraction out of V-P-acc-ing complements. Again, this could be explained on the basis of independently motivated properties of the structure.

The relevance of these results is that they once again show the possibility of explaining seemingly disparate properties of a set of constructions in terms of largely general assumptions. Moreover, they provide evidence that the core idea underlying the notion of government also provides the right results in what one might wish to call the periphery of the grammar.

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with -ing. Suppose now that in some dialects -ing in the NP-ing construction with NP lexical always were a SUBJECT. If so, one would think that the construction simply could not contain an anaphor in its subject -ING. Under the following assumption, however, this impossibility might turn out to be simply a "computational difficulty". Consider (i) with -ing a SUBJECT.

(i) [s* NP* . . . V [s[s NP° -ing VP]]]

V assigns Case to -ing, and -ing in turn assigns it to NP°. If -ing is AG and a governor of NP°, S seems to be its governing category. However, suppose we were to say that -ing governs NP° only by virtue of the Case it received from V. In that case one might defend the notion that -ing, though in S, is not a governor in S, since the way it governs NP° depends on V, which is in S* but not S. Thus, relativizing the notion *is a governor to is a governor in X*, and requiring that the governing category of some constituent α be the minimal category β containing α , a SUBJECT accessible to α , and a γ such that γ is a governor of α in β , one can derive the fact that S*, but not S, would be the governing category of NP°. If so, one might invoke this to explain the relevant difference, by claiming that figuring out the governing category in the acc-ing case requires more mental computation than doing so in the NP-to case, since one step in the process would be anticyclic.

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On the Question of Definiteness in "An Old Man's Book"

Noun phrases such as *an old man's book* have been claimed to have both a definite and an indefinite reading (cf. Jackendoff (1974), Hornstein (1975)). Contrary to this claim, I will show in this article that such noun phrases are not ambiguous but instead have only a single reading, namely, the definite one (at least under the parsing envisaged for them). In the process, I will be led to pay particular attention to, and question, the status of existential sentences as a diagnostic environment for indefiniteness. My position concerning lack of ambiguity will not, however, depend on negative reasoning; rather than merely arguing that the ambiguity position cannot be established convincingly, I will offer a natural general principle that entails the nonambiguity position.

1. The Ambiguity Position

In this section I will present, without comment, the arguments in favor of the ambiguity position. My exposition follows Jackendoff (1974); this choice is guided by the fact that Chomsky's (1970) comments on noun phrase definiteness are limited, while Hornstein (1975) takes the ambiguity for granted and is concerned solely with improving on Jackendoff's analysis of it.

Jackendoff's argument is quite direct:

- (A) There is evidence that noun phrases with indefinite NP determiners have an indefinite reading.
- (B) There is evidence that they have a definite reading.
- (C) Therefore, the construction as such is ambiguous.

The evidence for indefiniteness comes from paradigms like (1):

- (1) a. There is a proof of the theorem by a well-known mathematician on page 642.
- b. *There is the proof of the theorem by a well-known mathematician on page 642.
- c. There is a well-known mathematician's proof of the theorem on page 642.

The contrast between (1a) and (1b) establishes that *there*-constructions select for in-