Hans Bennis
University of Amsterdam

A Note on Government and Binding

The purpose of the workshop on 'Levels of Syntactic Representation' (Paris, 7-9 December 1979) was to discuss research in progress. The talk I have presented consisted essentially of two parts. One was about the quantitative construction from a comparative point of view; the other was a proposal for a change in the Government-Binding theory, as was presented by Chomsky in Pisa (1979). In this article I will concentrate on the second part, which has the more speculative character of research in progress. The comparative study of the quantitative construction, which study was carried out in cooperation with Aafke Hulk, will be forthcoming elsewhere. Here I want to propose a few changes in the Government-Binding system and discuss the consequences.

The main point of discussion in this paper is Proper Government and its definition. In Chomsky's (1979) proposal Proper Government is necessary in the formulation of the Empty Category Principle (ECP), which conditions the appearance of empty nodes:

- (1) [NP *e*] must be properly governed

In general empty categories are traces of wh-movement and NP-movement (but not PRO, which in contrast to empty categories, contains pronominal features). The apparent asymmetry between wh-traces in subject and object positions follows from the definition of Proper Government, in which Government and Coindexing are combined:

- (2) Proper Government
 α properly governs β iff
1. α governs β
and 2. a) $\alpha = [\pm N, \pm V]$
or b) α is coindexed with β
- (3) Government
 α governs β iff α minimally c-commands β

- (4) Minimal c-command
 α minimally c-commands β iff α c-commands β and there is no γ
 such that α c-commands γ and γ
 c-commands β and not γ c-commands α
 and: 1. α (and γ) = $[\pm N, \pm V]$
 2. there is no $\bar{S}$ or NP bracket between α and β

The definition of Proper Government (2) should allow the trace of wh-movement from subject position to COMP to be properly governed so as not to violate the Empty Category Principle. However interpreting definitions (2), (3), and (4) strictly, this trace is not properly governed. Although the trace in subject position is coindexed with the wh-phrase in COMP as a result of movement, following definitions (3) and (4) the wh-phrase in COMP does not govern the trace: since neither the wh-phrase in COMP, which is an NP, nor the COMP node itself is a lexical category, as is required by condition 1. in (4). Consequently one of the conditions in the definition of Proper Government is not fulfilled. How can this problem be solved. We could change the definition of Proper Government in such a way that government is only relevant if $\alpha = [\pm N, \pm V]$ and not if condition 2.2b applies. However that would lead to other problems, since then whenever a phrase is coindexed with some phrase it is properly governed. In particular, PRO, in cases of control, would be properly governed. Alternatively, suppose that the definition of Proper Government in (2) is retained, but that the definition of Government (in fact the definition of minimal c-command (4)) is altered so that COMP (or something in COMP; I will not discuss that topic now, but I assume for the moment that COMP is a governor and can inherit an index of an wh-phrase which it contains) governs the subject. The proposal then is to add COMP to the first condition of the definition of minimal c-command (4). Now the wh-trace in subject position is properly governed because it is governed by and coindexed with COMP.

There are a number of consequences to this redefinition. For instance, it follows that subjects are always governed either by COMP, in tensed sentences and most infinitives, or by the matrix verb, in case of $\bar{S}$ -deletion in Raising- and ACI-constructions. The implication is that PRO is governed too, contrary to the idea that PRO occurs only in ungoverned positions. At first glance this might seem an unfortunate consequence. But as can be seen from the definition of Proper Government PRO is not properly governed, since PRO is not coindexed with its governor (COMP) nor is PRO governed by something of the category $[\pm N, \pm V]$. So the difference between empty categories and PRO can be expressed by Proper Government: empty categories have to be properly governed (ECP) but not PRO.

An advantage of the extension of governors to COMP is that there is no need to provide special status for nominative case. In the Government-Binding theory Case assignment takes place on the basis of government with the exception of nominative case, which is assigned structurally to anything outside VP in tensed sentences. In my proposal nominative case can be assigned if the subject is governed by a COMP which contains the feature [+Tense]. So Case is always determined by the governor. This proposal requires the postulation of a feature [$\pm$ Tense] in COMP, for which I think there is some motivation. In the first place the form of the lexical complementizer agrees with the finiteness of the verb. Secondly, in Dutch root sentences the finite verb is moved into COMP, as is convincingly argued by Den Besten. Given the optionality of the expansion of the base rules, it is possible to have [+Tense] in COMP and PRO in subject position. Assuming that case assignment depends on government, the result will be a Case-marked PRO (nominative). I think it is possible to consider this Casemarked PRO as the PRO in tensed sentences in languages like Italian and Spanish, where the subject of a tensed sentence need not be lexically realized. Because of the language specific possibility of allowing this sort of PRO-subject, we have to introduce a parametrized condition, permitting the occurrence of $\text{PRO}_{[+case]}$. This would make the introduction of a category Agreement no longer necessary, which was introduced especially to capture these facts.

In conclusion, I think that the addition of COMP to the first condition of minimal c-command makes it clear that even small changes can have rather wide-spread consequences. In the next section I want to propose another change in the definition of minimal c-command, made possible by the introduction of COMP as a governor.

Considering COMP as a governor, it is possible to drop the second condition in the definition of minimal c-command: "there is no $\bar{S}$ or NP bracket between α and β ". This means that government goes on until it reaches a domain of another governor. Furthermore a governor itself is governed by another minimally c-commanding governor, the main consequence of which is that wh-traces can be considered to be (non-lexical) anaphors instead of having the status of names. Now, anaphors are characterized by the condition that they have to be bound in every governing category. If we take $\bar{S}$ and NP to be the governing categories, it is clear that a wh-trace in NP-position can be considered as an anaphor if it is bound by a wh-phrase in COMP. Dropping the second restriction on minimal c-command, it becomes possible to consider wh-traces in COMP (intermediate traces) as anaphors too, since now COMP, which is a governor itself, is governed by a minimally c-commanding governor (V in complement clauses and N in relative clauses). As a result, the Minimal Governing Category of a governed complementizer is not the $\bar{S}$ by which it

is immediately dominated, but the $\bar{S}$ or NP of the higher clause. Now the relation between a wh-trace in COMP and a wh-phrase in a higher COMP can be considered an anaphoric relation, because the wh-trace is bound by the wh-phrase in its minimal governing category. Successive cyclic movement follows and at least in these cases there is no need to postulate Subjacency. The Complex NP Constraint follows too, since NP is a governing category; if we should move a wh-phrase from COMP to COMP out of an NP, the trace can no longer be considered as an anaphor because it is not bound in its minimal governing category (NP).

Another consequence which I will only mention, but not pursue here, is that now every category is governed except the highest COMP. This exceptional status of the COMP in root sentences is attractive, as it could well serve as the basis of an explanation of root phenomena, like the position of finite verbs in root sentences in Dutch and German.

A third consequence is that the fact that verbs in a matrix clause can select a complementizer in the embedded clause can be easily explained. To do this we have to connect government and subcategorization. Suppose that we consider subcategorization as a special case of government. This implies that only governors ($[\pm N, \pm V]$ and COMP) can subcategorize and that the domain of subcategorization is the domain of government. Consequentially verbs can be subcategorized for objects, but also for the complementizer of a complement clause, because the verb governs the complementizer. Since COMP is a governor, it follows that COMP is (can be) subcategorized for subject and verb, so we might say that the subject-predicate structure of a sentence is primarily determined by subcategorization.

Before discussing a few problematic cases, I will summarize the proposals and their consequences.

The Empty Category Principle (1) has been replaced by the Anaphor Principle below (8), with the definitions of Proper Government (2) and Government (3) remaining unchanged. The definition of minimal c-command (4) has been altered to:

- (5) α minimally c-commands β iff α c-commands β and there is no γ such that α c-commands γ and γ c-commands β and not γ c-commands α
and: α (and γ) = $[\pm N, \pm V]$ or COMP

There are three kinds of NP's:

- 1) anaphors - NP's that are lexically identified as anaphors: reflexives and reciprocals

- empty NP's: wh-traces, NP-traces and base generated empty NP's
- 2) pronominals - pronouns: pronominals with a phonetic matrix
- PRO: pronominals without a phonetic matrix
- 3) other, lexical NP's

The Binding Theory can be formulated as:

A: If α is an anaphor it is bound in every governing category

B: If α is a pronominal it is free in its minimal governing category

C: Other NPs are free in every governing category

As can be seen Case plays no role in the Binding Theory. For that reason Case-assignment could even take place on the phonological side of the grammar. Nevertheless I will assume Case is always assigned by the governor of the NP either in the base, in which case we have inherent Case-marking, (which goes along with subcategorization) or at the level of S-structure, where Case is structurally assigned. Moreover, it must be stipulated that sometimes no Case or [-Case] is assigned. For example we could argue that in passive structures no Case is assigned to the object of the governing passive participle, to avoid Case-conflict if the object is preposed into subject position. Similarly a COMP which is specified as [-Tense] doesn't assign Case to the subject to avoid nominative subjects in infinitival constructions.

Finally there has to be a Case-filter on the phonological side of the grammar which excludes non-case-marked lexical (with a phonological matrix) NP's. This Case-filter is the same as in the Government-Binding theory:

- (6) * $[\text{NP}_{\text{-case}} \text{ phonetic matrix}]$

Figure 1 indicates which NP's can be distinguished at the level of S-structure:

(7) Figure 1

	lexical (phonetic matrix)	properly governed	case
1	+	+	+
2	+	+	-
3	+	-	-
4	+	-	+
5	-	-	-
6	-	-	+
7	-	+	+
8	-	+	-

- 1 = lexical objects, lexical subjects in case of $\bar{S}$ -deletion (ACI)
- 2 = excluded (later, on the phonological side) by the Case-filter
- 3 = excluded by the Case-filter
- 4 = lexical subjects of tensed clauses (subjects of infinitives without $\bar{S}$ -deletion have no Case since [$-Tense$] doesn't assign Case. So it follows that subjects of infinitives can only be lexicalized in ACI constructions, after $\bar{S}$ -deletion)
- 5 = PRO in subject position of an infinitival clause (objects are always properly governed, traces or other empty categories have to be properly governed (ECP))
- 6 = PRO in subject position of a tensed clause (Spanish, Italian)
- 7 = empty NP in object position, empty NP in subject position if it is the trace of wh-movement from subject position of a tensed clause or of wh-movement from the subject position of an embedded infinitival clause (ACI)
- 8 = empty NP in object position after NP-movement (Passive) or empty NP in subject position in case of Raising

After S-structure the Case-filter on the phonological side of the grammar filters out 2 and 3 and in Logical Form the Empty Category Principle and the Binding Theory operate. As has been argued, in this system empty categories are considered to be anaphors vis-a-vis syntactic binding conditions. It would be a natural extension of the Empty Category Principle if it could be argued that all anaphors have to be properly governed. This means extending the requirement of proper government to lexical anaphors, reflexives and reciprocals. The consequence would be that lexical anaphors are restricted to properly governed positions and do not occur in subject position of tensed clauses and most infinitival clauses (with exception of ACI-constructions). I don't quite see how it fits in with other restrictions on anaphoric relations like c-command, but the fact that lexical anaphors indeed do not occur in non-properly governed positions, makes it possible to change the Empty Category Principle to the Anaphor Principle:

- (8) An anaphor must be properly governed

Now I want to discuss shortly two obvious problems of the system I have presented above.

Since in this system wh-traces are no longer considered to be variables syntactically, an obvious problem is COMP-to-COMP movement. If the wh-trace were a variable, it would not be necessary to stipulate COMP-to-COMP movement, because then the variable has to be bound by an appropriate operator. I will try to indicate another solution. The argument is based upon the idea that an NP cannot be specified for Case more than once.

Suppose we make a distinction between NP-positions, which are specified for [$\pm$ Case], and other positions where NP's can appear but which are not specified for Case. Candidates for this last category are COMP and Clitic. There are various ways to stop Case-assignment from assigning Case to an NP in COMP. For instance, we could say that Case-assignment, on the basis of Government as indicated earlier, is impossible over an $\bar{S}$ -bracket.

After movement a moved constituent inherits its Case from its trace. This means that the realization of Case, if the NP in argument position is specified for [+Case], is carried over to the surface position. Case-conflict will arise if an NP is moved to a position which is specified for Case (+ or -) from a position specified for [+Case]. Then the moved NP, in a position specified for Case, inherits Case from its trace. In NP-movement there is movement from an NP-position which is specified for [-Case]. Therefore movement is possible to a [+Case] position; no Case-conflict will arise since [-Case] has no realization and nothing is inherited. Movement from a [+Case] position is possible only to a position not specified for Case, otherwise it would yield Case-conflict. COMP-to-COMP movement follows because a phrase in COMP which has inherited its Case from its trace has to be moved to a position not specified for Case to avoid Case-conflict. I think that it is possible to formulate Case-conflict as a filter on the phonological side of the grammar. In order to do so we have to introduce a formal distinction between 'Positional Case', which is the Case assigned to NP-positions, and 'Surface Case' which is the realization of 'Positional Case'. This filter has to exclude NP's specified for [-Case], which have received surface case by inheritance, and NP's specified for [+Case] which have more than one surface case, even if both surface cases are the same. Given this system it would be possible to move an NP from a position specified for [-Case] to COMP and from that position to an NP-position specified for [+Case] in the higher clause. The situation does not occur if we assume, not without ground, that in both NP-movement configurations (Passive and Raising) an empty subject is base generated. If nothing is moved into subject position there will be an empty node which is not properly governed, giving a violation of the Anaphor Principle.

A second problem is that lexical and non-lexical anaphors exhibit somewhat different properties. One difference is that the relation between antecedent and anaphor is somewhat less restricted for lexical than for non-lexical anaphors. I have no answer to this problem, but I think the distribution of lexical anaphors is puzzling anyway. A second difference is that lexical anaphors have their own Case, distinct from the Case of their antecedent, while non-lexical anaphors have the same Case (Surface Case) as their antecedent or no Surface Case at all (traces of NP-movement). This is not really a problem since it has to be stipulated anyhow that an

antecedent has the Surface Case, if any, of the non-lexical anaphor (an NP inherits its Case from its trace).

There are a number of consequences which might be evaluated in favour of the proposed framework, but I have not progressed far enough to envision a critical mass of consequences necessary to compare it with other frameworks. Without doubt there will be many other problems and unpleasant consequences. What is clear, however, is that a subtle change in the system, inspired by a problem in the definition of Proper Government, can lead to a rather different system or, as Chomsky put it during his Pisa-lectures, "anytime you change something somewhere, lots of changes take place elsewhere".