Kempson, R. and A. Cormack (1981) "Ambiguity and Quantification," *Linguistics and Philosophy* 4, 259–309.

May, R. (1977) *The Grammar of Quantification,* Doctoral dissertation, MIT, Cambridge, Massachusetts.

Partee, B. (1974) "Opacity and Scope," in M. Munitz and P. Unger, eds., *Semantics and Philosophy,* New York University Press.

Stowell, T. (1981) *Origins of Phrase Structure,* Doctoral dissertation, MIT, Cambridge, Massachusetts.

ECP Effects in Main
    Clauses
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Recent literature dealing with *that t* or Empty Category Principle (ECP) effects has been concerned mainly with their occurrence in embedded sentences. In this squib, I will argue that ECP effects can also be observed in English main clauses. More specifically, I will propose that the nonapplicability of Subject–Aux Inversion (SAI), an otherwise obligatory rule, in cases of subject extraction (for example, **who did t come*) can be explained in terms of the ECP. (For discussion of the ECP, see Chomsky (1981).) I will then show how such an account, relying crucially on the assumption that SAI moves the Aux into Comp (Den Besten (1978)), sheds some light on a language like Dutch, in that it establishes a nontrivial correlation between systematic *that t* violations in embedded clauses and the obligatory application of Verb Second in main clauses. Finally, I will briefly discuss the implications of the analysis for the acquisition problem.

1. In English, an ECP effect is illustrated by the *that t* phenomenon in (1):

(1) a. who$_i$ do you think [$_{S'}$[$_{Comp}$ t$_i$ (*that)][$_S$ t$_i$ left]]
    b. who$_i$ do you think [$_{S'}$[$_{Comp}$ t$_i$ (that)][$_S$ John saw t$_i$]]

Under an ECP account of this phenomenon,[1] *that* must be absent in (1a) so as to allow the empty category in subject position

[1] The ECP (Chomsky (1981)) requires that an empty category be properly governed. Since the notion of proper government has received many definitions in the literature, I will present the initial one here:

(i) *ECP*
     [$_β$ e] must be properly governed. α properly governs β iff α governs β
     a. α = X^0 or
     b. α is an NP coindexed with β

Proper government is a stricter requirement than government, for which I assume the definition presented in Sportiche and Aoun (1981).

to be properly governed by the trace in Comp (by means of coindexing, since the subject position is not governed by a lexical category). In (1b), however, *that* may be either absent or present, since the empty category is properly governed by the verb (government by a lexical category).

In main clauses, *wh*-extraction of the subject or the object yields examples such as (2):

(2) a.   who$_i$ t$_i$ left
    b.   who$_i$ did John see t$_i$

In (2a), the preposed *wh*-phrase properly governs the trace in subject position (by virtue of their being coindexed; cf. (1a)); in (2b), the trace is properly governed by V (cf. (1b)).

(2b) also illustrates the effect of the root rule of Subject–Aux Inversion (SAI). Any analysis of English must contain mechanisms to ensure the application of SAI in *wh*-questions and the appearance of *do* in Infl (= Aux) if Infl is not adjacent to V (*Do* Support) (or, alternatively, the disappearance of *do* if adjacent to V (Emonds (1976))).

The examples in (2) reveal an asymmetry with respect to SAI: whereas it has applied in (2b), it has not applied and cannot apply in (2a), as the ungrammaticality of (3), with a nonemphatic reading of *do*, illustrates.

(3) *who$_i$ did t$_i$ leave

Before I show that the ECP can explain this asymmetry in the same way as the phenomena in (1), some remarks on (3) are in order. First, it is not possible to exclude (3) by arguing that *wh*-phrases in subject position do not move into Comp, since it was shown in Koopman (1981) that *wh*-phrases in subject position not only can but actually must move into Comp prior to S-structure. Thus, since *who* in (2a) has moved into Comp, SAI should apply. Second, once SAI has applied, *Do* Support should in turn apply to yield (3), since the *wh*-trace which acts as a phonologically realized noun phrase (Chomsky (1981), Jaeggli (1980)) intervenes between the preposed Aux and the main verb. The ungrammaticality of (3) as opposed to the grammaticality of (2b) thus leads to the conclusion that SAI is blocked if the subject is questioned, whereas it is obligatory elsewhere.

2. I will now show that the asymmetry discussed above follows from the theoretical framework as it stands, under the assumption proposed by Den Besten (1978) that SAI moves the Aux into the complementizer position.[2] To see this, suppose that SAI applied in cases of subject extraction, yielding the structure (4):

(4)   [$_{S'}$[$_{Comp}$ who$_i$ did] [t$_i$ leave]]

[2] For a different approach to this problem, see Safir (1981).

By virtue of the ECP, the trace in subject position must be properly governed. But in (4) the Comp contains both a *wh*-phrase and *do*; moreover, the structure is exactly parallel to (1a), which is ruled out by the ECP. In addition, the ungrammaticality of (4) cannot be explained by the doubly filled Comp filter (Chomsky and Lasnik (1977)), given the grammaticality of (5):

(5) $[_{S'}[_{Comp}$ who$_i$ did] [John see t$_i$]]

Extending the account given for (1a) to the structurally identical (4), the impossibility of SAI can be immediately explained by the fact that, if SAI were to apply, the resulting structure would violate the ECP, since the trace in subject position would fail to be properly governed.

I thus propose that the inapplicability of SAI with subjects is explained by the ECP and that the well-known ECP effect of embedded clauses is observed in exactly the same way in matrix clauses: treating the inverted Aux and the lexical complementizer as occupying the same syntactic position allows a uniform explanation of the necessary deletion of *that* in structures like (1a) and the impossibility of SAI with subjects.[3]

3. The analysis presented above for English main clauses opens new ways of looking at the problem of Dutch, a language in which *that t* violations occur.[4] Why do English and Dutch differ

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[3] Note that it cannot be assumed that SAI has in fact applied in cases of subject extraction and that the lexicalization of *do* is blocked, given sentences in which a modal or auxiliary appears in Infl (*who has come, who must come,* etc.). By virtue of the argument given above, these sentences must have an S-structure representation like *who t must come*. We must therefore conclude that SAI is obligatory up to the violation of a principle.

[4] The situation in Dutch is complicated and needs elaboration. Considering the most conservative dialect with respect to subject extraction (called *Dutch B* by Maling and Zaenen (1978) and *Dutch* by Bennis (1980)), Koopman (1982) argues that, in the case of intransitive verbs or transitive verbs with indefinite objects, the extraction takes place from a properly governed position in the VP:

(i)   wie$_i$ is er   t$_i$ gekomen
      who is there   come
      'Who came?'
(ii) wie$_i$ heeft er   t$_i$ gegeten
      who has   there   eaten
      'Who ate?'
(iii) wie$_i$ heeft er   t$_i$ iets   gezien
      who has   there   something seen
      'Who saw something?'

Root and embedded sentences act alike with respect to (i)–(iii). In the case of transitive verbs with definite objects, however, the subject can be extracted in both main and embedded clauses (cf. (6) and (7)). Although (i)–(iii) raise many intriguing questions, it seems clear that extraction from subject position in (6) and (7) is acceptable in all Dutch dialects.

with respect to *that t* phenomena? I propose that the difference can be reduced to a difference in the functioning of the similar rules of SAI and Verb Second: whereas Verb Second resembles SAI in moving the finite verb into the complementizer position (Den Besten (1978)), it differs in being obligatory in all Dutch main clauses, regardless of the original position of the preposed constituent. Its functioning is illustrated in (6):

(6) a. $[_{S'}[_{Comp}$ wie$_i$ heeft$_j]$ $[t_i$ hem/Jan gezien t$_j]]$
        who has   him/John seen
        'Who saw him/John?'

   b. $[_{S'}[_{Comp}$ wie$_i$ heb$_j]$ $[$jij t$_i$ gezien t$_j]]$
        who have   you   seen
        'Who have you seen?'

Contrary to what happens in the English equivalent (3), the movement of the finite verb into Comp in (6a) does not result in an ECP violation. I conclude accordingly that, unlike English, Dutch permits proper government from Comp in a configuration like (6a), yielding a *that t* violation in main clauses.[5]

If proper government is possible in structures like (6a), in which the Comp contains both a *wh*-phrase and the finite verb, we would expect it to be equally possible in embedded contexts. This prediction is borne out, as (7) illustrates:

(7) wie$_i$ denk je $[_{S'}[_{Comp}$ t$_i$ dat] $[t_i$ hem/Jan gezien
    who think you   that   him/John seen
    heeft]]
    has
    'Who do you think saw John?'

4. *That t* violations are systematically possible in Dutch in both matrix and embedded clauses, whereas they are systematically impossible in English in both matrix and embedded clauses. The difference can be reduced to the different functioning of the rule of Verb Second, which forces Dutch to allow a more liberal environment for proper government from Comp ((6a) and (7)) than English does. The fact that languages differ with regard to the exact conditions under which proper government from Comp takes place raises the interesting question of how the language learner is able to deduce these conditions. The account given here, making no distinction between ECP effects in matrix and embedded sentences, gives insight into this problem. Consider English, for example. Depending on further assumptions

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[5] I assume that the Comp node properly governs the trace in subject position, and that it does so iff it is coindexed with the subject position. Comp can be indexed by means of a percolation rule applying at S-structure (Aoun, Hornstein, and Sportiche (1981), Bennis (1980)). I furthermore assume (Koopman (1982)) that languages differ, first, in allowing Comp indexing at all (consider Vata vs. English and Dutch) and, second, in the conditions under which Comp indexing may occur.

about how language "learning" proceeds, we could assume either that English represents essentially the unmarked case (i.e. there is nothing to learn) or, admitting indirect negative evidence, that it would be sufficient for the language learner to be presented with the asymmetric behavior of SAI (*Who came?* vs. *Who did John see?*) to deduce that proper government from Comp requires Aux to be absent from Comp and, by extension, requires the complementizer to be absent as well, consistently yielding *that t* effects. In Dutch, however, the symmetric behavior of Verb Second forces the language learner to assume proper government in cases like (6a) even if the Comp node contains both a *wh*-phrase and the finite verb, or a trace and the complementizer, yielding *that t* violations in both matrix and embedded clauses alike. The appeal of this analysis lies in its ability to make the complex grammatical behavior with respect to *that t* phenomena readily deducible upon presentation of simple clauses to the language learner.

References

Aoun, J., N. Hornstein, and D. Sportiche (1981) "Some Aspects of Wide Scope Quantification," *Journal of Linguistic Research* 1.

Bennis, H. (1980) "Coindexing and Complementizer Trace Phenomena," paper presented at the 1980 GLOW conference, Nijmegen.

Besten, H. den (1978) "On the Interaction of Root Transformations and Lexical Deletive Rules," paper presented at the 1978 GLOW conference, Amsterdam.

Chomsky, N. (1981) *Lectures on Government and Binding,* Foris, Dordrecht.

Chomsky, N. and H. Lasnik (1977) "Filters and Control," *Linguistic Inquiry* 8, 425–504.

Emonds, J. (1976) *A Transformational Approach to English Syntax,* Academic Press, New York.

Jaeggli, O. (1980) "Remarks on *To* Contraction," *Linguistic Inquiry* 11, 239–245.

Koopman, H. (1981) "Theoretical Implications of the Distribution of *quoi*," to appear in *NELS XII*.

Koopman, H. (1982) "Control from COMP and Comparative Syntax," ms., Université du Québec à Montréal.

Maling, J. and A. Zaenen (1978) "The Nonuniversality of a Surface Filter," *Linguistic Inquiry* 9, 475–497.

Safir, K. (1981) "Inflection, Government, and Inversion," to appear in *The Linguistic Review*.

Sportiche, D. and J. Aoun (1981) "On the Formal Theory of Government," to appear in *The Linguistic Review*.