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ON THE ORIGIN OF SENTENTIAL ARGUMENTS IN GERMAN AND BENGALI

ABSTRACT. This paper discusses some of the consequences of Baker's (1988) *Uniformity of Theta Assignment Hypothesis* (UTAH) for the analysis of German and Bengali, two SOV-languages. UTAH assigns a uniform D-structure to all the VP-internal arguments to the left of V. Under conservative assumptions about extraposition, this approach leads to various well-known difficulties which have mainly been discussed in the literature on Dutch. I shall claim that UTAH can only be retained if German and Bengali have two alternative positions (presumably both A-positions) for the licensing of clausal complements, one *in situ*, i.e. to the left of V, the other to the right of the verbal complex. The existence of these positions is essentially the result of the relation between the matrix verb and the inner architecture of the embedded CP. Some of the consequences will be explored, especially concerning wh-movement at S-structure and at LF.

0. INTRODUCTION

This article starts with the challenge of Baker's (1988) *Uniformity of Theta Assignment Hypothesis* (UTAH), and some of the influences it has on syntactic analysis. The languages (German and Bengali) from which most of the data on sentential complementation under consideration are taken are SOV-languages. UTAH assigns a uniform D-structure for all of their VP-internal arguments to the left of V. Under conservative assumptions about extraposition, this approach leads to well-known difficulties which have been discussed mainly in the literature on Dutch. My claim is that we can retain UTAH only when German and Bengali have two alternative positions (presumably both A-positions) for the licensing of clausal complements, one *in situ* i.e. to the left of V, the other to the right of the verbal complex. I will show that the existence of these positions is essentially the result of the relation that the verb has with the CP's inner architecture. Some of the consequences of this analysis will be explored, especially questions of WH-movement at S-structure and at LF.

1. THE UNIFORMITY OF THETA ASSIGNMENT HYPOTHESIS

In a rigidly constrained framework for phrase structure such as modern X'-theory it seems desirable that there is a uniform licensing relation between a head X and its complement YP. Assuming head-finality, one would expect lexical projection to work in such a way that every satisfaction of the head-complement relation would result in $[[YP]X]$, and that $[X[YP]]$ must arise from move- α . This is in fact the gist of the UTAH as suggested in Baker (1988: 46). I choose (1) as a slight reformulation:

- (1) *The Uniformity of Theta Assignment Hypothesis*: If two maximal phrases YP and ZP receive the same theta-role from a head X, then $[_X X YP]$ and $[_X X ZP]$ have the same D-structure

The assumption here is that D-structure is a pure level of thematic structure which is almost totally derivative from lexical information, one possible difference being the syntactic presence of an external argument. The assumption that every major category has a subject (cf. Stowell 1983) together with the VP-internal subject hypothesis (cf. Sportiche 1988, and many others) yields D-structures of the following kind: $[_{XP} \text{specifier } [_X X [\text{complement}]]]$, order irrelevant. We will next discuss which predictions this makes for German sentential complementation.

2. GERMAN CP-EXTRAPOSITIONS

German is in important respects a head-final language, although it has frequently been classified as an SVO-language, due to the fact that it shows the verb-second property in main clauses, has mainly head-initial PPs, complements and relative clauses to the right of N, etc.¹ The examples in (2a,b) exist side by side without a noticeable difference in markedness. Clearly, the complement is theta-marked in the same way by *aufhören* in both cases. According to (1), (2b) must be the result of extraposition, which roughly yields the S-structure in (2c).

- (2) a. Hans hat [PRO zu rauchen] aufgehört
 Hans has to smoke stopped
 ‘Hans has stopped smoking’
 b. Hans hat aufgehört [PRO zu rauchen]
 c. Hans hat e_i aufgehört [PRO zu rauchen]_i

Given this, it could be expected that German allows movement from a CP-complement only as long as it is in its c(anonically)-governed position to the left of the verb, as in (3a). In fact however, WH-movement largely looks like in English i.e. it can proceed from the extraposed CP as in (3b).

- (3) a. Welches Haschisch_i hat Hans [PRO e_i zu rauchen] aufgehört?
 b. Welches Haschisch_i hat Hans e_j aufgehört [PRO e_i zu rauchen]_j?
 ‘Which (kind of) pot has Hans stopped smoking?’

Since Ross (1967), it has been a commonplace in linguistics that extraposition leads to a “frozen” structure which resists extraction (*Which bed did you sleep in several times?* versus **Which bed did you sleep several times in?*). As de Haan (1979) and Koster (1987) have remarked, such an

effect is entirely absent in Dutch and German long WH-movement. Both authors concluded from this that clausal complements to the right of V must be already present in D-structure. Before we turn to this suggestion in detail, let me mention that for speakers like myself, it is in addition completely natural to extract from successively embedded *daß*-complements:

- (4) Wie_i hast du gemeint [_{CP} e_i [_{C'} daß [_{IP} sie gesagt hat [_{CP} e_i [_{C'} daß [_{IP} der Karl e_i das Bild gemalt hat]]]]]]?
 how have you thought that she said has
 that the Karl the picture painted has
 'How did you think that she has said that Karl has painted the picture?'

UTAH forces us to a rather intricate extraposition analysis according to which (4) has a D-structure roughly like in (5).

- (5) [_{CP} – [_{C'} – [_{IP} du [_{CP} – [_{C'} daß [_{IP} sie [_{CP} – [_{C'} daß [_{IP} der Karl *wie* das Bild gemalt hat]]] gesagt hat]]] gemeint hast]]]

Several steps are needed in order to arrive at the S-structure shown in (4): First, WH-movement will take *wie* from its D-structure position through the lowest Spec-CP into the medial Spec-CP. In order not to come into conflict with the cyclic principle, the CP *daß der Karl das Bild gemalt hat* now has to be extraposed to the right of the current (medial) CP. This results in the string *du wie daß sie gesagt hat daß der Karl das Bild gemalt hat gemeint hast*. Then the finite verb *hast* has to move to the empty C-position of the matrix in order to create a V2 structure which licenses the ultimate landing site of the WH-operator. After the WH-element has moved to the highest Spec-CP, the string *daß sie gesagt hat daß der Karl das Bild gemalt hat* will be extraposed to the right of the matrix clause. Though at first sight technically elegant, this analysis creates empirical as well as conceptual problems. The *first* problem is quite straightforward, and has already been mentioned: If core grammar move- α (here WH-movement) can be followed by extraposition shifting the "remnant" to the right of VP or IP, why should this analysis be impossible in all those cases in which the freezing effect is observed? One could say that extraposition of CPs is forced by Kayne's (1982) or Hoekstra's (1984) *Unlike Category Condition* (UCC), but this leads to obvious problems with data such as (2a).² If the head of the infinitival clause induces any features, they will include [+V], because V raises to the I-element *zu*. (See also my discussion of *zu*-infinitives in section 3).

Second, an analysis of cyclic WH-movement with subsequent extraposition of the CP (the source of movement) to a righthand A'-position

involves A'-traces inside A'-traces. The computation of the operator/variable relation in (4) will not be able to follow the steps indicated in the representation above but rather presupposes the computation of two other traces (of the same kind?) in which the variable is buried:

- (4') Wie_i hast du e_j gemeint [_{CPj} e_i [_{C'} daß [_{IP} sie e_k gesagt hat [_{CPk} e_i [_{C'} daß [_{IP} der Karl e_i das Bild gemalt hat]]]]]]?

This is an example of layered traces. Fanselow (1993) and Müller (1993: ch. 7) show that traces of the same type cannot be layered.³ If they are right, the extraposition trace (if any) should be significantly different from the WH-trace. From the viewpoint of syntactic *processing*, the S-structure in (4') is also strange. The A'-chain headed by *wie* has to be computed after the extraposed CP is reconstructed into its D-structure position. Otherwise the structure would have to be rejected as an island violation. Undoing extraposition in the sense of active gap filling is a complication that would slow down the on-line computation of the WH-chain. This creates at least a conceptual problem because it has been known since Miller and Chomsky (1963), Kimball (1973) and others that if extraposition affects parsing in any sense, it will reduce and certainly not increase parsing complexity. Thus, if extraposition still takes place in the way described above, its traces must be rather irrelevant for the processor. Under the assumption that the competence grammar is responsible for the representations which the processing device will make use of, the traditional extraposition analysis has nothing to recommend.

Consider *third* a case in which there can be no doubt that the CP-complement is in an A'-position. What I have in mind are cases in which a pronominal (in German *es*) appears in c-governed position. (See Bennis 1986: ch. 2 for discussion mainly with respect to *het* in Dutch). In German, as in any other language I am aware of, extraction from a CP linked to a theta-marked dummy like *es* always leads to serious ungrammaticality as shown in (6b).

- (6) a. Hans hat (es_i) geglaubt [daß sein Chef uns verachtet]_i
 Hans has (it) believed that his boss us despises
 b. Wen_j hat (*es_i) Hans geglaubt [daß sein Chef e_j
 who has (it) Hans believed that his boss
 verachtet]_i?
 despises

In connection with *es*, one also finds the well-known restriction against complementizerless tensed CPs

- (7) The boy knew *it* *(that) his dad would come

- (8) Der Junge wußte *es* . . .
 a. daß sein Vater kommen wird (C and V-end)
 b.*sein Vater wird kommen (no C and V2)

Once there is an overt pleonastic element, the coindexed CP in A'-position has to be supported by a lexical complementizer. Stowell (1981: ch. 6) gives an explanation in terms of the ECP: The head of a CP can only be missing if the CP – and by virtue of this, its head – is properly governed. In (7), *it* occupies the position which is properly governed, thus the CP must be in an A'-position where an empty head could not be licensed. Of course, Stowell's explanation does not directly carry over to cases like (8) because in German V2 clauses the C-position is filled by the finite verb.⁴ Relevant for us is the fact that in the absence of *es*, V2 clauses are perfectly grammatical in the position to the right of a (non-factive) matrix verb, while their distribution otherwise closely resembles that of English CPs with a zero complementizer. For instance, V2-clauses *in situ* are completely impossible. The UCC could attribute this to the fact that they carry a [+V] feature. Given that infinitivals (and, as we shall see, certain Bengali tensed sentences with the feature [+V]) are grammatical in this context, it is unlikely that the UCC is the right principle for excluding V2-clauses from this context.⁵

To sum up, we have found on the basis of German data a number of arguments which speak against CP-extraposition as a means of licensing CPs to the right of V, at least as long as we follow the standard assumption that extraposition is a movement rule that falls under trace theory and moves a phrase to an A'-position. Once we bring Bengali into the picture, further complications for this theory will arise. The alternative, base generation of CP to the right of the verb, will of course considerably weaken UTAH. We will next consider the architecture of CP in more detail, and derive some generalizations as to their position relative to the verbal governor.

3. HOW TO LICENSE CP

3.1. C-Visibility

It has been suggested by much of the writing in generative grammar that CPs are subject to somewhat different licensing conditions from NPs (or DPs). The observation that the latter need Case while the former don't does not delimit the problem sufficiently. Let us assume that the matrix verb may head-govern a CP-argument on its non-canonical side, and that it does so under a special condition which guarantees that the category to be governed is *visible* for its governor under adjacency.⁶ Such a condition must attend to the following structures, the last of which is valid for Southern German only:

- (9) a. *pure daß-complements*
 Hans sagte [daß er keine Zeit hätte]
 Hans said that he no time had
- b. *V2-complements*
 Hans sagte [er hätte keine Zeit]
- c. *WH-complements*
 Hans fragte [warum er keine Zeit hätte]
 Hans asked why he no time had
- d. *WH+daß-complements (Bavarian)*
 Hans fragte [warum daß er keine Zeit hätte]

Following suggestions in Chomsky (1986) and Rizzi (1990), one can guarantee CP-visibility with the help of *Spec-Head Agreement* (SHA). For (9a) we can either assume that Spec-CP remains inert and has been deleted, or that a featurally unmarked empty Spec-CP adopts the features of C. In both cases it is guaranteed that the features of the CP's head are visible for the adjacent matrix verb (or V-complex). The element which determines the feature structure of the V2-complement in (9b) is the tensed verb which has moved to C by I-to-C movement. In this sense, V2 turns the CP (again) into an IP, the difference from the original IP being that the Spec-position to the left of C/I is now an A'-position. Let us assume that I in C has strong features which are copied onto the XP in Spec, thus making CP visible for the matrix verb.⁷ Under the assumption that the WH-phrase in (9c) is in Spec-CP while the zero-C is featureless, SHA will mark C as [+WH]. Since *daß* has weak features ("no conceptual semantic content"), we can assume that the same thing happens in (9d). In both cases it is guaranteed that CP is visible as an interrogative complement. Our suggestion above was that CP may arise in a post-verbal A-position.⁸ If this is the case, it is not totally surprising to see that extraction from such a CP is possible. At the same time there is overwhelming evidence that German follows a parameter that is set for the head-finality of its VP, and as such has a pervasive influence on the syntax of this language in comparison with Germanic VO-languages. Why is it then in most of the cases quite awkward to have a tensed CP (e.g. with a *daß*-complementizer) in a c-governed A-position? It has repeatedly been observed in the literature that a CP of this sort must either scramble to the left or move to Spec-CP.⁹ Again, one could think of a solution along the lines of the UCC, but we have seen already that this cannot explain easily why *zu*-infinitives (also those with CP-status) can remain *in situ*.¹⁰

Another complication is that *daß*-CPs *can* occur in this position as long as they are short enough to avoid serious effects of center embedding. Consider (10) where the CP undoubtedly has remained inside VP.

- (10) Als Hans [_{VP} gestern [_{VP} seiner Schwester [daß er
 when Hans yesterday his sister that he
 krank sei] sagte]] waren alle schon weg
 ill is said were all already away
 ‘When Hans told his sister yesterday that he was ill, everybody
 had left already’

Let us assume that short CPs of this sort can – as a marked option – be captured by an NP-over-S analysis i.e. (10) would involve a substructure like [_{VP} seiner Schwester [_{NP} [_{CP} daß er krank sei]] sagen], and that this exempts the complement from being licensed by the verb directly.¹¹ Once this strategy fails and the CP has to be licensed as such, there is no strictly local relation between C and V. I assume that in this case the verb will s-select a CP, but it will not license CP as a *category*. We can isolate three strategies for licensing a CP-complement: One by C-visibility, which is essentially an adjacency requirement by which C must appear on the edge of the clause that is next to the verb at S-structure; one by NP-over-S; and one by mediating the local relationship between V and CP with a trace. In this way the effect of the UCC is captured, but now for the completely different reason that – unless NP-over-S can be invoked – non-adjacency of C and V is to be avoided. Once the CP is moved leftwards, there is no necessity for its head to be visible for the matrix verb because traces only accidentally transmit absolute literal categorial forms to their base position.¹²

Our suggestion for ruling out structures like [_{VP} [_{CP} C . . .] V] makes interesting predictions for complements not considered so far, namely *zu*-infinitives. Consider the following data.¹³

- (11) a. Hans hat bedauert [die Tür e_i] gestrichen zu haben
 Hans has regretted the door painted to have
 [die in den Hof führt]_i
 which into the yard leads
 ‘Hans has regretted to have painted the door which leads into
 the yard’
 b. [[Die Tür e_i] gestrichen zu haben [die in den Hof führt]_i]_j hat
 Hans nicht e_j bedauert
 c. weil Hans [[die Tür e_i] gestrichen zu haben [die in den Hof
 führt]_i] schon oft e_j bedauert hat
 d.*weil Hans [[die Tür e_i] gestrichen zu haben [die in den Hof
 führt]_i] bedauert hat
 e. weil Hans [[die Tür e_i] gestrichen zu haben] bedauert hat [die
 in den Hof führt]_i

In (11a,b,c) the relative clause *die in den Hof führt* can extrapose and attach to the infinitival clause. The infinitival clause itself is extraposed, topicalized, and scrambled respectively. Attachment of the relative clause to the infinitival clause is, however, strictly impossible in (11d).¹⁴ Notice that here the *zu*-infinitive is to the immediate left of the matrix verb. (11e) shows that in this case the relative clause can only attach to the main clause. Can this distribution be captured by our idea of CP-visibility? It can, if we consider the suggestion by Wilder (1988) that *zu* is a CP-final complementizer.¹⁵ Most current analyses take *zu* as an instantiation of tenseless I (see for example Evers 1990), while C is taken to be a CP-initial zero complementizer. While I take this to be essentially correct for infinitivals to the *right* of the verb, I want to suggest that infinitivals to the *left* of the verb may use *zu* as the instantiation of a final complementizer.¹⁶ The diagram in (12) shows how this can be achieved by head movement:¹⁷

The datum in (11d) suggests that CPs need to be licensed under C-visibility not only when arising to the right of V, but also when c-governed. In (12) the matrix V can recognize its complement via its C-head. For cases such as (11d) we want to assume that adjunction disrupts this head-to-head visibility.¹⁸

We are now in a position to give a definition of C-visibility, which as we have shown above, breaks down into a number of subcases.

- (13) C is *visible* for its governor V iff either one of (i) through (iv) holds: (i) V governs a trace of CP, (ii) V is head-adjacent to C,¹⁹ (iii) due to SHA a feature appears on Spec-CP which satisfies V's s-selection requirements, (iv) the C-head has nominal features and can (under certain conditions such as brevity) optionally be treated as an NP.

To sum up, we have isolated specific restrictions on the licensing of CPs with argument status which are clearly different from what can be observed with respect to categories such as NP and PP. The latter are entirely free of the head adjacency requirement, but are subject to other restrictions such as Case assignment. While many questions had to be left open, it seems obvious that a specific inner architecture of CP is necessary for it to be visible for a verbal governor.

3.2. Extraposition as argument shift

In my argumentation so far I have assumed that in German (or Dutch) a righthand CP-complement is in a position that is equivalent to an A-position. This leaves two options: Either it can be (optionally?) *base generated* there, or it moves to this position in the sense of *argument shift*.²⁰ The first option is, of course, incompatible with UTAH. I try to give a more restrictive account, and will follow Hoekstra (1987), where an extraposition analysis in the sense of argument shift is proposed. Hoekstra notices that old-style extraposition to some A'-position cannot account for the fact that the righthand CP allows extraction, and that the CP is likely to shift to an A-position. How can this be the case? Hoekstra first turns to the role of traces, and notices that the primary reason for their presence is the fact that the Projection Principle has to be observed on all levels of representation. If it were not for the Projection Principle, traces could just as well *delete*. The lexically induced relations would then have to be fully recoverable in the output of the transformation. Consider now the structure in (14):

$$(14) \quad [{}_I [{}_I [{}_{VP} e_i e_j] [{}_I V_j + I] CP_i]]$$

If e_i gets deleted, the Projection Principle is violated because the trace of the verb (e_j) requires an object. If e_j can likewise be deleted, however, this problem disappears; there is neither a licenser nor a licensee. The question is then how the shifted CP will get θ -marked. It is easy to see that this cannot be a problem because V has been adjoined to I and thus the newly formed head $\{V + I\}$ is able to govern whatever V had governed at D-structure.²¹ Formally, the rightward shift can be characterized as adjunction to I' . After deletion of the traces e_i and e_j , the structure of (14) will look as in (15), where I indicate the deletion sites with an asterisk:

The percolation of V_j in the complex head I and its projection I' allows V_j to obtain a relation to CP_i that is formally equivalent to sisterhood. If we adopt the notation of Bayer and Kornfilt (1990, 1994), we can make this relation transparent:

As Hoekstra points out, the presence of a nominal (or prepositional) object of V disallows the deletion of the V -trace because this would leave the object without a θ -role. In that case, CP can only be licensed as an adjunct, and as such it is correctly predicted that extraction from it will yield a CED-violation (see Huang 1982).

Two problems could arise from this proposal: First, the VP may contain more arguments than just the CP -argument, and the question arises how these can be θ -licensed when trace deletion has occurred. Second, as Haider (1993a,b) has noticed, the extraposed CP must be c -commanded not only by the subject but also by the objects that stay to the left of V . This can be seen in the examples (17a) and (17b), which show a bound pronoun reading and a principle C violation, respectively:

- (17) a. weil der Direktor [jeder Putzfrau]_i persönlich
 because the director each cleaning-lady personally
 mitteilte [daß sie_i entlassen sei]
 told that she fired was
- b.*weil der Direktor ihr_i persönlich mitteilte [daß die Putzfrau_i
 entlassen sei]

These two problems are obviously related, and a solution requires that everything that is licensed by the verb has to be scrambled out of the VP . This is in the spirit of Chomsky (1992), but it is not obvious in which sense the VP -external licensing of the arguments should arise. Chomsky has to assume a separate functional projection for each argument that needs to be licensed. Since there is no S -structure in his framework but only LF , one could say that the Binding Principles always apply at LF ; in that case it does not matter whether the arguments have been moved overtly or movement has been *procrastinated*.²² Alternatively, one could argue in

the spirit of Bayer (1990), Bayer and Kornfilt (1990, 1994) and Haider (1992, 1993a,b) that in head-final languages like German, V and I are collapsed, and that V encodes all the functional elements that are necessary to license its arguments along its projection line. Pursuing these possibilities further would go far beyond the limits of this article. I will therefore stop this discussion here, and sum up what we have found so far: Given Hoekstra's (1987) proposal of CP-extraposition to a quasi A-position we can account for the fact that cyclic movement from a righthand CP is possible, while at the same time keeping to UTAH's requirement of a uniform D-structure basis for θ -assignment. At the same time, this analysis guarantees that the clausal complement has moved to a position that deviates from the c-governed position to the left of V. This has important consequences which again I cannot review here.²³ It suggests, for instance, that CP-topicalization can only occur from a c-governed position to the left of V, and that movement from the derived A-position's impossible. As I will argue later on, rightward shift turns the VP into a barrier (for certain processes). One can see this effect in sentences which can optionally be licensed by a pronominal adverb:

- (18) a. weil er [*darum* [daß man ihm helfen möge]]
 because he there+about that one him help will
 gebeten hat
 asked has
 'because he asked that one should help him'
- b. [*darum* [daß man ihm helfen möge]], hat er e_i gebeten
- (19) a. weil er gebeten hat [daß man ihm helfen möge]
- b. Wem_j hat er gebeten [daß man e_j helfen möge]?
 'Who has he asked that one should help?'
- c.*[daß man ihm helfen möge]_i hat er gebeten e_i

Bitten subcategorizes for a PP; *darum* fulfils this requirement, as shown in (18), where topicalization of the PP+CP constituent is possible. (19a) shows that the PP can be missing, in which case the CP appears in the post-verbal position. This position cannot be an adjunct position because – as (19b) indicates – it permits WH-movement. If the CP itself, however, could be moved from this righthand position, we could, contrary to fact, expect (19c) to be grammatical. My conjecture is that C-visibility as defined in (13) is the driving force behind the rightward shift of clausal complements in the verb-final language German, and that the identification of a CP-complement via a trace is only possible where the trace appears in the canonical position to the left of V.

I want to show in section 6 that the generation of an argument to the right

of the verb is still not cost free. Before doing this, let us next have a look at the complementation system of Bengali, where some striking similarities with German can be observed.

4. COMPLEMENTATION IN BENGALI²⁴

Bengali (or Bangla), one of the major eastern Indo-Aryan languages, is to a large extent head-final like Turkish or Japanese i.e. it is typologically a classic case of an SOV-language. Bengali, for instance, does not have prepositions at all; it has right-headed APs, and a kind of relative clause (gerund) to the left of the noun on which relativization occurs. One peculiarity which makes Bengali comparable to Germanic SOV-languages like German or Dutch is, however, that it allows the extraposition of finite sentential complements.

(20) a. *CP in situ*

chele-Ta [or baba aS -be] Sune-che
 boy -[cl] his father come-[fut] hear-[past]
 'The boy has heard that his father will come'

b. *CP extraposed*

chele-Ta Sune-che [or baba aS-be]
 (same meaning)

Since Bengali is a head-final language in most respects that are relevant for making typological distinctions, we can say that the (CP-) complement is c-governed by *Sona* ("to hear") in (20a), but not in (20b), where it is extraposed in the sense of argument shift as we have argued for German. I will suggest here that the situation is almost exactly like in German. In order to do this, it is important to look at cases where *overt complementizers* appear. One interesting fact about Bengali sentential complementation is that there are *two* complementizer-like words which have virtually nothing in common, neither morphologically nor categorically. One is *je*, the other is *bole*. There is some controversy about both in the literature whose review would exceed the limits of this article.²⁵ The best informal characterization of clauses headed by these two complementizer-like elements I have found is the following:

"... the *bole*-clauses [...] prefer to occur towards the western site (i.e. S-initially) of the whole sentence, whereas the *je*-clauses would prefer to be moved towards the eastern site as the application of a rightward extraposition rule [...]"

Singh (1980: 190f)

bole (as well as Oriya *boli*) is the participial form of the verbum dicendi *bol-* ("say"). Similar uses of a verb of speaking as a clause-final comple-

mentizer are attested in various Dravidian languages.²⁶ With the *bole*-complementizer present, (20a) comes out as (21).

- (21) chele-Ta [[or baba aS -be] bole] Sune-che
 boy -[cl] his father come-[fut] [comp] hear-[past]
 'The boy has heard that his father will come'

As suggested by Singh, *bole*-complements like in (21) generally cannot be extraposed.²⁷ Consider now *je*-clauses. The alternative to (20b) is (22).

- (22) chele-Ta Sune -che [je [or baba aS -be]]
 boy -[cl] hear -[past] that his father come-[fut]
 (same as (21))

Je- and *bole*-clauses are in complementary distribution as it is impossible to have the *je*-clause in the c-governed position to the left of *Sune-che*.²⁸ Thus, we get the following ungrammatical constructions.

- (23) a.*chele-Ta *Sune-che* [[or baba aS-be] *bole*]
 b.*chele-Ta [*je* [or baba aS-be]] *Sun-e-che*

One apparent complication is that preverbal *je*-clauses *do* appear in Bengali, but there is evidence that in these cases *je* is not a complementizer. Consider the following example:

- (24) chele-Ta [[or baba *je* aS -be] Sone-ni
 boy -[cl] his father ? come-[fut] hear-[past,neg]
 'The boy hasn't heard that his father will come'

If *je* were a complementizer here, this would be striking evidence against head peripherality. The C-projection would be nested in the I-projection. Furthermore, *je* in (24) is *mobile*. Inside IP it may cliticize onto any major constituent, not only the subject-NP. Dasgupta (1980) has argued that *je* starts out as a complementizer and gets subsequently lowered into the clause, but he has since argued (see Dasgupta 1984, 1987) in favor of distinguishing this use of *je* (which he calls an *anchor*) from its use as a complementizer (in his terms a *subjoiner*). The most direct evidence against the role of *je* as a complementizer in cases like (22) comes from Singh's (1980) observation that it may co-occur with *bole*. Consider (25), which slightly changes Singh's own example, and (26) which is an Oriya example from Bal (1990).

- (25) [[chele *je* por -be] *bole*] ami mon -e kori ni
 boy ? study-[fut] [comp] I mind-[loc] do [neg.past]
 'I haven't thought that the boy will study'
- (26) se [_{CP} raama *je* maacha khaae *boli*] jaane
 (s)he Rama ? fish eats [comp] knows
 '(S)he knows that Rama eats fish'

It would violate fundamental properties of X'-syntax if there were double-headed CPs. Thus, it seems quite safe to assume that the IP-internal *je* is not a complementizer.²⁹ Let us then maintain that Bengali has – perhaps under very different influences in its history – acquired two words, *bole* and *je*, that can both serve as complementizer-like subordinators.

(21) through (23) strongly suggest that we are again dealing with cases of head adjacency between V and C.³⁰ Thus, irrespective of the overtness of the complementizer there seem to be the following two options:

- (27) a. . . . V [_{CP} [_C je/Ø [_{IP} . . .]]]
 b. . . . [_{CP} [_C [_{IP} . . .] bOle/Ø]] V

We have indirect evidence that there is indeed a final C-position even if *bole* is absent, and it is likely that the inflected verb moves into this position. To see this, notice that Bengali, despite its being a strict OV-language allows NPs and other phrases to move to the right of the verb. The semantic effect is similar to clefting. While this is possible in root clauses such as (28a) and in extraposed clauses such as (28b), it is strictly impossible when the CP remains in c-governed position.³¹

- (28) a. babul e_i kha-be ruTi_i
 Babul eat -[fut] bread
 'It is bread that Babul will eat'
 b. ami Sune-chilam [(je) babul e_i kha-be ruTi_i]
 I hear -[past] that Babul eat -[fut] bread
 'I have heard that it is bread that Babul will eat'
 c.*ami [babul e_i kha-be ruTi_i] Sune-chilam
 d. ami [babul ruTi kha-be] Sune-chilam

We have suggested an analysis for a very similar constraint on the occurrence of German *zu*-infinitives in (20). This analysis applies straightforwardly to the facts in (28). The claim is that once the overt C-element *bole* is missing, the C-slot will be filled by I-to-C movement much like the movement of V+*zu* to C which we have seen in (12). According to this analysis (28d) is assigned the S-structure:

- (29) ami [_{CP} (spec) [_C [_{IP} babul [_{I'} [_{VP} ruTi e_i] [_I e_i]] kha-be_i]]]
 Sune-chilam

The verb of the embedded clause appears to be adjacent to the matrix verb, thus giving rise to a proper head/head relation. (28c) is barred because the extraposed material prevents such a relation, and – according to the present analysis – the embedded CP remains invisible to the matrix verb. Cases such as (28b) are, of course, unaffected by rightward displacement,

since here it is the left edge of the CP that must be identified by the verb.

Let us now see how the visibility condition developed for the German data can be applied to Bengali. One difference is that we have not seen a single instance of a filled specifier of C. The reason for this is that Bengali is neither a V2- nor a WH-movement-language (in the sense of overt movement to Spec-CP). We still want to say that Bengali moves WH-elements in LF, and that the WH-operator moves to or through Spec-CP. Another difference is that there is no indication of an NP-over-S strategy, which may be a consequence of the nature of the complementizers. *Bole* would not qualify, because it is [+V]; and since the complementizer *je* never arises on the Case-marking side of V i.e. to the left of it, there does not seem to be any motivation for this strategy whatever the features of *je* are. Following (13), we may then state C-visibility for Bengali as a condition on LF as in (30).

- (30) C is *visible* for its governor V at LF iff any of (i) through (iii) holds: (i) V governs a trace of CP, (ii) V is head-adjacent to C, (iii) due to SHA a feature appears on Spec-CP which satisfies V's s-selection requirements.

We have seen in this section that the syntax of Bengali, another SOV-language, offers reasons to believe that our generalization about C-visibility in German went in the right direction. Let me finally note that the presence of two distinct complementizer-like categories which appear in complementary distribution with respect to the positioning of the CP can also be observed in other SOV-languages which are outside the scope of the present investigation.³²

5. THE SCOPE OF WH

I have argued so far that finite CPs shift to a quasi A-position to the right of the verbal complex, and that WH-movement starts from a CP in this derived position and proceeds cyclically from Spec-CP to Spec-CP. Given the above discussion of CP-licensing in Bengali, we should expect roughly the same to be true in this language. Notice, however, that Bengali is primarily a WH-*in situ* language. In this section, I want to discuss some aspects of WH-scope that pertain to the question of where CPs originate in Bengali and closely related Indian languages.

5.1. Overt Wh-Movement

Let us begin with the *unusual* case. I have said before that Bengali is a WH-*in situ* language. It differs, however, from the Far-Eastern languages in

also allowing overt movement (as a less prominent option). The same has repeatedly been reported for Hindi.³³ Consider the Bengali example in (31), the Oriya examples from Bal (1990) in (32), and the Hindi example from Srivastav (1991b) in (33).

- (31) tumi [ki OSukh -e]_i bhab-cho [_{CP} e_i [_{C'} je]
 you which illness-[loc] think-[pres] that
 [_{IP} ram e_i mara gE -che]]
 Ram die go -[past]
 'Of which illness do you think that Ram died?'
- (32) a. kaahaaku_i tume bhaabucha [jadu e_i maarithilaa]?
 whom you are-thinking Jadu had-beaten
 'Who do you think Jadu had beaten?'
- b. kie_i tume bhaabucha [je e_i raamaku saahaajya kariba]?
 who you are-thinking that Rama help will-do
 'Who do you think will help Rama?'
- (33) kyaa_i tum jaante ho [ki usNE e_i kiyaa]?
 what you know that he did
 'What do you know that he did?'

If one assumes that the embedded CP is in an extraposed position i.e. in an A'-position, WH-movement should be impossible. Contrary to this expectation, however, the examples in (31) through (33) are grammatical. In order to account for (33)'s grammaticality, Srivastav (1991a,b) as well as Mahajan (1990) suggests that movement of *kyaa* takes place from a D-structure in which the CP is in c-governed position, and that this process is followed by extraposition to a righthand A'-position. We have seen that this would lead to undesirable consequences in German. I would like to point out one problem with this kind of analysis:³⁴ Bengali and most related languages permit extraposition of NPs and some other constituents. At the same time, Bengali does not observe the Left Branch Constraint of Ross (1967), i.e. an NP can split up such that the possessor part scrambles leftwards as shown in (34).

- (34) kon lok -Ta -r_i tumi [e_i notun bari] dekhe-cho?
 which man-[cl]-[poss] you new house see -[past]
 'Which man's new house have you seen?'

If remnants of WH-movement can be extraposed, we expect that such an operation will leave grammaticality unaffected. However, it does not, as the following example shows.

- (35) *kon lok-Ta-r_i tumi e_j dekhe-cho [e_i notun bari]_j?

Similar considerations hold for all the familiar cases from English and the West Germanic languages, in which the trick of remnant movement to the right would undermine the generally observed freezing effect. Thus, I believe that the old-style extraposition analysis not only is blind to the phrasal architecture of the governee, but also, in order to reach descriptive adequacy, would have to add undesirable power to the grammar of movement. The alternative is that C-initial CPs in Bengali, Hindi, Oriya etc. must shift to a clause-final A-position, and that WH-movement can proceed from there.

5.2. WH-Movement at LF

One major argument in favor of the traditional extraposition account of Bengali and Hindi complementation seems to be that extraposed CPs are scope islands. Bengali is even a nicer test case than Hindi because it allows tensed CPs to remain in c-governed position. Consider the following contrast of scope ambiguity.

- (36) a. ora [ke aS -be] Sune-che *ambiguous*
 they who come-[fut] hear-[past]
 i. 'They have heard who will come'
 ii. 'Who have they heard will come?'
- b. ora Sune-che [ke aS-be] *unambiguous*
 i. 'They have heard who will come'
 ii. NOT: 'Who have they heard will come?'

When the CP is in a c-governed position as in (36a), *ke* is allowed to take the lower *or* the higher Spec-CP as its ultimate landing site. When the CP is to the right of V, only narrow scope is allowed.³⁵ A theory in which the righthand CP-complement has been extraposed to an A'-position predicts this asymmetry straightforwardly as a CED-violation. Thus contrary to the evidence we have adduced above in favor of a righthand A-position, it seems that the traditional extraposition analysis is still needed. Given what we have said so far, we are faced with a paradox. I will next give a sketch of how this paradox can be resolved in favor of my general account of CP-licensing in SOV-languages.

6. DOMAIN EXTENSION IN SYNTAX AND AT LF

As I have shown in Bayer (1990a), Koster's (1987) theory of domain extension can be used to determine the scope of logical operators such as WH-phrases and quantified NPs (of a certain kind). The important insight here is that the notion *directionality of government* plays a central role in the determination of movement and scope. The following definitions present a generalized and updated version of the account found in Bayer (1990a).

The standard assumption is that every maximal category is a potential barrier and that there are several ways to dissolve the barrier status. As Cinque (1990: ch. 1) has argued, it may be necessary to distinguish between barriers for (antecedent) government and barriers for ("referential") binding. The following definition ignores the additional properties of the latter.³⁶

- (37) *Barrier for government* (antecedent government)
 XP is a government barrier for YP iff (i) or (ii) holds:
 i. XP is not directly selected by a head
 ii. X' includes YP, and X is a lexical head that selects YP in the non-canonical direction
- (38) *Inclusion*
 XP includes Y iff Y is dominated by X'

(38) means that something in the specifier of XP or in a segment of (i.e. adjoined to) XP will not count as included. Certain conditions have to be added to (37) to make this concept of *barrier* applicable to a broad range of extraction phenomena found in German. I will concentrate here on only the core case of extraction from a complement CP and from VP. (37) predicts among other things that extraction of something included in V' from VP is possible only if V governs it in the canonical direction i.e. in German to the *left*. I assume that VP does not have an A'-specifier, and that movement from a VP-adjoined (scrambling?) position to an operator position would be in conflict with principles of chain homogeneity.³⁷ Combining this with (38), a phrase included in V' on the righthand side cannot be extracted from VP. Consider now the necessity of shifting CPs of a certain kind to the right of V, although the language in question follows the parameter of head-finality (at least with respect to the verb's orientation). The result of this shift is a dead end both for extraction from CP and extraction of CP itself.³⁸ This concept of *barrier* allows us to derive the data in (36) without recourse to the idea that an extraposed CP is in an adjoined position. The explanation goes as follows: In (36a), *they* [_{CP} [_{IP} *who come-will*]] *heard*, *who* can move to Spec-CP and stop there. This derives the narrow scope reading; it can alternatively move on to Spec-CP of the matrix-CP, because the matrix-V c-governs CP. This derives the direct question reading. In the shifted version (36b), *they heard* [_{CP} [_{IP} *who come-will*]], the narrow scope reading can equally be derived, but the step from Spec-CP across the matrix-VP is not permitted. This precludes the direct question reading.³⁹

This brief sketch of WH-scope at LF has given an idea how the island effect of rightwards governed complements can be derived with a minimum of technical machinery. But recall now that one of the main empirical reasons for assuming CP-shift to a quasi A-position has been that overt extraction *can* proceed from it both in Bengali and in German. Precisely

this result would become unavailable if this were all that had to be said. The problem is that we have failed so far to draw a difference between LF-movement and overt movement. To make this difference clear, let me illustrate the immediately plausible situation in *sentence processing*: When processing a sentence with overt WH-movement, the first information the parser receives is that it is dealing with a constituent question. Similarly in a case of overt movement in Bengali, the matrix clause contains – even if not in Spec-CP – a constituent that invariably turns the clause into an interrogative. Nothing like that can happen for trans-clausal LF-movement. Before the WH-phrase *in situ* is encountered, nothing signals to the processor that the entire structure will count as a question. In this case, the path from the WH-item *in situ* to its ultimate scope position has to be computed on phrase structure pure. I would like to use this intuition about syntactic processing for developing an account for overt movement in these languages.

If we follow Chomsky (1993), there must be a phonetically induced (morphology related) reason for overt movement. If there were no such reason, movement would be invisible. Under the standard view that quantified expressions need scope, the driving force behind Quantifier Raising (QR) and WH-movement would be semantic necessity. Under the hypothesis that invisible movement is “cheaper” than overt movement it follows in Chomsky’s theory that any movement is procrastinated to LF unless there is a morphological trigger which forces movement in order to satisfy requirements of the phonetic-acoustic interface of the grammar. This means that there cannot be optional overt WH-movement in the traditional sense, but only *attraction* of a WH-phrase by a WH-feature for the purpose of turning it into a legitimate PF-object. Under this view it is understandable that movement of a WH-phrase is but one possibility. Pure interrogative features as S-structure signals for scope association are found in various languages.⁴⁰ (37) reflects the general situation that holds without the involvement of attraction. The overt movement case – which I take to be special – is captured by the following condition:

(39) *Debarrierization by Attraction*

- XP fails to be a government barrier for YP if
 - i. X directly governs ZP
 - ii. YP can move to an A'-operator position of ZP
 - iii. XP is c-commanded by a feature ψ such that YP is attracted by ψ for checking

Take XP to be VP where V governs a CP to its right. Then VP may fail to be a barrier for a WH-phrase if VP is c-commanded by a WH-feature that attracts the WH-phrase for checking. My claim is that the directionality barrier VP can only be crossed in the presence of an external S-structure trigger. This solution is reminiscent of Koster’s (1987: 194) suggestion

that in the case of extraposition the matrix verb governs exceptionally to the right, and that the usual directionality constraint is suspended.⁴¹ In this theory, cyclic WH-movement cannot be analyzed as it is usually done for head-initial languages like English, Romance, Scandinavian etc. Koster proposes that WH-movement in Dutch and German is only the sum of a number of local i.e. CP-internal, movements. Long WH-movement thus amounts to the "compounding" of short movements that are licensed by the directionality constraint, while the process of compounding itself is not subject to it. My own account is not only an elaboration of Koster's insight about cyclic movement in Dutch and German, but also captures the WH-scope facts of typologically weakly related languages like Bengali in a natural way. In addition, it opens up an explanation of a most peculiar difference between Dutch and German on the one hand and the Germanic VO-languages as well as Romance, Hebrew etc. on the other, all of which show more or less tolerable *WH-island violations*. Dutch and German, however, exhibit intolerance WH-island effects when WH-phrases are extracted from WH-complements.⁴² I agree with Bennis and Hoekstra (1984) and Frampton (1990) that the reason for this must be sought in the fact that (a) the WH-CP is governed at the "wrong" side, and that (b) the insertion of an intermediate trace is absolutely essential in order to cross the CP-barrier. The *Head Government Condition on Adjunction* (HGCA) of Frampton (1990: 53) states that adjunction of a WH-phrase (during a Barriers type derivation) to VP is only licit from a position that is c-governed by V. Hence VP becomes a barrier for movement from CP unless Spec-CP contains a trace. Precisely this is not possible in WH-CPs. Application of the HGCA to LF-movement (which Frampton does not talk about) would make an incorrect prediction for the extraposed WH-*in situ* case of Bengali in (36b) *they heard* [_{CP}[_{IP} *who come-will*]], but (37) and (39) can achieve the desired result for these as well as predict the special status of WH-islands in extraposing SOV-languages.

Let me finally mention that the strict ban against WH-island violations in Dutch and German presents another piece of evidence against the idea of "orderly" WH-movement and subsequent remnant extraposition of CP to an A'-position. Domain extension out of a c-governed WH-island should yield precisely the same strength of a subjacency violation, as it does in English and other head-initial languages. Extraposition of the remnant CP, being something like a "stylistic" operation, would not interfere with the licensing of the WH-traces. In the worst case, the extraposed CP could reconstruct into its D-structure position and thus erase any of the distinctions observed. In the theory presented in this article, extraposition is not an accidental process; it rather takes place in order to make clausal arguments of a certain kind visible. This process, however, suffers from the disadvantage that it bleeds certain options that exist in languages in which sentential complementation does not interfere with the verb's orientation.

7. SUMMARY

The investigation presented in this article took its start from the tension that exists between the UTAH and the fact that SOV-languages like German and Bengali have sentential arguments that regularly appear on the right side of the verb. I have suggested a number of licensing conditions for CP which crucially refer to visibility under head/head adjacency. Under normal conditions my account requires C-initial CP to extrapose in order to become visible as an argument. It has, however, been shown that extraposition in this sense cannot be couched in the traditional theory of A'-movement. I have suggested instead that extraposition is an operation of argument shift. This is consistent with the fact that movement from extraposed CPs is possible. On the other hand, argument shift to the non-canonical side of the verb destroys the formation of an extraction path along the lines of canonical government. It was shown that this theory makes correct predictions about abstractly represented (LF-derived) WH-scope in Bengali (and similar languages), and that scope extension from a CP in the derived context [V_] (i) needs a morphological trigger and (ii) can only proceed in successive cyclic moves.

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NOTES

¹ See Greenberg (1963), Mallinson and Blake (1981). Generative analyses as early as Bach (1962) and Bierwisch (1963), however, recognized and always emphasized the basic SOV-order that surfaces in clauses that are introduced with a complementizer. See also Koster (1975), who addresses the order of constituents in Dutch explicitly.

² Hoekstra (1984: 85) states the UCC as follows: "At S-structure, no element of [α N, β V]

may govern a projection of [αN , βV].” Hoekstra assumed at that time that the head of S' (CP) is [$-N$, $+V$]. We would still subscribe to this view, but only for cases where I (actually $V+I$) moves to C . One empirical goal for Hoekstra was to find a reason why Dutch *dat*-CPs should undergo extraposition instead of remaining where they are generated.

³ One of Fanselow’s examples is a case of VP-topicalization from which a WH-phrase has been stranded:

- (i) **[Gesagt [e_i daß Anette e_i liebt]]_j wüßte ich nicht [wen_j er e_j hat]*
 said that Anette loves knew I not whom he has
 intended: ‘I would not know who(m) he said that Anette loves’

The reason for the ungrammaticality is obviously that the VP-chain interferes with the WH-chain; see Müller and Sternefeld (1993) for detailed discussion of unambiguous binding.

⁴ The issue is too intricate to discuss in detail here. One suggestion for German V2 (see von Stechow and Sternefeld 1988: 399f) that does not refer to the ECP is that there is a feature clash because V2-clauses are [$+V$], while *es* is [$+N$]. Notice, however, that V2-clauses are licensed after pronominal adverbs i.e. in a position which is certainly an A'-position (as shown by its islandhood):

- (i) weil er [_{PP} da/mit] gerechnet hat [_{CP} man würde ihn befördern]ⁱ
 because he there+on counted has one would him promote
 ‘because he thought that one would promote him’

Cinque (1989) suggests that *da* is not in an A-position, and that the V2-CP could reconstruct into an empty A-position to the right of P . This proposal is problematic for various reasons, the most serious being that there should be reconstruction into a trace from the *right* periphery; (see Bayer (1990a) for arguments against such a view). I would tentatively suggest that *da* differs from *es* in being underspecified for the nominal feature. Assume now that postpositional P as in (*da*)*mit* is strictly subcategorized by the verb, and that $P+V$ retains the verb’s potential to license a Case, which here would be a “verbal Case”. Since *da* (as opposed to *es*) is not able to receive Case, although it occupies an A-position (in Spec-PP), this potential is transmitted to the phrase coindexed with *da*. Notice that *da* being categorically underspecified will be compatible with [$+V$] and as such permits coindexation with a V2-clause.

⁵ Bennis and Hoekstra (1989) propose that extraposition and verb raising is forced by *T(ense)-Linking*. According to their theory a verb has to be identified by a tense operator. Similarly, the tense of an embedded clause has to be connected to the tense of its governing domain. For [CP , VP] T-linking can only be achieved if V moves to the T-head, and the CP becomes a sister of a chain link of the matrix T-chain. Unfortunately it also remains unclear how this theory could deal with German infinitival constructions as well as with the Bengali cases that will be discussed in section 4; see also Reuland (1991).

⁶ The intervention of auxiliaries between V and CP ceases to be a problem if one realizes that auxiliaries and modals are (V-)raising verbs. It is not essential here whether V-raising is taken to be incorporation as in Baker (1988) or formation of stacked categories as in Bayer (1990a) and Bayer and Kornfilt (1990, 1994). In each case it can be guaranteed that a righthand CP formally turns out to be a sister of the licensing verb.

⁷ This is reminiscent of Safir’s (1982) idea that each CP must have a unique governed head and that I-to-C can make I visible to government from outside; SHA still seems to be indispensable, however, as we will see immediately.

⁸ We will turn to this below.

⁹ Cf. Koperberg (1987) and Veld (1993) for Dutch.

¹⁰ The verb *drängen* (“urge”), for example, is not a restructuring verb, and is thus likely to govern a CP. Notice that $CP+V$ can still topicalize to Spec-CP, which is a good indica-

tion that CP has remained *in situ*, while remnant topicalization as in (ii) is bad, which indicates that *drängen* does not permit clause union:

- (i) [vp [CP PRO zu bleiben] gedrängt]] hat sie ihn bestimmt nicht
to stay urged has she him certainly not
'She has certainly not urged him to stay'
- (ii) *[e_i zu bleiben gedrängt] hat sie ihn [bei ihr]_i bestimmt nicht
to stay urged has she him with her certainly not
'She has certainly not urged him to stay with her'

¹¹ NP-over-S looks parochial and, at first sight, seems to violate X'-syntax. But this is not actually the case. Weibelhuth (1989: ch. 4) has argued convincingly that *daß* is [+N], and that only (embedded) V2-clauses are [+V]. If he is right, this would speak against the UCC for obvious reasons, and at the same time it would be possible to supply CP with an NP-shell because there would be no feature clash.

¹² Cf. Haider (1990).

¹³ Thanks to Probal Dasgupta and Henk van Riemsdijk, who drew my attention to these and similar facts in Bengali and German respectively.

¹⁴ Similar facts involving rightwards moved categories have been reported in the literature on other head-final languages. Hasegawa (1990) gives the following examples of right dislocation from Japanese:

- (i) a. John-ga e_i tabeta yo susi -o_i
John-NOM ate sushi-ACC
b. *Mary-ga [John-ga e_i tabeta yo susi -o_i] to omotteiru
Mary-NOM John-NOM ate Sushi-ACC C is-thinking

The following Turkish data from Kornfilt (1990) show similar cases of rightward movement (referred to as 'leaking' or 'toppling'):

- (ii) a. [Herkes [Ahmedin e_i aşik olduğunu] biliyor] teyzesine_i
everybody Ahmet in-love-be knows with-his-aunt
'Everybody knows that Ahmet is in love with his aunt'
b. *Herkes [[Ahmedin e_i aşik olduğunu] teyzesine_i] biliyor

See also Kural (1992) for similar observations.

¹⁵ In a talk at the Germanic Comparative Syntax Workshop, Tromsø 1992, Mark Lencho independently argued that English *to* is in C.

¹⁶ *zu*-Infinitives to the right of V must – according to my view – be in an A-position because one can extract WH-phrases from them, and one can, in the presence of certain matrix verbs, even scramble definite NPs into the matrix-IP (see Bayer and Kornfilt 1990, 1994). For *zu*-infinitives to the right of V which are not subject to clause union effects I assume a CP-structure roughly as in (i).

- (i) [CP (spec) [C [C Ø] [IP PRO [I [vp . . . [I zu]]]]]]

Various speculations come to mind as to why after V-to-I *zu*+V may not move to C as is the rule in V2-sentences, but I will not try to pursue them here.

¹⁷ The position of Spec-CP is irrelevant for my purposes. I assume its potential existence because one can extract from infinitival CPs rather freely. Notice, however, that in German there is no overt syntactic evidence comparable to Spec-CP in tensed CPs e.g. it is not a possible landing site for WH. One may see a problem for the attachment of the extraposed relative clause in (11e). Movement would have to cross at least one barrier. Notice that the

extraposition of argument CPs from such contexts is quite bad. This suggests that the relative clause is not licensed by movement, a view that is familiar from the literature (see Culicover and Rochemont 1990).

¹⁸ Notice that we cannot use SHA here, even if we were able to show that *zu*-infinitives have a righthand Spec-CP. The extraposed material cannot be in Spec-CP for the simple reason that extraposition where grammatical never blocks WH-movement.

¹⁹ With data of a rather different kind in mind (mainly restrictions that hold in various languages between prenominal adjective and noun as well as noun and postnominal genitive), van Riemsdijk (1992) characterizes *head adjacency* as follows.

- (i) a. $*[_{XP} \dots X^0 W_1] W_2 H^0$ unless $W_1, W_2 = \emptyset$
 b. $*H^0 W_2 [_{XP} W_1 X^0 \dots]$ unless $W_1, W_2 = \emptyset$

The German data considered here exemplify a case of violation which can be couched in the filter (ia) as shown in (ii).

- (ii) $*[[_{XP} \dots X^0] W_1] H^0$ where some phrase W_1 is adjoined to XP (see (11d)).

(ii) may be taken as an instance of a head adjacency violation, depending on our assumptions about the position of Spec-CP. Notice that there is no indication that the intervention of W_2 could affect the licensing of CP as long as the CP is scrambled, topicalized or visibly extraposed, (though it does in some of the cases van Riemsdijk considers).

²⁰ See Mahajan (1990), where this notion is employed for certain kinds of scrambling.

²¹ This is essentially Baker's (1988: 64) *Government Transparency Corollary*, which says that a lexical category which has an item incorporated into it governs everything the incorporated item had governed in its original position.

²² See Chomsky (1993) for the theoretical background of this notion.

²³ Cf. Bayer (1990a).

²⁴ Following a suggestion by Probal Dasgupta, I will adopt the following conventions for the transcription of Bengali: T, D for retroflex stops, c, j for palatal stops, S for a palato-alveolar fricative, N for a velar nasal, Y, W for mid and y, w for high semi-vowels, E, O for low vowels; M indicates the nasal quality of a preceding vowel; after a consonant, h indicates aspiration. [cl] stands for *nominal classifier*. For the representation of examples from other Indian languages I follow the sources from which I drew them.

²⁵ For relevant discussion see Singh (1980), Dasgupta (1980, 1984, 1987), as well as Bal (1990) on Oriya, a closely related language spoken in the state of Orissa i.e. in the immediate vicinity of West Bengal. What I have to say here is mainly based on these works. I will refer to both elements as *complementizers*, although this may ultimately turn out to be too gross a simplification.

²⁶ Indo-Aryan languages such as Bengali, Marathi, Oriya etc. are likely to have borrowed this use from Dravidian; cf. Telugu *-ani*, Tamil *endru*, Kannada *anṭa*, Malayalam *-enna*, all of which are clause-final.

²⁷ In his study of complementizers in Oriya, Bal (1990) gives examples of extraposed CPs which are headed by the final complementizer *boli*. He seems to take these as grammatical, but then adds that they are "not typical" and that they "usually occur *in situ*, in the expected pre-head complement position, . . ." (pp. 6f). Alice Davison (p.c.) informs me that C-final clauses can occasionally be extraposed in Dravidian. For my argumentation this is not relevant as long as these extrapositions have a marked character. Notice that *je*-clauses and German *daß*-clauses never have a marked character.

²⁸ One problem to which we cannot turn here is that *je*-initial CPs are *always* impossible unless the CP appears in extraposed position. In this way it clearly differs from German *daß*. Dasgupta's (1987) suggestion that *je* may be banned from first position because it is an enclitic does not help, because it does not encliticize when CP is extraposed. I tend to believe that the free availability of head-final CPs (with *bole*- or zero-C) has given rise to

a situation in which *je*-initial CPs are never generated to the left of the verb. Here, the system seems to have radically departed from head finality.

²⁹ Bal (1990) argues that *je* is *never* a complementizer. He suggests that it is some kind of WH-element that has to be coindexed with an operator for "emphasis" when the *je*-CP is to the left of the verb, while *je* has to undergo WH-movement when the CP is extraposed. In Bal's analysis this is so, because *je* has to be coindexed with the trace of CP or pro. For the extraposition case he proposes the structure in (i):

- (i) $[_{IP} \dots e_i/pro_i V [_{CP} je_i [_C \emptyset [_{IP} \dots e_i \dots]]]]$

At least five questions arise from this analysis. First, it is unclear what *je* binds. If it does not bind anything, the structure would be ruled out as a case of vacuous quantification; second, if *je* is a WH-item, how is it possible that a "believe"-type verb (Oriya *bhaab-*) can c-select a *je*-CP? Third, as Bal himself notices, Oriya does not tolerate WH-island violations. Therefore he has to assume a second specifier position in order to allow extractions from *je*-clauses which do occur in this language (see also section 5 of this article). Fourth, it remains unclear how WH-extraction from CP could be possible at all, given that CP is in an extraposed position and should thus behave like an island. Fifth, although *je* must be (historically) related to the relativization operator of non-correlative relatives, this cannot be a reason for functionally identifying the two. Notice that complementizers in Germanic (*that*, *dat*, *daß* etc.), Romance (*che*, *que* etc.), Slavic (*што*, *ко* etc.) and Greek (*oti*) clearly derive from WH-operators, while it would be hard to argue that they function as WH-operators in the modern languages. I assume that the same reasoning applies to the grammars of modern Bengali and Oriya.

³⁰ Something to this extent has explicitly been stated in Sinha (1990). Head/head adjacency does, however, not mean that the CP-complement is immobile. As (i) and (ii) show, both types of CPs can shift in their respective domains to the left or to the right of the verb:

- (i) chele-Ta Sune-che e, *Ek ghonTa age* $[_{CP} je$ or baba aS -be],
 boy -[cl] hear-[past] one hour ago that his father come-[fut]
- (ii) chele-Ta $[_{CP}$ or baba aS-be bole], *Ek ghonTa age* e, Sune-che

³¹ This has been pointed out to me by Probal Dasgupta (p.c.); see also footnote 13. For important related observations see Dasgupta (1993).

³² For Marathi and Kashmiri cf. Wali (1988). Turkish has final complementizers like *-dik* and *-mA/-mAk* alongside the initial *ki* which has been borrowed from Persian (see Underhill (1976), Kornfilt (1984), Kural (1992) and Veld (1993: ch. 7), among others). Koopman (1984: ch. 3) observes that in the head-final language Vata the final complementizer *ka* appears only in the context $[_{CP} \dots ka] V$, whereas the initial C-like element *na* ("to say") always must precede an extraposed clause. Koopman argues against taking *na* as a complementizer, but her own analysis (p. 96) is not quite compatible with modern X'-syntax, where functional elements head their own projections.

³³ See Davison (1988), Mahajan (1990: ch. 3), Sinha (1990), Srivastav (1991a: ch. 7, 1991b) and others. These works show that there is long scrambling of NP which may even lead to a Case position, as has been observed in many languages (including certain varieties of British English, Mark Steedman (p.c.) – e.g. *This is the man whom I believe went to the post office*; Richard Kayne (p.c.) informs me that for English the original observation is due to Otto Jespersen).

³⁴ Another problem is pointed out at the end of section 6.

³⁵ Observations to this effect have independently been made by Wali (1988) about Marathi and Kashmiri; to my knowledge Wali is the only researcher who has tried to explain the left/right asymmetry in terms of Connectedness Theory (Kayne 1983).

³⁶ The following additional definitions incorporate Chomsky's (1986) notion of *Barrier* as well as Rizzi's (1990) notion of *Relativized Minimality*.

- (I) *Government*
 α governs β iff
 - (i) α c-commands β and
 - (ii) there is no γ , γ a barrier for β and
 - (iii) Relativized Minimality is respected
- (II) *C-Command*
 α c-commands β iff α does not dominate β , and every γ that dominates α also dominates β

(I) guarantees that α cannot govern β when a barrier γ intervenes and/or there is an intervener δ which is of the same syntactic/semantic type (A', A, X-zero) as α .

³⁷ See Chomsky (1986: 73 ff) and Müller and Sternefeld (1993).

³⁸ Notice that this yields an explanation for the ill-formedness of (19c); it also accounts for the fact that Dutch and German PPs are barriers for extraction unless they have a specifier (that hosts a so-called *R-pronoun*); the reason is that P' includes DP on the right side.

³⁹ Veneeta Srivastav (p.c.) suspects that *bole* is not a complementizer, and that sentences with *bole* do not allow for a narrow scope reading. The latter is indeed the case. The following sentences differ with respect to the scope of *kothay* ("where"):

- (i) ram [kothay ja -be] likhe-che
 Ram where go-[fut] write-[past]
 - a. Ram wrote where he will go
 - b. Where did Ram write he will go?
- (ii) ram [[kothay ja-be] bole] likhe-che
 - a. (not available)
 - b. (same as in (i))

I think that there is still no reason to assume that *bole* is not a complementizer. Our discussion of German has shown that V2-complements cannot have a [+WH]-phrase in Spec-CP (SpecV+I), and we have argued that this may be due to a feature clash for SHA. Given that *bole* ("having said") is a verbal form (which even seems to have retained its semantic transparency for the speakers), SHA would make the same prediction for Bengali. Intermediate traces, on the other hand, do not leave features in Spec-CP (see Lasnik and Saito 1984). Therefore, the wide scope construal is possible.

⁴⁰ Some Indo-European and non-Indo-European languages use interrogative pronouns meaning "what" as scope markers; Japanese uses the clause-final particles *ka* and *mo*.

⁴¹ Koster (1987: ch. 4) captures directionality of government with a uniformity condition which he calls the *Condition of Global Harmony*; see also Bayer (1990a).

⁴² See among others Koster (1978, 1987), Bennis and Hoekstra (1984), van de Koot (1988), Frampton (1990), Bayer (1990b), Cinque (1990: 169) and Sternefeld (1991). The restrictions are relaxed when referential topic objects are extracted; cf. Fanselow (1987, 1990), Bayer (1990b), Sternefeld (1991) and Müller (1993: ch. 6).

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