

The universal base hypothesis: VO or OV?*

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1. Introduction: the Branching Constraint

The universal base hypothesis postulates that all languages have the same underlying word order, which is advantageous because it simplifies language acquisition. According to Kayne's (1994) Linear Correspondence Axiom (LCA), this order is VO so that the OV-languages are derived by leftward movement of various types of VP-internal constituents: DP-objects, PP-objects, predicative phrases, etc. Haider (1997a) and Barbiers (2000) propose an underlying OV-order and claim that this gives rise to a simpler grammar, since the VO-languages can be derived by means of a single operation, namely V-movement across the VP-internal constituents. This paper will argue that this simplification is only apparent.¹

I start with a brief discussion of Haider's (2000) Branching Constraint (slightly different formulations can be found in Haider 1997a,b; section 3.2 will discuss the somewhat extended version from Haider 2003).

- (1) Branching Constraint (BC): Projection-internal branching nodes on the (extended) projection line *follow* their sister node.

The BC conspicuously differs from the LCA in that it allows both the complement-head and the head-complement order when we are dealing with a lexical head L, as in (2a,b). Both structures satisfy the BC, because there is no branching projection of L that occupies a left branch. The complement of L, the branching node XP, may precede L since it is a complete extended projection.

- (2) a. VO-language: [_L' L XP]
b. OV-language: [_L' XP L]

The choice between the two structures in (2) depends on a parameterized option on the directionality of licensing of arguments: VO-languages license their arguments from left to right, so that (2a) is selected; OV-languages select (2b) because licensing goes into the opposite direction.

The BC forces the branching projection L' in (2) to follow the specifier YP of L, as in (3). In OV-languages nothing more is needed, since YP is also licensed from the right by L. In VO-languages, however, YP must be licensed from the left, and this forces movement of L into a position preceding YP, which gives rise to a Larsonian shell structure. By assuming that head movement is subject to Last Resort, it follows that shell structures do not arise in the OV-languages.

- (3) a. VO-languages: $[_{LP} YP [_{L'} L XP]] \Rightarrow [L [_{LP} YP [t_L XP]]]$
 b. OV-languages: $[_{LP} YP [_{L'} XP L]]$

Note in passing that Barbiers (2000) adopts a slightly different proposal, according to which object-DPs are invariably generated to the left of the verb, the base-position to the right of the verb being a designated position for verbal complements; VO-orders with nominal arguments are therefore always the result of leftward verb movement.

Since the BC forces specifiers to be on a left branch (cf. (3)), it also predicts that there is no rightward substitution movement, because in the resulting structure in (4b) the projection-internal branching node F' precedes its specifier, the moved phrase WP: the only possibility is therefore as in (4a).

- (4) a. $[_{FP} WP_i [_{F'} F [_{LP} YP [t_i L]]]]$
 b. $*[_{FP} [_{F'} F [_{LP} YP [t_i L]]] WP_i]$

If we further assume that the notion of projection-internal branching node is insensitive to the category/segment distinction, the BC also blocks right-adjunction to phrases, irrespective of the question whether it is the result of base-generation or movement (see fn.5 for some remarks on head-adjunction): in the primed examples in (5) the lower XP-segment precedes the adjoined phrase, and therefore these structures are blocked; in the prime-less examples the lower segment follows the adjoined phrase, and the structures are admissible.

- (5) a. $[_{XP} YP [_{XP} \dots]]$ a'. $*[_{XP} [_{XP} \dots] YP]$
 b. $[_{XP} YP_i [_{XP} \dots t_j]]$ b'. $*[_{XP} [_{XP} \dots t_j] YP_i]$

Finally, the BC blocks rightward placement of a functional head F if FP is an extended projection of the lexical head L : in (6) the branching projection LP is internal to the extended projection FP and it must therefore follow its sister F .

- (6) a. $[_{FP} \dots F [_{LP} YP [_{L'} XP L]]]$
 b. $*[_{FP} \dots [_{LP} YP [_{L'} XP L]] F]$

The difference between Kayne's LCA and Haider's BC that I will focus on in this paper is that whereas the former forces heads to precede their complements in general, the latter does so only with functional heads that are part of an extended projection of a lexical head. The BC allows lexical heads to either precede or follow their complements, so that both VO and OV orders can be base-generated, depending on the licensing direction of the language.

2. The LCA, the BC and movement

According to the LCA, the (primary) complement of a verb is base-generated to the right of the verb, so that when it surfaces to the left of that verb, as in OV-languages, it must have been moved leftwards across the verb. This raises the question of what triggers this movement in these languages. When the complement of the verb is a direct object, finding a trigger for the movement is not difficult: obvious candidates are the ϕ - and/or case features on the verb. For example, Broekhuis (2000) has argued that the OV order in German and Dutch is due to overt movement triggered by the ϕ -features on V , whereas the case feature on v is responsible for triggering Scrambling (cf. Chomsky 2005, where it is also assumed that V is endowed with ϕ -features, with the difference that V receives these features under inheritance from v).

In other cases, however, identifying a trigger is not so easy: predicative complements like *groen* 'green' in (7a), for example, are normally assumed to be generated as a complement of the verb, but it is not *a priori* clear what triggers the movement into the preverbal position in (7b). When we adopt the BC, the trigger problem does not arise, since we can simply assume the surface order in (7a) to be base-generated.

- (7) a. dat Jan het hek groen verft.
 that Jan the gate green paints
 b. dat Jan het hek groen_i verft t_i

The derivation of the English order in (8a) is much alike in the two approaches. When we adopt the LCA, there are two possibilities: one option is to assume that

the verb takes a small clause complement, so that the order in (8a) is base-generated and nothing more need be said. Alternatively, one may follow Hale and Keyser (1993) in assuming that the structure is as given in (8b), in which the predicate and its subject are generated as the complement and the specifier of V, respectively, and the surface order is derived by moving V to *v*. In the alternative approach, there are also two options. Haider (1997a) assumes a structure comparable to (8b): he claims that the verb and the predicate form a complex predicate, and thus share the argument *the gate*. Since the object must be licensed by the verb from the left, the latter must undergo head movement. Alternatively, one may adopt Barbiers' (2000) claim that non-verbal complements are always base-generated in preverbal position: the only thing required then is verb movement across the small clause, as in (8c).

- (8) a. that John painted the gate green.
 b. that John painted_i [_{VP} the gate [_{t_i} green]]
 c. that John [painted_i [_{SC} the gate green] *t_i*]

Haider and Barbiers have claimed that their approach is superior to the LCA, because it solves the trigger problem discussed above by making it possible to derive the VO- and OV-orders without taking recourse to leftward movement of arguments or predicative complements: all we need is leftward verb movement, which seems independently needed. This argument of course only holds water if verb movement of the type discussed above indeed suffices to derive all the established word orders. The remainder of this article will argue that this is not the case, and, consequently, that it remains an open (empirical) question whether base-generated OV-orders should be allowed or not.²

3. Complex verb constructions

This section will show, on the basis of complex verb constructions, that in the theories of Haider and Barbiers head movement of the type discussed earlier does *not* suffice to derive the established orders between arguments and predicates on the one hand and verbs in complex verb constructions on the other. Because Haider (2003, 2005) and Barbiers (2005) have divergent ideas on these constructions I will discuss these in separate subsections.

3.1. Barbiers' theory on complex verb constructions

Barbiers (2000) claims that verbal complements (CPs, IPs and VPs) are base-generated on a right branch, that is, in the VO-order. Barbiers (2005) further shows that adopting this assumption makes it possible to derive all and only the

attested verb orders in three-verb clusters by assuming that the modal and auxiliary verbs contain unvalued (mood/aspectual) features that agree with and may therefore trigger phrasal movement of a more deeply embedded VP (cf. Broekhuis 1997 and Haegeman 1998 for similar proposals). This is shown in the representations in (9a-e), in which V_1 refers to the highest auxiliary or modal verb, and V_3 to the main verb: (9f) is not attested and cannot be derived because movement of VP_2 across V_1 would Pied Pipe VP_3 .³

- (9)
- a. $V_1-V_2-V_3$: [VP_1 V_1 [VP_2 V_2 [VP_3 ... V_3]]]
 - b. $V_1-V_3-V_2$: [VP_1 V_1 [VP_2 [VP_3 ... V_3] V_2 t_{VP3}]]]
 - c. $V_2-V_3-V_1$: [VP_1 [VP_2 V_2 [VP_3 ... V_3]]] V_1 t_{VP2}]
 - d. $V_3-V_2-V_1$: [VP_1 [VP_2 [VP_3 ... V_3] V_2 t_{VP3}] V_1 t_{VP2}]
 - e. $V_3-V_1-V_2$: [VP_1 [VP_3 ... V_3] V_1 [VP_2 t'_{VP3} V_2 t_{VP3}]]]
 - f. $*V_2-V_1-V_3$

The crucial thing for the present discussion is that the nominal arguments of the main verb are base-generated in the positions of the dots. The surface realization of these arguments need not, however, coincide with these positions. This is illustrated in (10), adapted from Haegeman (1992), for the possible surface realizations of indirect and direct objects in West-Flemish constructions with a $V_1-V_2-V_3$ sequence.

- (10)
- a. (NP_{subj}) V_1 V_2 IO DO V_3
 - b. (NP_{subj}) V_1 V_2 DO V_3
 - c. (NP_{subj}) IO V_1 V_2 DO V_3
 - d. (NP_{subj}) V_1 IO DO V_2 V_3
 - e. (NP_{subj}) IO V_1 DO V_2 V_3
 - f. (NP_{subj}) IO DO V_1 V_2 V_3

Under Barbiers' assumptions, verb movement therefore does not suffice. The most plausible assumption is that the objects undergo leftward movement, which would imply that object movement is also needed when we postulate an underlying OV-order. Note in passing that in view of the analysis in (9), it is somewhat surprising that Barbiers opposes object movement. After all, (9) already presupposes that leftward phrasal movement can be triggered by features on the verbs, so that we cannot assume that there is a general ban on movement of this type. Consequently, the standard assumption that object movement is triggered by the ϕ - and/or case features on the verb(s) is fully compatible with the underlying assumptions in Barbiers (2005).

If a resultative adjective like *groen* in (7) is analyzed as a predicative complement of the main verb, we have to draw the conclusion that Barbiers also needs some form of predicate movement. Consider the two-verb construction in (11). Under the OV-analysis, the order in (11a), which is a possible order in the VPR-languages, is base-generated. The order in (11b) is, however, also possible (and even obligatory in Dutch), so that under Barbiers' assumptions we again need an additional mechanism that places the predicate in front of the finite verb. The most plausible assumption is that this involves leftward movement of the predicate (or the complete small clause; cf. the discussion above example (19)).

- (11) a. dat Jan het hek wil [groen verven]
 that Jan the gate wants green painted
 'that Jan wants to paint the gate green.'
 b. dat Jan het hek groen_i wil [_{t_i} verven]

We have seen above that Barbiers' assumption that verbal (VP/IP) complements are base-generated to the right of the selecting auxiliary/modal verb inevitably leads to the conclusion that apart from verb movement we need an additional stipulation to allow arguments and predicative complements to precede the clause-final verb sequence. This suggests that also in Barbiers' framework leftward movement of arguments and predicates is needed. This voids the argument in favor of underlying OV-orders.

3.2. Haider's theory on complex verb constructions

Haider's (2003) proposal differs from Barbiers' in that it does not assume VP/IP complements to be base-generated in the VO-order in Dutch and German; these complements are subject to the same licensing requirements as DP-arguments and predicative complements, and therefore cannot follow their selecting verb in the OV-languages.⁴ The base-order of the verbs is therefore the inverse of what is assumed by Barbiers: V_3 - V_2 - V_1 , where V_3 again refers to the main verb.

Of course, this raises the question how the verb orders in (9a-e) can be derived, and how the permutations of the verbal sequence in (10a-e) come about. One option that comes directly to mind is rightward VP-movement, but this is excluded by the ban on rightward movement (cf. (4) and (5)). Moreover, this proposal would imply some form of leftward argument/predicate movement, since rightward VP-movement would pied pipe the VP-internal material.

Another option, which would be more in line with Haider's BC, is leftward movement of the selecting verb in front of its VP/IP complement, but this would run into the problem that there is no trigger for this movement; verb movement is only possible if it establishes the required licensing configuration, and in this

case verb movement would actually *destroy* it. In addition, this proposal would also imply some form of leftward argument or predicate movement, since if the selecting verb precedes its VP-complement, it also precedes the latter's arguments.

The ban on rightward movement and 'untriggered' verb movement as well as the claim that leftward movement of arguments and predicative complements does not occur force Haider to adopt an entirely different approach to complex verb constructions. His proposal is based on the reformulation of the BC in (12).

- (12) Branching Constraint: Projection-internal branching nodes on the (functionally or lexically extended) projection line *follow* their sister node.

For our present purposes, it suffices to say that the intended effect of this reformulation is that not only functional heads but also auxiliaries and modal verbs are part of the extended projection of a lexical verb. As far as linearization is concerned, (12) therefore predicts that, like functional heads, auxiliary and modal verbs precede their complement, as in (13a); cf. the discussion of (6).

- (13) a. $[_{VP1} \dots V_1 [_{VP2} \dots V_2 [_{VP3} \dots V_3 \dots]]]$
 b. $*[_{VP1} \dots [_{VP2} \dots [_{VP3} \dots V_3 \dots] V_2] V_1]$

In OV-languages, however, the structure in (13a) violates the requirement that the verbal complement must be licensed from the right, and it is easy to see that this cannot be repaired by means of leftward verb movement.

Since the projection of the lexical verb can neither precede nor follow the auxiliary/modal verb in the OV-languages, Haider concludes that the verbs are inserted as a *cluster*, and that the thematic properties of the main verb are simply inherited by the whole cluster. Within the cluster, the main verb precedes the higher ones in order to satisfy the licensing condition. Instead of (13a), we therefore have the structure in (14), where the dots indicate the arguments of the main verb V_3 .⁵

- (14) $[_{VP} \dots [[V_3 V_2] V_1]]$

Let us now first consider Haider's (2003) account of the word order variation within verb clusters (cf. (9)). Haider claims that this variation is the result of verb movement within the cluster. He distinguishes two types of verb movement: right-adjunction of V_{N+1} to V_N and left-adjunction of a verb to the full cluster. Haider assumes that these types of verb movement are essentially similar to the

verb movement type that we find in Verb-Second constructions. Most noticeably, all these verb movements are assumed to obligatorily strand verbal particles, like *op* in (15).

- (15) a. dat Jan dat boek opbergt.
 that Jan that book prt.-files
 b. Jan bergt dat boek op t_{bergt}

Assuming right-adjunction readily accounts for examples like (16a), in which the particle precedes the verbal sequence. This order can be derived by first adjoining the main verb *bergen* to the modal verb *moeten*, while stranding the particle *op*, followed by movement of the complex *moeten+bergen* to the modal verb *zal*.

- (16) a. dat Jan dat boek op zal moeten bergen.
 b. dat Jan dat boek [opbergen moeten] zal] \Rightarrow
 dat Jan dat boek [op t_{bergen} moeten+bergen] zal]] \Rightarrow
 dat Jan dat boek [op t_{bergen} $t_{\text{moeten+bergen}}$] zal+moeten+bergen]]

Left-adjunction to the verb cluster is needed to account for the order in (17a), in which the particle remains adjacent to the main verb. Since right-adjunction of the verb obligatorily strands the particle, that is, since the particle cannot permeate the verbal cluster by Pied Piping, the only option to derive the order in (17a) is by leftward movement of the two modal verbs.

- (17) a. dat Jan dat boek zal moeten op bergen.
 b. dat Jan dat boek [[opbergen moeten] zal] \Rightarrow
 dat Jan dat boek [zal [[opbergen moeten] t_{zal}]] \Rightarrow
 dat Jan dat boek [zal [moeten [[opbergen t_{moeten}] t_{zal}]]]

In order to derive the order in (18a), it must be assumed that the two types of verb movement may also apply simultaneously.

- (18) a. dat Jan dat boek zal op moeten bergen.
 b. dat Jan dat boek [[opbergen moeten] zal] \Rightarrow
 dat Jan dat boek [op t_{bergen} moeten+bergen] zal]] \Rightarrow
 dat Jan dat boek [zal [op t_{bergen} moeten+bergen] t_{zal}]]

Although Haider does not discuss this, it does not seem difficult to derive all the attested word orders in (9) by placing special restrictions on the application of

the two movements types. Certain orders, like V_1 - V_2 - V_3 discussed above, can even be derived in more than one way. It seems harder, however, to block the unattested order V_2 - V_1 - V_3 in (9f). For example, in the derivation in (17b) I followed Haider's implicit assumption that left-adjunction involves tucking in (cf. example (39) in Haider 2003), since if we did not assume this to be obligatory, the unattested order in (9f) would be derived. Furthermore, in order to block this order we must also assume that left-adjunction of V_2 across the structurally higher V_1 is excluded.

So far, Haider's proposal does not account for the surface realization of the arguments in (10): it is predicted that the clause-final verbal sequence always follows the arguments of the main verb, because these precede the verb cluster: $[_{VP} IO [_{V'} DO [_{V} V-V]]]$. In order to allow for the orders in (10), Haider proposes that the verbs cannot only be left-adjoined to the verbal cluster but also cluster-externally, that is, to one of the *projections* of the verbal clusters.

Now that we have a more or less complete picture of Haider's proposal, it is time to evaluate it, and see how it fares compared to the LCA-based proposals. Recall that the main problem under discussion is that the LCA forces us to assume leftward movement of elements for which no *a priori* trigger is available. How serious is this problem? Since leftward movement of DP-complements is normally assumed to be triggered by the ϕ - and/or case features on the verb, and since we can simply follow Barbiers (2005) in assuming that leftward VP-movement is triggered by the mood/aspectual features on the modal or auxiliary verb, the problem mainly involves leftward movement of predicative phrases, which is needed to derive examples like (11b), and verbal particles, which is needed to derive examples like (16a) and (18a). Since it has been claimed that the verbal particles are also predicative complements (Den Dikken 1995), these problems actually reduce to a single one. A solution to this problem can be found in Broekhuis (2005, in prep.), where it is claimed that agreement in ϕ -features between a predicative phrase and its DP-subject makes it possible for V to attract the full small clause instead of the DP: the structure of examples like (7a) therefore involves leftward movement of the full small clause: *dat Jan* [_{SC} *het hek groen*]_i *verft* *t_i*.

Haider's theory, on the other hand, requires a large set of assumptions that are not needed in the LCA-based approaches. Some of these are given in (19).

- (19) a. Directionality parameter
- b. Base insertion of verb clusters
- c. Excorporation of verbs from the verb cluster

The directionality parameter is not needed within the LCA-based approaches, but this is balanced by the fact that the latter need, e.g., EPP-features that force leftward movement of arguments to compensate this. A serious drawback of assuming a directionality parameter is, however, that linearity continues to play a role in the syntax, whereas the LCA-approaches can entertain a fully hierarchical view on syntax. Haider's approach also differs fundamentally from the LCA-based approach in that it crucially requires postulation of base-generated verb clusters, which in turn requires several additional mechanism which were not extensively discussed here, such as 'pooling' of the arguments of the verbs in the cluster (Haider 2003). It also requires assumption (10c) that verbs can exorporate from the verb cluster in order to derive Verb-Second constructions or the permuted verb sequences in (10a-e).

An even more serious problem is that we need to postulate the verb movements in (20), for which, as Haider (2003:117-18) himself acknowledges, there is actually no syntactic trigger.⁶ Recall from the discussion of (3) that verb movement in English is motivated by the fact that it establishes the required licensing relation between the verb and its object. In the derivation of the Dutch example (16a), however, the licensing relation is destroyed rather than created by rightward movement of the verbs. The same holds for the leftward verb movements involved in the derivation of (17a).

- (20) a. Rightward adjunction of verbs to verbs
- b. Leftward adjunction of verbs to:
 - (i) the verb cluster
 - (ii) higher verbal projections

Finally, the stipulation that leftward movement may target the cluster or any other higher verbal projection seems merely dictated by the data in (10), and does not follow from any independent principle.

4. Conclusion

This paper has investigated Haider's and Barbiers' claim that assuming an underlying OV-order is preferable to assuming an underlying VO-order, since in the latter case a set of phrasal movements must be assumed for which no *a priori* trigger is available. I have shown, however, that the same movements are also needed when we adopt Barbiers' (2005) analysis of complex verb constructions. Haider's (2003) analysis of complex verb constructions indeed makes these movements superfluous, but at the same time requires the postulation of a set of verb movement operations that likewise lack a trigger. We must therefore

conclude that these OV-approaches run into similar problems as the LCA-based VO-approaches. The question which of these approaches is to be preferred therefore depends on the question whether this problem can be solved in a satisfactory way.

Notes

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¹ This paper will not challenge Haider's and Barbiers' claim that the main difference between English and Dutch is that the former has V-movement, whereas the latter does not. I believe that this is basically correct (cf. Broekhuis 2000, in prep.); there is compelling evidence that the leftward movements needed for Dutch also applies in English (cf. e.g. Lasnik 1999 and Hornstein 1995 for object movement), and that in English the VO-order is actually *restored* by V-to-v.

² Two other arguments have been given in favor of the OV-approach, which I can only briefly address here. The first is that no movement of the complements is needed to derive the OV-order, which immediately accounts for the fact that English and Dutch have basically the same surface order of constituents. This, of course, also follows from my proposal in note 1 that the leftward movements postulated for Dutch apply in English as well. The second is that the OV-approach immediately accounts for the fact that preverbal phrases are transparent for movement in the OV-languages; since the object is not moved into preverbal position, Freezing is not expected. In the VO-approach, we may account for the lack of Freezing by assuming that subextraction from XP is only possible if XP occupies the lowest position in which it could *in principle* appear: since object shift to preverbal position is obligatory in Dutch, whereas scrambling is optional, subextraction is possible only from the position immediately preceding the verb in clause-final position.

³ Broekhuis (1997) has claimed that the V_3 - V_1 - V_2 order in (9e) is only possible in perfect tense constructions. Barbiers shows in his study of Dutch dialects that these orders do occur in non-perfective constructions, but only as a secondary order, that is, next to one of the other orders in (9a-d): there is no dialect in which (9e) is the *only* possible order. Since Den Besten and Broekhuis (1992) already showed that some V_3 - V_1 - V_2 involve nominalization of V_3 , more research is needed to establish whether this order is a genuine one in non-perfective constructions.

⁴ Haider (1997b) adopts a special proviso for CP-complements and other 'extraposed' constituents, which are assumed to be base-generated to the left of the verb.

⁵ The labeled bracketing given by Haider is [_{VP} ... [_V [_V [_V V_1]]]]. So far I have not been able to make sense of this, especially since we will see that Haider assumes that V_3 is able to right-adjoin to V_2 (and V_2 + V_3 to V_1), which would amount to *lowering* under Haider's bracketing. This problem is solved by assuming the labeled bracketing in (14). However, this structure raises the question whether the BC also applies to the nodes within the verb cluster: if so, (14) would be excluded because the branching node [_V [_V V_2]] precedes V_1 . I ignore questions like these in the discussion that follows, and simply assume that the BC does not apply within the cluster.

⁶ Haider motivates these V-movements instead by taking recourse to parsing considerations. The V_3 - V_2 - V_1 order results in centre-embedding, which is known to pose severe processing difficulties, and application of the verb movements in (20) contribute to dissolving these.

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