

The Final-over-Final Constraint and adverbs

Michelle Sheehan, University of Cambridge
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Summary

In this chapter it is contended that the order $*[[_{VP} V-Adv]-Aux]$, like the order $*[[_{VP} V-O]-Aux]$, appears to be banned in a number of natural languages, and plausibly universally. Linear strings with the surface order V-Adv-Aux are argued to have one of two underlying hierarchical structures. Either they have the structure $[[_{XP} [V]-X]-Aux]$, where the apparent adverb is actually a projecting head, or they have the structure $[[_{VP} O-V]-[_{XP} X-[Aux-t_{VP}]]]$, where a head-final VP has raised over two inflectional heads. The apparent impossibility of $*[[_{VP} V-Adv]-Aux]$ appears to suggest that adverbs also count as ‘interveners’ for FOFC, so that the generalisation might actually be more general than previously thought. It is proposed, though, that the ban on $*[[_{VP} V-Adv]-Aux]$ actually follows from existing accounts of FOFC in conjunction with the independent ban on $*[[O V]-Adv]$ noted by Ernst (2003, 2004). The derivation of V-O-Adv order is also discussed as it appears *prima facie* to be derived a FOFC-violation. Evidence suggests, however, that in instances of V-O-Adv, the verb and object move past the adverb separately rather than as a phrase, meaning that such orders fall outside the constraint. This kind of derivation is unavailable with V-O-Aux because of Travis’ Head Movement Constraint, which blocks head-movement of V past Aux.

1 Introduction

Thus far the evidence given in favour of the Final-over-Final Consstraint (FOFC) stems from instances of complementation. Indeed, both Biberauer, Holmberg & Roberts (BHR) (to appear, chapter X) and Sheehan (to appear, chapter X) state their analyses of FOFC in terms of c-selection. Evidence suggests, however, that the relevant asymmetry might actually be a more pervasive phenomenon, as both Holmberg (2000) and BHR (2007, 2008) note in passing. Thus, Holmberg (2000: 140) notes that Finnish and Germanic verb clusters cannot be interrupted by either complements or adjuncts, as the following examples from Finnish illustrate:¹

- | | | | | | | | |
|-----|---|-------|-----------|------------|------------------------------|---------------------|--|
| (1) | Matti | ei | (koskaan) | ole | (koskaan) | käynyt (koskaan) | Pariisissa |
| | Matti | not | ever | has | ever | visited ever | in.Paris |
| | ‘Matti has never been to Paris.’ | | | | | | [Finnish, Holmberg (2001: 145)] |
| | | | | | | | |
| (2) | Milloin | Jussi | romaanin | kirjoittaa | olisi | (siinä tapauksessa) | ehtinyt |
| | When | Jussi | novel | write | would.have | in.that case | had.time |
| | | | | | | | |
| (3) | Milloin | Jussi | romaanin | kirjoittaa | ehtinyt (*siinä tapauksessa) | olisi | |
| | When | Jussi | novel | write | had.time | in.that case | would.have |
| | ‘When would Jussi, in that case, have had time to write a novel?’ | | | | | | [Finnish, Holmberg (2000: 130)] ² |

¹ BHR (2007, 2008) also discuss English prenominal APs, which appear to display a FOFC-effect, as discussed in chapter X (this volume):

(i) *John is a $[_{VP} [_{AP} \text{proud of his son}] \text{man}]$.

(These examples are taken from chapter 8 of this volume.)

² The order in the Finnish example is not a FOFC violation, as subsequently come to light that Finnish does

² Anders Holmberg (personal communication) notes that it has subsequently come to light that Finnish does allow certain adverbs to interrupt V-Aux sequences, including at least ‘here’ and ‘there’, where the verb is focused and stressed and the adverb unstressed:

(i) Milloin minä laulanut täällä olisin?
when I sung here would-have

He also notes that unstressed pronominal complements can also occur in the same position:

(ii) Kyllä minä lukenut sen olen.

2 The first adjunction asymmetry

2.1 Head-initial verb sequences

Non-branching adjuncts (and subjects) can often intervene in head-initial sequences of auxiliaries/verbs. Consider, for example the following SVO and VSO languages:

- (5) Jean a **toujours** joué de la guitarre. [French]
 Jean has.3S always played of the guitar.
 ‘Jean has always played the guitar.’
- (6) kan **dima** yaçzef çal gitar [Libyan Arabic]
 was.3S always play on.the guitar
 ‘He always used to play the guitar’
- (7) Bhí na sealgairí **tamall fada** ag amharc orthu [Irish, Harley & Carnie (1997:14)]
 was the hunters time long PROG look on.them
 ‘The hunters were watching them for a long time.’

In Cinque’s (1999) influential analysis of adverbials, these kinds of effects are taken as crucial evidence for the existence of an articulated sequence of functional heads, each housing a particular class of adverbs (cf. also Alexiadou 1997). Following Pollock (1989), Cinque argues at length that these functional heads can be the target of verb movement (in potentially idiosyncratic language-specific ways), so that the following difference between English and French reduces to a difference in verb movement trajectories (as Pollock proposed):

- (8) I (always) play (*always) the guitar.
 (9) Je (*toujours) joue (toujours) de la guitare
 I always play always of the guitar
 ‘I always play the guitar.’

Cinque/Pollock further propose that language-internal variation in the order of verbs and adverbs is of the same status as the contrast in (8)-(9). Thus, in Italian, an inflected main verb targets any one of a range of functional heads but can raise no higher than the head housing the adverbial specifier *spesso* ‘usually’ (cf. Cardinaletti 2011: 507, citing Cinque 1999: 31; 180,n.80; 214,n.7):

- (10) a. ...* probably * usually (V) again (V) often (V) quickly (V) *mica* (V) already...
 b. Gianni **spesso** telefona / telefona **spesso** di sera tardi.
 Gianni often calls / calls often of evening late
 ‘Gianni often calls late in the evening.’
 c. Gianni **di nuovo** lo merita / lo merita **di nuovo**.
 Gianni of new it deserves / it deserves of new
 ‘Gianni again deserves it.’
 d. Gianni **solitamente** lo merita / *lo merita **solitamente**.
 Gianni usually it deserves / it deserves usually
 ‘Gianni usually deserves it.’
 e. Gianni **probabilmente** lo merita / *lo merita **probabilmente**.
 Gianni probably it deserves / it deserves probably
 ‘Gianni probably deserves it.’

Although some objections have been raised to the head-movement account of the data in (10) (cf. Bobaljik 1999), the empirical facts are well-established: it is often possible to interrupt head-initial sequences of functional heads with adverbials. Of course, this is not to say that an adverb can always intervene between two verbal heads in a head-initial sequence. In Persian, an OV language, adverbs

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cannot intervene in either V-Aux or Aux-V sequences, both of which occur in the language (the future auxiliary precedes V, whereas all other auxiliaries follow V):⁵

- (11) ali (hamishe) gitâr zade (*hamishe) ast
 Ali always guitar play.PSPT always be.3S
 ‘Ali has always played the guitar.’
- (12) ali (hamishe) gitâr xâhad (*hamishe) zad
 Ali always guitar will always play
 ‘Ali will always play the guitar.’ [Persian]

Spanish, a V-O and Aux-V language, also displays such a restriction, disallowing adverbs to intervene between the perfective auxiliary *haber* + past participle (cf. Ojea López 1994: 409, Cinque 1999: 147):⁶

- (13) Juan (siempre) ha (*siempre) sido (siempre) amable. [Spanish]
 Juan always has been friendly
 ‘Juan has always been friendly.’

As Cinque notes, it is not clear how to account for this restriction in terms of verb movement. It seems more likely that there is an additional ‘adjacency requirement’ associated with *haber*. The same is also claimed by Ojea López (1994: 409): “*haber* no tiene autonomía como forma verbal”.⁷ Note also that this is a fact about the particular auxiliary *haber*. The auxiliary *ser* ‘to be’ for example, which occurs in passives, need not be adjacent to a following passive participle (Cinque 1999: 147, citing Lois 1989: 34, 40). As such, the order Aux-Adv-V is generally, though not universally, possible. There are specific auxiliaries which must appear adjacent to a following verb, but there are also many examples of adverbs intervening in head-initial verbal sequences. A relevant question is whether the same is true in head-final sequences of auxiliaries and verbs.

2.2 Head-final verb sequences

To give evidence for a general ban on [[V-X]-Aux] it is obviously not sufficient to show that the sequence V-Adv-Aux is blocked in *some* languages, as the same is also true of Aux-Adv-V (e.g. for certain auxiliaries in Spanish and Persian). Suggestive evidence for a genuine asymmetry between head-initial and head-final verb sequences is nonetheless available in languages with variable word orders. In many such languages, adverbs can intervene freely in head-initial but not head-final verbal sequences, even within mixed sequences. Thus, as was the case in Finnish (discussed above), adverbs can interrupt Aux-V sequences, but not V-Aux in ‘OV’ Germanic languages and Hungarian (cf. Zwart 1996, Koopman & Szabolcsi 2000, respectively):

- (14) ...das er das Buch hätte (genau) durchsehen (*genau) sollen
 that he the book had carefully through.look carefully shall
 ‘..that he should have looked through the book carefully’
 [High German, Zwart (1996: pp) 1 (adv) 3 (*adv) 2]
- (15) a. PETER fogja (XP) akarni (XP) kezdeni (XP) szet szedni a radiot
 Peter will want.INF begin.INF apart take.INF the radio
 b. PETER fogja (XP)akarni (XP) szet szedni (*XP) kezdeni a radiot

⁵ Thanks to Yalda Kazemi Najafabadi for Persian judgements and Ali Algryani for Libyan Arabic judgements.

⁶ In the Corpus del Español there are no examples of ‘ha siempre *do’ or ‘ha ya*do’ or ‘ha **mente **do’ from the 20th century, but many genuine examples from 13th to 19th century. So this restriction appears to be fairly recent. These facts echo Ojea López’s (1994: 409) claim that examples where adverbs intervene between *haber* and the past participle “eran más frecuentes en otras etapas de la lengua” (‘were more frequent in other stages of the language’).

⁷ ‘*Haber* does not have autonomy as a verbal form.’

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Peter will want.INF apart take.INF begin.INF the radio
 c. PETER fogja (XP) szet szedni (*XP) kezdeni (*XP) akarni a radiot
 Peter will apart take.INF begin.INF want.INF the radio
 'It is Peter who will want to begin to take apart the radio'

[Hungarian, based on examples in Koopman & Szabolcsi 2000, 1 (adv) 4 (*adv) 3(*adv) 2]

This strongly suggests that an asymmetry exists here, but leaves open the possibility that the ban on V-X-Aux holds only in languages with variable word orders, as Cinque (1999) in fact claims.

Another language with variable word order is Basque (cf. Arregui 2002, Haddican 2004). In Basque, some adverbs have the ability to either precede or follow verbs and auxiliaries.⁸ Despite this, Basque also appears to be subject to the same kind of restriction as OV Germanic, Hungarian and Finnish w.r.t. head-final verb clusters (cf. Arregui 2002: 127):

(16) (Askotan) Mirenek (askotan) liburuk irakurten (*askotan) dau (askotan)
 Often Miren.e often book.A.PL read.IMP AUX.PR

Where the auxiliary precedes the verb, however, the Aux-V sequence can be interrupted by arguments and adverbs (cf. Haddican 2004). In this respect, then Basque appears to pattern with Finnish/Germanic/Finnish. However, as Arregui (2002: 148, fn 41) also notes, certain modal evidential particles such as *ete* ('evidently') and *omen* ('apparently') unlike other adverbs/arguments can intervene between the verb and auxiliary in the V-Aux order (cf. also Haddican 2004: 97, Etxepare 2010). I return to the status of these surface V-Adv-Aux orders in section 5, as they appear to have a different hierarchical structure to the V-Adv-Aux sequences observed in other OV languages.⁹

3 Apparent counterexamples to the asymmetry

Thus far, then, there appears to be suggestive evidence that the ban on *[V-O]-Aux which lies at the heart of the FOFC generalisation, might actually be a more general ban on *[V-X]-Aux. Why, then, has FOFC been thus far stated only in terms of complementation? The reason is that in languages with stricter head-final orders a small class of adverbs can freely surface between the verb and auxiliary. Based on this observation, Cinque (1999: 58) posits three different classes of head-final verbal structures:

- (i) verb-clustering with mixed word orders (e.g. German);
- (ii) strictly head-final agglutinative languages (e.g. Turkish);
- (iii) strictly head-final inflectional languages (e.g. Hindi).

By hypothesis, a crucial difference between types (i)-(ii) on the one hand and type (iii) on the other is that it is possible for material to intervene in a head-final sequence in type (iii) languages. In Cinque's terms, this reduces to a difference in the kind of movement operations used to derive surface head-finality in an LCA-compliant framework. In German, what is at stake is head-movement "with the non-head subparts of IP raising leftward over the verb cluster, either individually [...] or within a single constituent" (Cinque 1999: 58):

⁸ Basque (like Turkish) places short manner adverbs like *gogor* 'hard' immediately preceding and adjacent to the verb (Arregui 2002, citing A. Elordieta 2001):

(iii) Athletic Real Madriden kontra **gogor** jolasten dau
 Athletic Real Madrid.G against hard play.IMP AUX.PR
 'Athletic plays hard against Real Madrid.' [Basque, Arregui (2002: 128)]

As such, these adverbs cannot occur between V and a following Aux for independent reasons.

⁹ Consider also Pintzuk's (2005: 121) observation that no constituent (argument or adjunct) can intervene between V and Aux in V-Aux orders in Old English. Perhaps relevant, though, is Pintzuk's (2005: 121) observation that the three attested examples of the [[V-X]-Aux] order involve a PP or adverb rather than a DP complement.

(17) a. [_{FP} **Obj** F [_{VP} **V+v** [_{VP} t_V t_{Obj}]]]
 b. [_{FP} [_{VP} t_V **Obj**] F [_{VP} **V+v** t_{VP}]]

(18) [_{VP} [_{VP} **Obj** **V** t_{Obj}] **v** t_{VP}]

(19) $[_{GP} [_{FP} [\mathbf{Obj}]] F [_{VP} \mathbf{V} t_{Obj}]] G [_{VP} \mathbf{v} t_{FP}]$

3.1 Hindi

Kayne (2004: 9, fn 18) points out that the restriction on adverbs between V and a following Aux does not apply to emphatics and morphemes corresponding to words like *even*. Thus Hindi allows “the negation word, emphatics and some adverbs” to intervene between the verb and an auxiliary (Cinque (1999: 58), citing Kayne (1994: 53), who cites Mahajan (1989: 225)):

(20) raam	roTii	khaataa	nahiiN/to/roz	thaa ¹²
Ram	bread	eat.MS	not/emphatic/every day	was.MS
				[Hindi, Mahajan (1989: 225)]

3.1.1 Emphatic markers

The emphatic markers *bhii* ‘also’ and *to* (a topic marker) can surface in the position between V and Aux when they are associated with a focused VP:

(21) aur vah paise letaa bhii hai
and he money take.ms also pres.3s
'And he takes money too.'

[Hindi, Agha (1998: 118)]

As Cinque (1999: 30-31) notes, however, these focusing adverbs are special in that they are not situated in the universal functional hierarchy but can rather occur adjacent to any phrase which they

¹⁰ This is sometimes known as snowballing movement following Aboh (2004).

¹¹ This is sometimes known as snowballing movement following Rizzi (2004).

¹² Note that Mahajan (1989) does not use capital letters with proper names whereas Bhatt does. I have not used capital letters in Hindi examples except to represent retroflex consonants.

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modify (cf. also Bayer 1996).¹³ Thus *bhii/to*, like *nahiiN* in instances of constituent negation, can occur to the right of any maximal projection of a lexical category (cf. Kidwai 2000: 41 on *to*, Koul 2008: 144 on *bhi*, Dwivedi 1991 on *nahiiN*):¹⁴

- (22) Amar *bhii* gaya [Hindi, Koul (2008: 145)]
Amar also went

The fact that these modifiers form a constituent with the phrase preceding them is reflected not only by their semantics but also by the fact that they can undergo topicalisation along with the modified phrase:

- (23) kitaab *to* raam layega [Hindi, Kidwai (2000: 47)]
book TO Ram bring.FUT
'The book, Ram will bring.'

This is consistent with Cinque's (1999: 31) proposal, citing Bayer (1996, chapter 1), that these adverbials are actually projecting heads which take the phrases they modify as complements. Further evidence for this analysis comes from the fact that *bhii/to* cannot intervene between a post-position and noun, even where only the noun is focused (cf. Kidwai 2000, Koul 2008):

- (24) *sita nur-to-ke paas gay [Hindi, Kidwai (2000: 42)]
Sita Nur-TO-GEN near went
'Sita went to Noor.'

- (25) *ghar *bhii* meN garmii hai. [Hindi, Koul (2008: 138)]
house also in hot is
'it is hot in the house as well.'

More generally, it has been proposed that emphatic markers such as *even/also* can never intervene between an adposition and a DP complement (Sichel 2007: 24). This is true, for example in English and Hebrew:

- (26) I gave the book to (*only) John.

This is the same restrictions noted by Cable (2007: 94) in relation to the distribution of question particles. He proposes to account for this gap via his 'Q[uestion] P[hrase] intervention condition' (Cable 2007: 122), which states that "a QP cannot intervene between a functional head and a phrase selected by that functional head", the idea being that the presence of a projecting question particle blocks selection in such cases. This account can be extended to the Hindi facts discussed above only if *bhii* and *to* are also projecting heads which would likewise block selection between P and DP.¹⁵ This raises the question of the status of auxiliary verbs in Hindi. Seeing as *bhii* and *to* can intervene between certain lexical verbs and auxiliaries it follows that the latter cannot be functional heads in the extended projection of V, but must rather be lexical heads.¹⁶ According to Cable (2007: 122), the

¹³ Note that a similar set of adverbials fail to count for V2 in Germanic languages (Swedish *bara* 'only', *nästan* 'nearly', *till och med* 'even', *helt enkelt* 'simply' (cf. Holmberg 2010: 15, Nilsen 2003).

¹⁴ There are certain restrictions on the distribution of *bhii* though. The particle *bhii* cannot intervene between the lexical verb and future marker or between the progressive marker and the verb *hona* 'be' (Koul 2008: 144):

(iv) *vah khaa rahaa *bhii* hai
he eat prog also is

¹⁵ A potential exception to this comes from instances where only the verb appears to be modified and fronted:

(i) khaataa *to* raam roTii thaa [Hindi, Mahajan (1989:226)]
eat.MS TO Ram bread was.3MS

This could potentially be remnant VP fronting, giving that Hindi allows scrambling.

¹⁶ This raises some challenges for the account of FOFC pursued by BHR as it must crucially be the case that auxiliary verbs are not lexical heads originating their own extended projection.

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presence of an intervening QP does not block selection between a lexical head and its complement. If this is the case, then the emphatic markers *bhii* and *to* project head-final phrases in Hindi, meaning that V-Adv-Aux sequences are actually harmonically head-final structures.¹⁷

3.1.2 Constituent negation

Instances of (V(P)) constituent negation plausibly fall under the same analysis. Dwivedi (1991) observes that *nahiiN* can be used for constituent negation in Hindi in which case it usually immediately follows the negated phrase:

- (27) [raam ke nahiiN] sita ko kitaabe diyaa, shyaam ne [Hindi, Dwivedi (1991: 90)]
 Raam ERGNEG Sita DAT books gave Shyaam ERG
 ‘Ram didn’t give the books to Sita, Shyaan did.’

Thus (28) is a felicitous conversation involving constituent negation of the verb with the surface V-Neg-Aux order:¹⁸

- (28) a. Kyaa raam roTii khaa-taa thaa?
 Q Ram bread eat-HAB was.MS
 ‘Did Ram eat bread?’
 b. Ji nahiiN, raam roTii khaa-taa nahiiN thaa
 No Ram bread eat-HAB not was.MS
 raam roTii banaa-taa thaa!
 Ram bread make-HAB was.
 ‘No, Ram didn’t use to EAT bread, he used to MAKE bread.’

In such cases, *nahiiN* like *bhii/to* modifies only the focused constituent, VP or V and projects. Dwivedi (1991) argues explicitly that the *nahiiN* is a head in such cases. Firstly, she notes that negated constituents always receive the main pitch accent of the sentence. She claims that as intonation patterns are not sensitive to adjuncts (cf. Selkirk 1984, ch 5), negation cannot be an adjunct in instances of constituent negation. This leaves the option of *nahiiN* being a specifier or head. The basic word order facts of Hindi strongly suggest that it is a head rather than a specifier. Whereas other modifiers in Hindi (demonstratives, adjectives, quantifiers) all precede the phrase which they modify, constituent negation always occurs to the right. This follows if the former as specifiers/adjuncts whereas the latter is a head. The strongest support that she gives, however, for the claim that *nahiiN* is a head comes from the fact that a negated constituent can move, stranding the negation:

- (29) ram ne kitaab_i supriya ko [t_i nahiiN] dii, ... [Hindi, Dwivedi (1991: 92)]
 Ram ERG book Supriya DAT NEG give
 ‘It was not a book that Ram gave Supriya...’

Crucially, (29) can, but need not, have a reading whereby the direct object, which has scrambled out of VP is negated. If the negation were an adverb or specifier here, such movement would be impossible according to standard assumptions.¹⁹ As such, there is reason to believe that in instances of constituent negation the V-Neg-Aux sequence is also a harmonic head-final structure, compliant with FOFC.

¹⁷ The only example of an adverb which Mahajan gives is *roz* which he glosses ‘every day’. Other adverbs in Hindi occur in preverbal positions. The status of *roz* requires further investigation.

¹⁸ Thanks to Pallavi Worah for Hindi judgements and discussion.

¹⁹ Dwivedi gives further evidence from an Eastern dialect of Hindi spoken in Uttar Pradesh in which negation appears to incorporate into the verbal cluster. As it is not clear how general these facts are, though, this does not imply that negation always undergoes head movement to T in Hindi.

3.1.3 Sentential negation

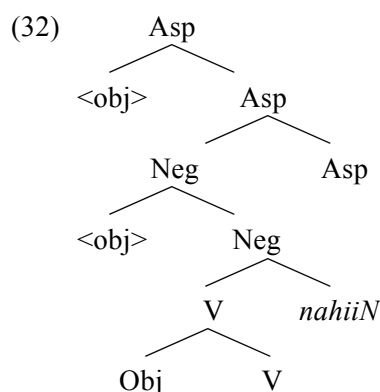
Crucially, though, not all instances of V-Neg-Aux order in Hindi involve constituent negation. As Kumar (2004) shows, immediately post-verbal negation, like preverbal negation can license NPIs, unlike unambiguous constituent negation which cannot:²⁰

- (30) a. maiN kisii ko bhii nahiiN dekh sak-aa
 I anyone to EMPH neg see modal-PERF-MASC
 ‘I could not see anyone.’
 b. maiN kisii ko bhii dekh nahiiN sak-aa
 I anyone to EMPH see neg modal-PERF-MASC
 ‘I could not see anyone.’
 c. */? [maiN nahiiN] kisii ko bhii dekh sak-aa
 I neg anyone to EMPH see modal-PERF-MASC
 [Hindi, Kumar (2004: 11)]

Bhatt (2007: 3) shows that the adverbial quantifier *thorii* (little), which also has a negative meaning as indicated by the gloss, can also occur in this position:

- (31) timur manu-ko Dā:T-taa thoRii thaa
 Timur Manu-KO scold-Hab LITTLE be.Pst
 ‘Timur didn’t used to scold Manu.’

If *nahiiN* can be a head in constituent negation, it is possible that it might also be a head in instances of sentential negation. If this is the case then the position of *nahiiN* in (20) is as expected if the head-final NegP projection occupies a position between VP and AspP, as Dwivedi (1991) proposes:



A complication with this analysis, is that, as Mahajan (1989) notes, the position of negation in (30b) is not the most neutral position in Hindi. Rather, the unmarked position for negation is between the direct object and the lexical verb (cf. also Dwivedi 1991, Kumar’s 2004 (31a) above):

- (33) raam roTii nahiiN khaa-taa thaa
 Ram bread not eat-HAB was.MS
 ‘Ram didn’t eat bread.’ [Hindi, Mahajan 1989: 224]

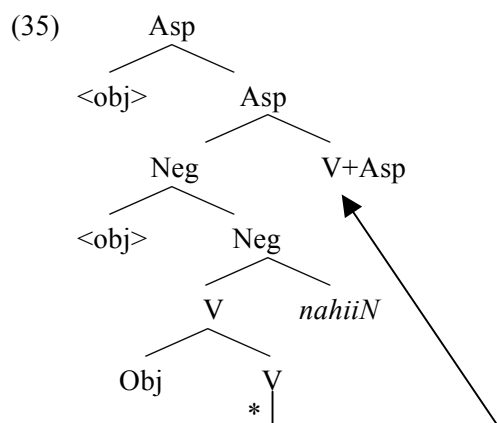
To account for these two options (Neg-V-Aux & V-Neg-Aux), Mahajan (1990) proposes that negation is adjoined to the right of the VP and that the verb optionally moves past Neg:

²⁰ Following Mahajan (1990), it is generally accepted that Hindi NPIs are not licensed at s-structure but rather at LF, meaning that no surface c-command is required between sentential negation and an NPI (cf. also Bhatt 2005). Thus an NPI-containing direct object need not be in the surface scope of negation here.

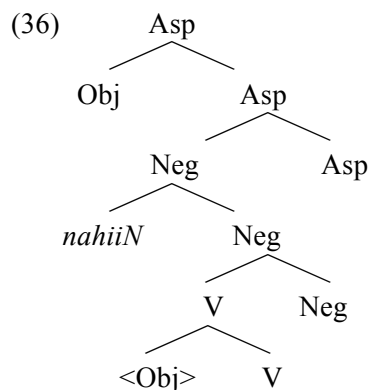
- (34) a. [_{AuxP} [[_{VP} Obj V] nahiiN] Aux]
 b. [_{AuxP} [[_{VP} Obj t_V] nahiiN] V+Aux]

As such, the variability in Hindi is equivalent to the variability noted by Cinque for head-initial languages like Italian with respect to verb/adverb ordering, except that the negation is right adjoined here, something which is ruled out under Kayne's (1994) LCA. There are two objections one could raise to this early proposal in the light of subsequent research. Firstly, if it were the case that right adjunction and rightward head-movement of this type were possible, then it is surprising that we only see this variability with respect to negation and not adverbs. Indeed, as discussed in section 4, there appear to be no OV languages with post-verbal adverbs of the kind subject to Cinque's functional sequence. The adverbs which can occur inside the verbal complex, as illustrated above, are exactly those which do *not* have a place in the Cinquean hierarchy, being rather focus-related. Moreover, following Pollock (1989) and Zanuttini (1997), it is widely held that negation is located in a number of functional projections with fixed hierarchical positions, so the idea that it is an adjunct seems problematic.

This raises the question of whether these two word orders can be accounted for if *nahiiN* is in fact a head. Deriving either of these orders from the other is not straightforward if *nahiiN* is always a head. It cannot be the case, for example, that the verb raises past the negation marker as this kind of movement violates Travis' (1984) Head Movement Constraint (as well as the LCA):



If the verb first moves to adjoin to Neg and then the V+Neg complex raises to Asp, roughly as proposed by Kumar (2004), then there is no ultimate explanation for the resulting word order (as Kumar 2004: 15, fn 6 acknowledges), as we would expect such movement in a head-final language to be string-vacuous. If, on the other hand, *nahiiN* can be either a head *or* a specifier, then it is predicted to be able to surface either to the right or the left of V (assuming, regardless of the LCA, that specifiers always occur on the left):



Provided the object also moves to a position above NegP, then, this derives the correct unmarked word order in Hindi, without post-syntactic re-ordering mechanisms. I propose that the two positions of *nahiiN* in (31a) and (31b) above stem from its dual status as either a specifier or head of NegP.

This analysis accounts of the basic distribution possibilities of the negation marker across all tense and aspect combinations in Hindi (cf. Bhatt 2003, 2007, Kumar 2004):

(37) O **I. Neg** V_{LEX} **II. Neg** Aux **III. *Neg** Aux

Thus *nahiiN* can intervene between the verb and object or between a lexical verb and the inflected progressive marker, but never between two auxiliary verbs:

(38) ?maiN skuul jaa (nahiiN) rahaa (*nahiiN) huuN/thaa
 I school go not PROG.MS not am.1S/was.MS
 ‘I am/was not going to school.’ [Hindi, based on Kumar (2004: pp)]

This follows if *nahiiN* can only be the head or specifier of NegP which occurs in a fixed position immediately dominating VP, as proposed above. Whether we have an instance of constituent or sentential negation, then, the order V-Neg-Aux arguably does not have the hierarchical structure relevant to FOFC: [_{AuxP} [_{VP} V-Neg]-Aux]. Rather is has the harmonically head-final order [_{AuxP} [_{NegP} V Neg]-Aux].

A final problem arising in Hindi is that objects can also surface between V and a following Aux in Hindi, in apparent violation of FOFC (cf. Mahajan 1990):

(39) raam kha-taa sabzii thaa [Hindi, Mahajan (1990: 338)]
 Ram eat-HAB vegetables was.MS
 ‘Ram used to eat vegetables.’²¹

As Bhatt & Dayal (2007) note, indirect objects can also surface in this position:

(40) sita-ne kitaab bhej-ii raam-ko thii.
 Sita-ERG book.F send-PFV.F Ram-DAT be.PST.F
 ‘Sita had sent the book to Ram.’

As can wh-phrases:

²¹ This example seem to be wrongly glossed as ‘Ram did not (use to) eat vegetables’ in Mahajan (1990: 338).

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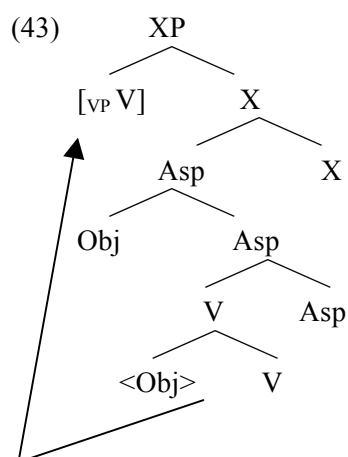
- (41) sita-ne dhyaan-se dekh-aa kis-ko thaa?
 Sita-ERG care-with see-PFV who-ACC be.PST
 ‘Who had Sita looked at carefully?’

Bhatt & Dayal (2007: 291, fn 6) also note that non-finite clauses cannot occur in this position, though they can occur in either a preverbal or post-auxiliary position.

Interestingly, though, the order V-O-Aux is not possible where a preverbal negation is present:

- (42) */???raam nahiiN kha-taa sabzii thaa
 Ram not eat-HAB vegetables was.MS
 ‘Ram used to eat vegetables.’ [Hindi, Mahajan (1990: 338)]

One possible explanation for these facts are that (39) is derived via remnant VP movement to some position higher than that housing the scrambled object and all auxiliary verbs:



This movement, by hypothesis, is blocked by the presence of a negative specifier, which creates a negative island in the sense of Ross (1967). If V-O-Aux orders in Hindi are derived in this way then they fail to involve a FOFC violation according to either of the approaches to FOFC explored in this volume (cf. chapters X & Y). For BHR, remnant VP movement in such cases would be A-bar movement, which is not subject to FOFC, for Sheehan such movement does not create a linearization problem.

3.2 Turkish

In Turkish, an SOV agglutinating language, the unmarked position for adverbs is preverbal:

- (44) Ahmet hızlı koş-uyor-du [Turkish, Wilson & Saygın (2001: 3)]
 Ahmet quickly run-PROG-PAST.3sg
 ‘Ahmet was running quickly.’

In fact, morphologically simple adverbs *must* surface to the immediate left of the verb, even when modified by an adverb (as in Basque) (Kornfilt 1997: 404):

- (45) Hasan çok yavaş konuş-ur
 Hasan very slow talk-AOR
- (46) *çok yavaş Hasa konuş-ur
 very slow Hasan talk-AOR

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As such, these adverbs clearly cannot surface between V and Aux. Other (morphologically complex) adverbs can appear in other positions, not immediately adjacent to the verb, however.

An obvious difference between Hindi and Turkish is that the usual way to express tense, mood and aspect in the latter is via agglutinating suffixes on the verb. This alone, then, might serve to prevent any adverb from intervening between V and Aux, assuming adjunction between a root and suffix or between suffixes is independently banned. Wilson & Saygın (2001: 6) point out, though, that “sometimes an auxiliary *ol-* ‘be’ needs to be inserted, because only the past *-DI* and *-mİş* in its evidential sense can attach directly to already-suffixed verbs”. This means that in practice, Turkish does have auxiliary verbs in addition to suffixation:

- (47) Cüneyt yarın oku-yor ol-acak.
 Cüneyt tomorrow read-PROG be-FUT.3SG
 ‘Tomorrow Cüneyt will be reading.’

In considering the Turkish facts then, it is these contexts which are the most likely to permit the order V-X-Aux.

Unlike the case in Hindi, it is impossible for arguments to surface between V and Aux in Turkish. As is well known, it is possible, in Turkish, for a ‘backgrounded’ object to surface in post-verbal position (cf. Kural 1997):

- (48) Cüneyt yarın oku-yor ol-acak kitabı
 Cüneyt tomorrow read-PROG be-FUT.3SG book-ACC

It is not possible, however, for an argument to surface between the main verb and the epenthetic auxiliary *ol-* (Jaklin Kornfilt, p.c.):

- (49) *Cüneyt yarın oku-yor kitab-ı ol-acak.
 Cüneyt tomorrow read-PROG book-ACC be-FUT.3SG

In this much Turkish differs from Hindi and presumably lacks remnant VP fronting.

Interestingly, though, in Turkish too, certain adverbial-like ‘particles’ *can* occur both between V and its suffixes or between V and the auxiliary verb *ol*, notably the question particle *mİ* and the focus particles *bile* (even) (in main clauses only) and *de* (also – in main and relative clauses) (cf. Kornfilt 1997: 191-192, Göskel 2001: 162):

- (50) Hatta bu bölüm-ü anal-mış *bile* ol-du-k
 in.fact this section-ACC understand-PERF even AUX.PAST.1PL
 ‘In fact, it even turns out that we have understood this section.’

- (51) Gid-e- *de-* bil- ir- iz
 Go-ABIL- also- ABIL- AOR- 1PL
 ‘we can also GO there.’

[Turkish, Göskel (2001: 162)]

Note that, as in Turkish, the kinds of adverbs permitted in this position are again focus-related adverbs which fall outside Cinque’s functional hierarchy. As in Hindi, it appears that these particles can be associated with and follow any focused phrase:

- (52) BEN *de* iç-me-yeceğ-im [Turkish, Göskel & Kerslake 2005: 116]
 I also drink-NEG-FUT-1SG
 ‘I am not going to have any either.’²²

²² I have added glossed to these examples.

- (53) Hasan kitab-ı Ali-yé *bile* oku-du
 Hasan book-ACC Ali-DAT even read-PAST
 ‘Hasan read the book even to Ali.’ [Turkish, Kornfilt (1997: 192)]

As in Hindi, focused phrases associated with such emphatic particles can be fronted along with the particle (Kornfilt 1997: 193). There is also suggestive evidence that these particles are projecting heads in Turkish too. *Bile* for example cannot occur between an adjective and suffixal tense inflection, which are plausibly in the same extended projection, but rather must occur following the tense inflection (Kornfilt 1997: 194):

- (54) Komşu -nuz şirin-di *bile*
 neighbour -2.PL cute-PAST even

As Erguvanli (1984:26) notes, these are also the only adverbials which can intervene between an unscrambled object and selecting verb in Turkish (cf. also Göskel & Kerslake 2005: 393):

- (55) Murat kitab da/bile ok-ur [Turkish, Erguvanli (1984:26)]
 Murat book also/even read-AOR

Again, this follows if (a) these particles are actually projecting heads and (b) they do not act as interveners between lexical heads and their complements, as Cable proposes. Finally, note that two of these particles can appear as suffixes on the verb and undergo vowel harmony further suggesting that they are heads (the exception is *bile* which is invariant). It seems to be the case that no full adverb can appear inside the verb cluster in Turkish. Once again, all instances of the surface order V-X-Aux in Turkish plausibly involve harmonically head-final structures.

3.3 Summary

In many OV and variable VO/OV languages, it appears that adjuncts as well as arguments trigger a FOFC-effect, implying that the structure *[_{AUXP} [_{VP} V-Adv]-Aux] is universally banned. The few cases of adverbials (typically *even*, *also*, *too*) which can intervene in V-Aux sequences are projecting heads which give rise to harmonic head-final sequences.²³ The question, then, is whether existing accounts of FOFC can account for this more general version of the constraint. In the following section, I argue that they can, when taken in conjunction with an independent asymmetry noted by Ernst.

4 Ernst’s asymmetry

Ernst (2003, 2004) observes a second asymmetry concerning the distribution of adverbs. He claims that non-branching adverbs can either precede or follow head-initial phrases but must precede head-final phrases. Thus in OV languages, adverbs must precede V (though because of scrambling need not precede O). In VO languages, on the other hand, adverbs can either follow O or precede V or in a subset of such languages occur between V and O (cf. Pollock (1989)):

- (56) a. (adv) V (adv) O (adv)
 b. (adv) O (adv) V (*adv)

Note immediately, that when taken in combination with FOFC, this asymmetry serves to explain the lack of [_{AUXP} [_{VP} V-Adv]-Aux]. In order for a language to allow post-verbal adverbs, that language would have to have V-O order, and final auxiliaries are ruled out by FOFC in V-O languages (cf.

²³ The Basque examples are of a different nature and are considered below.

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chapter X). A crucial question, then, is whether Ernst's asymmetry can be derived from anything, notably Kayne's Antisymmetry.

It is not immediately clear whether this is the case. In Kayne's (1994) terms, there is no adjunct/specifier distinction and so adverbs occupy specifier positions. Following Cinque (1999), it is usually taken to be the case that the relevant heads are functional heads subject to a universal sequence, as discussed above. The immediate (naïve) prediction of the LCA is that adverbs should precede the phrases which they modify. However, as movement is available, by hypothesis, to alter the base-generated order of constituents, this naive prediction unsurprisingly does not hold. In Kaynean terms then, the asymmetry in (56) must derive from restrictions on movement. Interestingly, it seems to imply a restriction on movement of exactly the opposite kind to FOFC:

(57) * $[_{GP} [_{VP} \text{Obj } V^{\wedge}] G^{\wedge} [_{FP} \text{adv } [_{t_{VP}}] F^{\wedge}]$

(58) $[_{GP} [_{VP} V \text{Obj}] G^{\wedge} [_{FP} \text{adv } [_{t_{VP}}] F^{\wedge}]$

In (57), where all heads in the extended projection bear \wedge , the result is ungrammaticality, whereas in (58), where the lexical head V lacks \wedge , so that a head-initial VP raises past the adverb, the result is V-O-Adv order, which is apparently attested. This is a problem for FOFC on two counts. Firstly, and less problematically, FOFC fails to rule out (57), meaning that some additional constraint on movement is needed. But more seriously, FOFC predicts (58) to be ungrammatical, apparently contrary to fact.

It is easy to provide examples from VO languages illustrating that Ernst's asymmetry holds as a surface constraint. In very many VO languages, adverbs can follow V(P):

- (59) a. The children walked out of the room silently .
 b. The children ate the cakes quickly.
 c. ??He said that he's leaving yesterday.

- (60) a. Los niños salieron de la sala silenciosamente.²⁴ [Spanish]
 the children exited of the room silently
 'The children left the room silently.'
 b. Los niños comieron los pasteles rápidamente
 the children ate the cakes quickly
 'The children ate the cakes quickly.'
 c. ??Dijo [que se iba] ayer.
 Said.3SG that SE was.going yesterday
 [Spanish, Jorge Cortina López, p.c.]

- (61) a. Les enfants sont sortis de la pièce silencieusement.
 the children are left of the room silently
 'The children left the room silently.'
 [French, Bonami et al. (2004: 155)]
 b. Les enfants ont mangé les gâteaux rapidement.
 the children have eaten the cakes quickly
 'The children ate the cakes quickly.'

²⁴ A potential confounding factor is that *-mente* is arguably a separate word in Modern Spanish, as illustrated by the fact that it can modify co-ordinated adjectives:

(i) el estadio [triste y lenta]mente se empezó a vaciar

As such, *-mente* adverbs qualify as 'heavy' (though left-branching) and might be extraposed for this reason. In fact, adverbs without *-mente* cannot appear in this post-PP/DP position:

(ii) *Hablo con los chicos bajo.

(iii) Hablo bajo con los chicos.

A similar case could be made for French *-ment* adverbs. Note that time adverbials such as *ayer/hier* 'yesterday' can also appear in a post-PP/DP position, but these have elsewhere been argued to be concealed PPs.

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- c. ??Il m' a dit qu' il viendra hier.
 he me has said that he will.come yesterday
 [French, Caroline Cordier, p.c.]

This might be taken as evidence that adverbs are simply not subject to FOFC, presumably because they do not select and are not selected for (in the normal case). Unfortunately, though, given the LCA and FOFC, deriving clause-final adverb orders is no trivial task as the functional heads housing adverbs in their specifiers are presumably subject to FOFC.

If the placement of adverbs is determined by the LCA then for a VP-adverb to follow VP, the material contained in the latter must necessarily have raised past said adverb. Assuming, as Cinque (1999) has argued, that adverbs are merged as the specifiers of functional heads, the simplest way to derive the correct word order is via phrasal movement of VP past Adv, as mentioned above:

(62) [_{FP} [_{VP} V O] F[^] [_{XP} Adv X [_{VP}]

The problem with (62), from our perspective, is that movement of a head-initial VP past the null head X to the specifier of FP is a FOFC-violation for both of the accounts of FOFC given in this volume (cf. chapters X & Y). According to BHR, F in (62) could only bear [^] if it were a lexical head, beginning a new extended projection. BHR need to assume that auxiliaries, which are located higher than F, are in the extended projection of V in order to account for the lack of V-O-Aux. By implication, then, F must also be part of that same extended projection.²⁵ For Sheehan, movement of a head-initial VP within its phase is expected to require discontinuous spell-out of VP, giving rise to the order V-Adv-O rather than V-O-Adv.

There are at least three ways to circumvent this problem. The first is to reject the LCA and reformulate an alternative analysis of FOFC. For example, BHR's [^]-percolation account could be restated without the LCA, if the [^]-feature signalling head-finality signals only head-finality, rather than narrow syntactic movement. Adjunct placement would then fall outside FOFC, being regulated by some other mechanism (cf. Ernst 2003, Abels and Neeleman 2009). The second option is to weaken the LCA and claim that it linearizes only argument structure, adjunct placement being regulated by some different mechanism. I will not explore either of these possibilities here. Finally, it might be claimed that the structure *[V-O]-Adv is banned and that the data which appear to falsify it, like the Hindi and Turkish data discussed above, have a different structure. I will briefly explore this last possibility here.

One possible analysis of V-O-Adv order is that the object and verb do not move past the adverb as a constituent, but rather in separate movements (cf. Johnson 1991, citing Postal 1974, Koopman 1989). Johnson gives convincing evidence that both the verb and DP object vacate VP in English, whereas PP and CP complements remain in-situ. Adapting his analysis slightly, I propose that V raises to v and both DP and PP objects vacate VP, with DPs raising to a higher position than PPs. First recall the full range of adverb placement facts with DP, PP and CP complements:

- (63) a. John {quickly} walked {quickly} to school {quickly}.
 b. John {quickly} ate {*quickly} his toast {quickly}.
 c. John {quickly} said {quickly} that he was late {??quickly}

Assuming there are at least three relevant adverb positions here, the data can be summarised linearly as follows:

(64) ...T Adv₁ V DP Adv₂ PP Adv₃ CP

²⁵ If auxiliaries are not part of the same extended projection as the verb then the lack of VO-Aux structures cannot be a FOFC-effect.

These examples present an additional surface violation of the ban on *V-X-Aux. Once again, though, it appears that these examples do not have the structure *[V-O]-Adv]. Haddican (2004) argues, partly on a semantic basis that these examples involve phrasal movement. He shows that in non-negative clauses in Basque the whole verbal complex V!P (including the verb, modals and preverbal interval arguments) raises to spec PolP. In negative contexts, the negative marker *ez* raises instead and VP remains in-situ:

- (71) Ez al zio-n galde-tu-ko?
 NEG speech.act Aux-T(past) ask-Asp(perfect)-T(future)
 ‘Wasn’t she going to ask him (that)?’

Etxepare (2009) gives evidence that there is dialectal variation as to whether *omen* is a head or specifier. In what he terms Eastern II dialects, *omen* is the specifier of a functional head in a different extended projection from TP. In central dialects, however, he argues that *omen* is a head which projects a head-initial phrase above the projection of the auxiliary. As such, phrasal movement of V!P past this head-initial phrase gives the following structure:

- (72) [_{PolP} [_{V!P} O-V] Pol [_{ModP} *omen* [_{TP} T t_{V!P}]]]

Whether this is a violation of FOFC under BHR’s account depends on the nature of the trigger for V!P movement in such cases. If such movement is A-bar movement then it plausibly falls outside the constraint. A potential problem with this is that the movement operations which give rise to disharmonic word orders in languages like Finnish are plausibly also A-bar movements, and yet they still give rise to FOFC effects. Under the PF-interface account, FOFC reduces to a linearization problem triggered by the movement of a non-atomic *head-initial* phrase. As such, the structure in (74) is unproblematic for that approach.

6 Conclusions

In this chapter I have considered to what extent there is an asymmetry between head-initial and head-final sequences of verbs. While it is true that in some languages head-final verbal sequences can be interrupted by certain adverbials, the elements which can surface in this position are very limited in scope and all cases do not have the structure *[V-Adv]-Aux]. This means that a more general version of FOFC holds than previously claimed, whereby no phrase can occur between V and a following Aux. It has been noted that this gap is actually predicted by existing accounts of FOFC in conjunction with Ernst’s asymmetry. The reason for Ernst’s asymmetry, though, remains elusive.

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