

Chapter 6: The Final-over-Final Constraint and the Head-Final Filter

1 Introduction

There is a tantalising similarity between FOFC, which bans a right-branching phrase as the complement of a left-branching phrase (in certain contexts, see chapter 1) and the ban on right-branching prenominal modifiers in English and many other languages (with the example, but not the structure from Abney 1987: 326) (as noted by BHR 2007):

- (1) *Basic FOFC*: $*[\gamma_P [\alpha_P \alpha \beta] \gamma]$
- (2) *John is a $[_{NP} [_{AdjP} \text{proud of his son}] \text{man}]$.

Example (2) exemplifies Greenberg's (1963) 'Universal 21', later extended as Emonds' (1976) 'Surface Recursion Restriction' and Williams' (1982) 'Head-Final Filter' (HFF). The HFF bans anything from intervening between the head of a prenominal modifier and the phrase which it modifies. Despite superficial similarities, however, there are apparent structural differences between (1) and (2), which make a reduction of (2) to (1) far from straightforward. The aim of this chapter is to consider how real these differences are and to argue that (2) should, nonetheless, fall under (1), making FOFC even more general than previously thought.

The chapter is structured as follows. Section 2 gives an overview of the constraint from the work of Greenberg and Williams and then compares it with FOFC. Section 3 gives evidence for the constraint from a number of languages, discussing also the ‘compliance strategies’ employed in these languages to avoid violations of the filter. Section 4 discusses those languages which do not seem to be subject to the filter, notably a number of Slavic and Balkan languages. Section 5 raises some objections to previous accounts of the HFF and argues that the gap actually falls under FOFC, once certain independently motivated assumptions are made about adjectival modification. Finally, section 6 concludes and raises some questions for future consideration in the light of this new evidence for FOFC.

2 Evidence for the Head-Final Filter

2.1 Greenberg’s Universal 21

Greenberg (1963: 70) notes that of the four possible word order combinations of AdjP and N, (3d) alone is unattested in his representative sample of languages:

- (3) a. [N [Adv-Adj]]
b. [N [Adj-adv]]
c. [[Adv-Adj] N]
d. *[[Adj-Adv] N]

He further notes that while there are N-Adj languages allowing both Adj-Adv and Adv-Adj orders, there are no Adj-N languages allowing both orders of Adv and Adj. This asymmetry is given as his Universal 21:

(4) Universal 21 (U21, Greenberg 1963: 70)

If some or all adverbs follow the adjective they modify, then the language is one in which the qualifying adjective follows the noun and the verb precedes the object as its dominant order.

As is well known, English fairly uncontroversially adheres to this universal, disallowing the order Adj-Adv in prenominal position (examples from Sadler and Arnold 1994: 187, 190):

- (5) a. *a [dressed in blue] man
b. *the [navigable by boat] rivers
c. *a [running smoothly] meeting
d. *a [long for such a late hour] journey
e. *a [skilful for a novice] surgeon

Where adverbials precede the adjective in this prenominal position, however, the result is fully grammatical:

- (6) a. a [smartly dressed] man

- b. the [easily navigable] rivers
- c. a [smoothly running] meeting
- d. a [most extremely long] meeting
- e. a [highly skilful] surgeon

A further similarity between U21 and FOFC, then, is the fact that both constraints hold in languages with variable word orders as well as cross-linguistically.

2.2 *Williams' Head Final Filter*

Williams (1982: 161) observes that the restriction on prenominal modification is actually more general than Greenberg noted and claims that it equates to “a constraint barring post-head material in prenominal modifiers” (his ‘Head-Final Filter’ - HFF). As such post-adjectival adverbial modifiers are banned as in (5), but so too are complements, as in the following examples:

- (7) a. *a [bored of French] student
- b. *a [sick of waiting] patient
 - c. *an [afraid of his contemporaries] writer
 - d. *a [sporting a mackintosh] man
 - e. *an [in the corner] chair¹

Note that in (7e), the prenominal modifier is a PP rather than an AdjP, suggesting that the restriction is also not category-sensitive.

Beyond examples (5) and (7), however, there is some controversy as to which other word order effects fall within the remit of the HFF. Grosu & Horvath (2006), for example, argue at length that the obligatory extraposition seen with comparatives and degree modifiers in many languages is directly attributable to the HFF (with illustrative English examples):

(8) a. *John is [more than Bill (is)] tall.

b. *John is [more than he is fit] tall.

(9) a. *John is [too to be honest] kind.

b. *John is [as as Mary] smart.

Grosu, Horvath & Trugman (2007: 13) further claim that the ban on right-hand modifiers inside comparative DPs also has the same explanation:

(10)a. *John is a [more intelligent than Bill] man.

b. *John is a [more unusually than any of you] dressed student.

For this to be the case, the underlying structure of comparatives and degree modifiers must be basically as follows, as they note:

(11)a. [AdjP [DegP more [CP than Bill (is tall)]] tall]]

b. [DP a [NP [AdjP [DegP more [CP than Bill (is tall)]] tall]] man]]

The HFF then forces the complement of the Deg head (more) in (11a) and (11b) to be extraposed.

There are several reasons to favour this explanation of extraposition in comparatives and degree modifiers over the semantic explanation in Bhatt & Pancheva 2004. Firstly, note that there is good evidence that the CP in such structures forms a constituent with the Degree head at some level of representation, in fact, even Bhatt & Pancheva argue at length for this claim, though they argue that it is late-merged in this position.² The main evidence that CP is the complement of Deg comes from the fact that there are selectional restrictions between the degree head and C (as Bresnan 1973 noted).³ Secondly, as Grosu, Horvath & Trugman (2007) note, and as I discuss in section 4, Russian allows superficial violations of the HFF with both comparatives and AdjPs, making a semantic explanation of extraposition in comparatives suspect.⁴ Moreover, as Grosu, Horvath & Trugman (2007) also note, other languages employ the same kinds of compliance strategies in both contexts. Thus Hungarian, which is also subject to the HFF permits the complements/modifiers of both attributive adjectives and comparatives to be fronted rather than extraposed (see section 3.2 on HFF compliance strategies):⁵

(12) Mari [Jánosnál] kevésbé magas

Mary John.at less tall

‘Mary is less tall than John.’

[Hungarian, Grosu, Horvath & Trugman (2007: 22)]

Finally, Grosu, Horvath & Trugman (2007) point out a more general problem with Bhatt and Pancheva’s semantic trigger for extraposition (via late merger). According to Bhatt and Pancheva (2004: 39), it is the fact that *-er* is *non-conservative* which forces late merger of its complement, once it has undergone rightwards quantifier raising (in the manner proposed by Fox and Nissenbaum 1999).⁶ As Bhatt and Pancheva note, whereas most quantifiers in natural language are conservative, *-er* is non-conservative in that its first argument is a proper subset of its second. The problem is that many degree modifiers which also require obligatory extraposition are *conservative*, meaning that the late-merge analysis “misses what seems to be a significant generalization” (Grosu, Horvath & Trugman (2007: 14). It is, thus, reasonable to assume that the word order in comparatives can be attributed to the HFF.

The pattern with degree modification more generally is more complex as all degree modifiers except those containing *enough* surface in a left-peripheral position in English. In all cases, though, complements are obligatorily extraposed, presumably because of the HFF:

(13)a. *John is [_{DP}[as smart as Pete] a guy]

b. John is as smart a guy as Pete.

(14)a. *John is [_{DP} [too smart to argue with] a guy]

b. John is too smart a guy to argue with

(15)a. *John is [_{DP} a [tall enough to play basketball] guy].

b. John is a tall enough guy to play basketball.

Finally, consider the behaviour of tough- and other adjectives selecting a clausal complement, which are also subject to the HFF:⁷

(16)a. *a difficult for anyone to read book

b. *an easy to persuade someone to read book

(17)a. *A pretty for anyone to look at flower

b. *An unlikely to choose film

c. *A willing to help out receptionist

The ungrammatical examples in (16), named ‘tough-nuts’ by Berman (1974), can be ruled out by the HFF under the assumption that they share a basic structure with clausal tough-constructions. Hicks (2009) argues for the following structure for clausal tough-constructions whereby the non-thematic subject of a tough-construction is base generated inside the null operator as the object of the most embedded verb. Once this operator has moved to the edge

of CP, the DP then becomes visible for raising to the matrix subject position, as per the following slightly simplified structure:

(18)[[This book]_k is [_{AdjP} difficult [_{CP} [_{DP_j} Op t_k] C [_{TP} PRO to read t_j]]]]

If the tough-nut structure is parallel then in instances of indirect adjectival modification, the nominal contained in the null operator (books) would raise to spec CP, as per Kayne (1994), with the reduced relative clause then free to front or remain in situ:

(19)a. [_{CP} [books]_k C [_{AdjP} difficult [_{CP} [_{DP_j} Op t_k] C [_{TP} PRO to read t_j]]]]

b. [_{DP} D [_{FP} [_{AdjP} difficult [_{CP} [_{DP} Op_j t_k] C [_{TP} PRO to read t_j]]]_m F [_{CP} - [books]_k C t_m]]]]

Where AdjP moves to the prenominal position (Spec FP), the fact that its CP complement is obligatorily extraposed would thus be a further effect of the HFF.⁸

There is thus considerable evidence that the HFF applies to several different kinds of prenominal modifiers in English (AdjPs, PPs, DegPs). In the following section I briefly consider the relationship between the HFF and FOFC before turning to broader cross-linguistic patterns of prenominal modification.

2.3 FOFC and the HFF

A superficial similarity between the HFF and FOFC has already been noted above, see (1)-(2), repeated here:

(20) *Basic FOFC*: $*[\gamma_P [\alpha_P \alpha \beta] \gamma]$

(21) *HFF* $*\text{John is a } [\text{NP } [\text{AdjP proud of his son}] \text{ man}]$.

As noted above, the HFF, like FOFC, holds both cross-linguistically and in languages with variable word orders (as illustrated in (5)-(6)) makes this similarity even greater. An important difference between the HFF and FOFC (in its simplest form), however, is that most examples of the latter involve complementation between γ and α_P , whereas in (21) AdjP is a modifier of NP . It is argued in [chapter 5](#) that FOFC effects are also observed where β is an adjunct, so that V-Aux sequences cannot generally be interrupted by either arguments or adjuncts, suggesting that FOFC may be sensitive to sisterhood rather than complementation. For the HFF, too, to fall under FOFC, it would have to be the case that the same structure is ruled out even where α_P is an adjunct:

(22)a. $*[\gamma_P [\alpha_P \alpha \beta] \gamma]$ where α_P and β are complements (basic FOFC)

b. $*[\gamma_P [\alpha_P \alpha \beta] \gamma]$ where α_P is a complement and β is an adjunct (ch 5)

c. $*[\gamma_P [\alpha_P \alpha \beta] \gamma]$ where α_P is an adjunct (HFF)

In the account of FOFC developed by BHR (see chapter 3), the constraint is relativized to sisterhood relations within extended projections, meaning that (22c) would constitute a FOFC-violation only if γ were a head in the extended projection of α . In Sheehan's account (again see chapter 3), the constraint holds wherever αP is externally merged as a complement lower than γ and moved without being atomized. In neither approach is it immediately obvious that (22c) can be analysed in the same way as (22a-b).

While it is fair to say that there is no general consensus as to the structural status of (the various kinds of) adjectives (Adjs), with many different possibilities being entertained in the literature, certain possibilities can nonetheless be ruled out quite uncontroversially. As is well known, the argument/adjunct distinction is far from clear-cut, both empirically and theoretically, but there nonetheless seem to be strong reasons to reject the idea that adjectival phrases are the complements of N.⁹ In introductory textbooks, it is often asserted that complements are obligatory whereas adjuncts are optional: Adjs are clearly not complements in this sense as they are never obligatory in DPs. There are well-known challenges to this generalisation in both directions, though, making the diagnostic potentially problematic.¹⁰

Another well-known diagnostic concerns iteration, the claim being that adjuncts unlike complements can be iterated. While there are restrictions on AdjPs containing complements in English, it is possible for two to co-occur, especially if one of them is spelled out discontinuously (cf. section 3.2.2):

(23) I know a customer annoyed with the service ??(and) aware of his rights.

(24) I know a younger man than John allergic to peanuts.

Thus (23), where both the AdjPs are postposed, is rather awkward without the co-ordination marker, but (24) is fully grammatical, where *younger than John* requires extraposition because of the HFF (cf. Grosu, Horvath & Trugman 2007 and the discussion in section 2.2 above). Note that (23) also improves if one of the adjectival modifiers is embedded in a full relative clause, suggesting that it might be marginal for processing reasons:

(25) I know a customer annoyed with the service who is aware of his rights.

More than two AdjPs are also possible:

(26) I know a younger man than John allergic to peanuts ?(who is) sick of the food here.

Other syntactic tests distinguishing adjuncts from complements also suggest that these AdjPs are adjuncts. The familiar *do so* and *one* replacement tests are standardly taken to indicate whether an XP associated with VP or NP (respectively) is a complement of that head or not. By this criterion, adjectival

phrases (AdjPs) of the kind in (21) again do not pattern with complements of N:¹¹

- (27)a. ?John may not be a good parent but he is one proud of his son.¹²
b. *Mary may not be an historian of ideas but she is one of science.

Semantic diagnostics can also be applied with some degree of reliability. In the most basic terms, whereas adjunction often gives rise (semantically) to predicate modification, complementation gives rise to saturation via functional application. Thus a ‘red car’ is something which is both red and a car, whereas an historian of science is not something/one who is both a historian and of science.¹³ By this criterion too, then, AdjPs like ‘proud of his son’ do not pattern with complements of N (a man proud of his son is someone who is both a man and proud of his son). For this reason, while the syntax of adjunction remains a highly complex issue to which I return at length below, it is fairly uncontroversial that example (21) does not straightforwardly fall under FOFC as stated in (22a). In the remainder of his chapter, we nonetheless argue that (22a-c) should be taken as instantiations of the same deep constraint. Before that, though, we consider the cross-linguistic status of the constraint in some detail, first considering languages where it appears to hold and then turning to apparent counterexamples.

3 Languages subject to the HFF

3.1 Cross-linguistic evidence for the HFF

The HFF can be seen to hold in (at least) German, Dutch, Swedish, Finnish, Hungarian, French, Spanish, Portuguese, Italian, Romanian¹⁴, Czech, Slovak, Sorbian, Serbo-Croatian, Slovene and Persian (cf. Abney 1987, Sadler and Arnold 1994 on English; Williams 1982, Haider 2004 on German; Zwart 1996, Hoekstra 1999 on Dutch; Platzack 1982, Delsing 1993 on Scandinavian; Grosu & Horvath 2006 on Hungarian; Bouchard 1998, 2002, Abeillé & Godard 2000 on French; Luján 1973 on Spanish; Giorgi 1988, González Escribano 2004: 1, fn 2 on Italian; Grosu & Horvath 2006 on Romanian; Siewierska & Uhlířová (2000) on Slavic; and Cinque 2010: 44-49 for a brief overview). In all such languages, prenominal adjectives cannot be followed by a complement CP/PP:¹⁵

(28) de [trotse (*op zijn vrouw)] man
 the [proud (*of his wife)] man
 intended 'the man proud of his wife' [Dutch, Zwart 1996: 85, fn 3]

(29) ein [unzufriedener (*damit)] Syntaktiker
 an unsatisfied (*it.with) syntactician
 intended 'a syntactician unsatisfied with it' [German, Haider 2004:783]

(30) une [facile (*à remporter)] victoire

a easy to win victory

intended ‘a victory easy to win’ [French, Abeillé & Godard (2000: 344)]

(31) uma [boa (*a matemática)] aluna

a good at maths student

intended ‘a student good at maths’ [Portuguese]

(32) O [interesantă (*pentru noi toți)] propunere

an interesting for us all proposal

intended ‘an interesting proposal for us all’

[Romanian, based on Grosu & Horvath (2006: 28)]

Although comparative DPs are not generally discussed in relation to the HFF, at least Dutch, Spanish, French, Portuguese and Hungarian show the same restriction in this domain too. The effect is therefore a pervasive property of a number of natural languages, whatever its explanation.

Note that this ban applies even in languages which only allow restricted classes of prenominal adjectives, where its salience as a constraint would be less manifest, making it difficult to acquire. In Persian, adjectives usually follow the noun, which bears *ezafe* marking. One exception to this comes from superlatives which precede the noun and do not require *ezafe* (Samiian 1994):

(33) kûechek-tarin mive

small-est fruit

Interestingly, in such contexts, Persian also disallows a complement to occur between the prenominal superlative adjective and the noun:

(34) *[vafadar-tarin be shohar-am] zan [Persian]¹⁶
 loyal-est to husband-my woman

As such, there is suggestive evidence that the ban results from a synchronically active constraint, rather than an historical idiosyncrasy, as it holds even in hidden pockets of some languages. It has also been noted, however that a small number of Slavic/Balkan languages appear to permit violations of the HFF. I consider these languages in some detail in section 3. Before this, though, I examine the compliance strategies employed in connection with the constraint.

3.2 *Compliance strategies*

Another feature which the HFF shares with FOFC is that languages appear to use different repair or compliance strategies to avoid violations (see **chapters 1 and 3** on extraposition and FOFC).

3.2.1 Preposing

In German, Dutch, Scandinavian, Finnish, Hungarian, Czech, Slovak, Sorbian, Serbo-Croatian and Slovene, it is possible to prepose a PP complement/modifier of Adj to a preadjectival position (cf. Haider 2004 on German; Zwart 1996, Hoekstra 1999 on Dutch; Platzack 1982, Delsing 1992 on Scandinavian; Grosu & Horvath 2006 on Hungarian; Siewierska & Uhlířová 2000 on Slavic):

(35)	een	[op Marie]	verliefde	jongen	
	an	of Marie	in.love	boy	
	'a boy in love with Marie'			[Dutch, Hoekstra (1999: 180)]	

(36)	ett [sedan i går]	välkänt	faktum	
	a since yesterday	well.known	fact	
	'a fact well-known since yesterday'		[Swedish, Delsing (1992:25)]	

(37)	na [svého syna]	pyšný muž	
	of his son	proud man	
	'a man proud of his son'		[Czech, Siewierska & Uhlířová (2000: 135)]

(38)	A [fizetésükkel]	elégedetlen munkások	nem dolgoznak	jól.
	the salary.their.with	dissatisfied workers.NOM	NEG work.3PL	well
	'Workers dissatisfied with their pay don't work well.'			

[Hungarian, Grosu & Horvath (2006: 21)]

This strategy is also marginally available in Macedonian, a language which has been claimed not to be subject to the HFF (but which actually displays a weak version of it, according to my informant):

(39) ?od svoite roditeli zavisno momche
 on his parents dependent boy [Macedonian]¹⁷

Interestingly, the languages I have been able to test (English, Serbo-Croatian, Slovene, Afrikaans and Swedish) do not readily permit this compliance strategy with CP complements of Adj.¹⁸ It is at the very least much more marked than with PPs, and is judged ungrammatical in Swedish and Slovene:¹⁹

(40) *da je vojna zavesten otrok [Slovene]
 that is.3SG war.F aware.M child.M
 ‘a child aware that there is a war’

(41) ?(?)da je rat svijestno dijete [Serbo-Croatian]
 that is.3SG war.M aware.N child.N
 ‘a child aware that there is a war’

FOFC provides a potential explanation as to why CPs behave differently from PPs in this way. As described in chapter 3, C-initial clausal complements cannot surface in a preverbal position even in otherwise OV languages, whereas PPs in some such languages can.²⁰ The same appears to hold of complements to Adj.

Hungarian allows the same preposing strategy with phrasal comparatives. In predicative position, the PP complement of a comparative can either follow or precede Deg, but when DegP is preposed, it must precede it:

(42)a. Mari kevésbé magas [Jánosnál].

Mary less tall John.at

b. Mari [Jánosnál] kevésbé magas

Mary John.at less tall

‘Mary is less tall than John.’ [Hungarian, Grosu & Horvath 2006: 479]

(43)a. *Egy kevésbé magas [Jánosnál] lány lépett be.

a less tall John.at girl stepped in

b. Egy [Jánosnál] kevésbé magas lány lépett be.

a John.at less tall girl stepped in

‘A girl less tall than John walked in.’

[Hungarian, Grosu & Horvath 2006: 479]

Assuming that CPs also cannot be preposed in Hungarian, these facts lend support to Wunderlich's (2001) claim that true phrasal comparatives exist in addition to clausal comparatives.

This compliance strategy again makes the HFF appear similar to FOFC, as preposing the PP complement/modifier in such cases removes the offending right-branching structure. Interestingly, this compliance strategy coexists with alternative strategies in the languages in question, as discussed in the following sections.

3.2.2 PP/CP Extraposition

There is an additional compliance strategy available in English, Dutch, Afrikaans, Swedish, Serbo-Croat, Slovene and more marginally German and Macedonian. This involves the extraposition of a CP/PP complement/modifier from an AdjP/DegP.

In Slovene and Macedonian the strategy appears to be generally available, irrespective of the categorical status of the head or modifier, whether the latter is a complement/adjunct and whether this is stage or individual-level modification:

- (44)a. zavesten otrok, da je vojna
 aware.M child.M that is.3.SG war.F
 ‘a child aware that there is a war’ [Slovenian]

- b. odvisen mladenič od svojih staršev
 dependent.M young.man.M from REFL.POSS.ACC parents.PL.ACC
 ‘a youth dependent on his parents’
- c. pričakovano vplačilo čez trideset dni
 expected.N payment (in).N in 30 days.QUANT.GEN
 ‘a payment expected in 30 days’

In English, Swedish, Dutch and to a lesser extent German and Afrikaans this strategy is also available but more constrained than preposing and sensitive to:

- (a) whether the head of the modifier is Adj or Deg;
- (b) whether the PP/CP is a complement or an adjunct;
- (c) whether prenominal adjectives are interpreted as stage/individual-level modifiers in a given language.

Extraposition is possible only with CP/PP complements of Deg and with CP complements/PP modifiers of individual-level predicates (cf. González Escribano 2005, building on work by Bernstein 1995 for extensive discussion of the English data upon which these examples are based). Hence CP complement extraposition is banned from stage-level but not individual-level AdjPs, as González Escribano 2005 shows:

- (45) a. a difficult book for anyone to read
b. an easy book to persuade someone to read
c. a pretty flower for anyone to look at
d. an unlikely film to choose
- (46) a. *an anxious foreigner to make himself understood
b. *a bound marriage to fail
c. *a condemned prisoner to be shot at dawn
d. *a disinclined colleague to cooperate
e. *a due book to appear soon
f. *an eager yuppie to succeed
- (47) a. *an aware child that there is a war
b. *a conscious woman that she has no chance
c. *a convinced teacher that he is always right
d. *a glad mother that her children are well off
e. *a happy girlfriend that he is a bachelor

(González Escribano 2005: 567-568)

Extraposition of PP complements is not generally possible:

- (48) a. *A proud man of his son
b. *An angry teacher with her student

- c. *A satisfied customer with the service
- d. *a capable man of murder
- e. *a dependent youth on his parents
- f. *a familiar teacher with our problem²¹

Adjunct PP extraposition from AdjP, however, *is* permitted, again as long as the adjective in question is individual-level:

- (49)a. A long journey for such a short distance
- b. A skilful surgeon for a novice
- c. A fat man around the waist
- d. A lucky woman in matters of love
- e. A popular guy with girls
- f. A respected woman in her field

(examples based on González Escribano 2005: 568)

- (50)a. *a blue man in the face
- b. *a due payment in thirty days
- c. *a restless child in her seat
- d. *a suffering patient from early childhood
- e. *a tired woman in the evenings
- f. *a yellow book with age

(González Escribano 2005: 567-570)

The same pattern holds in Dutch, Swedish, Afrikaans and German.²² At present I have no clear understanding of why the individual/stage-level distinction should affect extraposition possibilities or indeed why extraposition of complement PPs should be banned, and I leave these matters to future research.

In the case of DegP, CP/PP extraposition is much less constrained. Thus CP extraposition appears to be fully productive in comparative and degree modifier constructions regardless of the individual/stage-level distinction:

(51)a. A bigger problem [_{CP} than Op we had first anticipated]

b. A bigger fool [_{CP} than Op John (...)]

c. too smart a guy [_{CP} to argue with]

d. a tall enough guy [_{CP} to play basketball]

e. A more restless child [_{CP} than I had imagined]

(52) Een meer intelligente student dan Wim

A more intelligent student than Wim

‘a more intelligent student than Wim’ [Dutch, Hoekstra (1999: 180)]

The same is true in English, German, Afrikaans and Swedish, but not Dutch, with what González Escribano calls symmetrical or comparative modifiers of the following kind:

- (53) a. an alternative view to Chomsky's
b. an analogous hypothesis to Abney's
c. a comparable situation to ours
d. a different view from yours
e. an equivalent idea to that
f. a parallel theory to Frege's
g. a separate room from ours
h. a similar car to mine

I assume that these modifiers are also degree modifiers, hence the fact that they can also surface with a *than*-CP complement, and with an overt *wh*-phrase (in non-standard dialects), both properties they share with comparative constructions:

- (54) A different one than (what) I'm used to

As such, these examples do not present counterexamples to the ban on PP complement extraposition from AdjP, as the extraposed material is a complement of Deg. Again, I have no clear understanding of why PP complements of Deg should pattern differently from PP complements of Adj and I leave this matter to future research.

3.2.3 Wholesale extraposition of AdjP

Finally, it is crucial to note that in all the languages tested (English, German, Swedish, Dutch, Afrikaans, Slovene, Serbo-Croatian, Polish, Macedonian, Portuguese and French), in all HFF contexts, right-branching modifiers can simply be postposed wholesale to a post-nominal position. In languages which lack the other compliance strategies this is the only option available, for example, in Spanish, Portuguese and French, as it is with PP/CP complements/modifiers of stage-level AdjPs in English. In the other Germanic and Slavic languages, this strategy coexists with the other available strategies, though it is marginal in Afrikaans in the absence of a relative marker:

(55) Une victoire [facile à remporter]

A victory easy to win

‘An easy victory to win’ [French, Abeillé and Godard (2000: 339)]

(56) uma aluna [boa (a matemática)]

a student good at maths

‘a student good at maths’ [Portuguese]²³

(57)a. A student bored of French

b. A patient sick of waiting

c. A chair in the corner

- (58)a. a man blue in the face
b. a payment due in thirty days
c. a child restless in her seat

This compliance strategy is reminiscent of the FOFC-compliance strategy observed with head-initial CP complements in OV languages, as discussed in **chapter 1**. These CPs are always extraposed wholesale in otherwise OV languages (see Biberauer & Sheehan 2012 for a potential analysis).

[insert table 6.1 here]

The data in table 6.1 show that all languages permit wholesale extraposition of phrasal modifiers. In addition to this compliance strategy, languages differ with the extent to which they employ the two additional strategies.

3.3 *Similarities with FOFC*

The data discussed in this section including the three compliance strategies strongly suggest that the restriction on pre-nominal modifiers is sensitive to word order.²⁴ This much is also obvious from Greenberg's observation that left-branching prenominal modifiers are readily acceptable in the same languages which block right-branching prenominal modifiers:²⁵

- (59)a. An [only recently posted] letter

b. A [most extremely loyal] husband

c. *A [running smoothly] meeting

As expected, this means that more strongly head-final languages trivially conform to the HFF. Kornfilt (1997: 96) shows that the following are well-formed in Turkish, for example:²⁶

(60) [Ben-im kadar yorgun] bir insan
 I-GEN as.much.as tired a person
 ‘A person as tired as me’

(61) [Koca-sın -a çok sadık] bir kadın
 Husband-GEN DAT very loyal a woman
 ‘A woman loyal to her husband’

In Japanese, likewise, left-branching prenominal modifiers are fully acceptable, and indeed are the only available option:²⁷

(62) chocolate daisuki josei [Japanese]²⁸
 chocolate love woman
 ‘a woman fond of chocolate’

(63) kuroi fuku o kiteiru josei [Japanese]

black clothes ACC wearing woman

'A black clothes wearing woman'

Thus far, the data from a range of Indo-European languages, Finnish and Hungarian reveal the HFF to be more than a language-specific idiosyncrasy. The question remains open, though, whether it is a universal constraint, or a pervasive trait of Standard Average European (in the sense of Haspelmath 1998). The existence of apparent counterexamples to the effect even within the European area in English as well as certain Balkan/Slavic languages might appear to suggest that the HFF is not universal. I argue in the following section, however, that these often only marginally acceptable counterexamples do not serve to undermine the potential universality of the constraint, as there is independent evidence that prenominal modifiers involve considerable hidden structure at least in some of these languages.

4 Apparent counterexamples to the HFF

4.1 English counterexamples

Although the effect of the HFF is pervasive, it is not, apparently, absolute. Even in English, for example, 'tough-adjectives' with non-finite clausal complements can often surface in the preverbal position (corpora examples from Leung & Van der Wurff 2012):

(64)a. an easy-to-understand book

- b. a hard to refute argument
- c. some difficult-to-reach places

The usual explanation for these kinds of counterexamples is that the AdjPs in question are ‘complex lexical items’ or ‘atomic units’, hence the tendency for hyphenation (cf. Nanni 1980: 574, citing Roeper and Siegel 1978). This is arguably the case also with other apparently right-branching prenominal modifiers, which certainly have a lexical ‘frozen’ flavour and are also often written with hyphenation:

- (65)a. his holier-than-thou attitude
- b. the Final-over-Final Constraint
- c. his down-to-earth demeanour

Note that this is also possible in some restricted cases with comparatives, and as O’Flynn (2008, 2009) notes, a small group of adjectives which cannot appear in tough-constructions:

- (66)a. Mary is a [taller than average] player
- b. there are [more than six] players in our team
- c. an eager-to-please boyfriend

Crucially, these structures share certain properties with compounds. For example, regular plural morphology is blocked inside complex prenominal modifiers, as Sadler and Arnold (1994: 189) note, just as it is inside compounds. In a postnominal position, however, such morphology is required:

(67)a. more than ten mile(*s) long walk

b. a walk more than ten mile*(s) long

(68)a. a bug(*s)-catcher

b. a catcher of bug*(s)

Another indication that these examples are frozen lexicalised structures stems from the fact that they cannot contain adverbial modifiers, as Nanni (1980: 575) notes:

(69)a. *an easy to quickly clean room

b. *a hard to find in the attic manuscript

c. *a simple to neatly sew pattern

Observe also that overt experiencers are also banned in these lexicalisations (Nanni 1980: 575), as are parasitic gaps and multiple embeddings:

(70)a. *a difficult for anyone to read book.

- b. *a difficult to read without buying book
- c. *an easy to persuade someone to read book

The construction is also limited in its productivity, being highly marginal with most tough-adjectives which are not on the easy-hard scale:

(71) This is an *unpleasant/*annoying/?amusing/?fun to read book

This idiosyncratic restriction as well as the ban on internal syntactic structure are the hallmarks of a lexical phenomenon. Leung & Van der Wurff (2012) observe, moreover, that examples like those in (64) are only attested in corpora since the 1920s, suggesting that they are part of a recent trend towards heavy prenominal modification. The alternative ‘tough-nut’ construction in (72) is, however, attested from Old English onwards, and is fully productive (Leung & Van der Wurff 2012):²⁹

- (72) a. a tough nut to crack
- b. a difficult person to please
 - c. a difficult place to reach

I therefore assume that these apparent counterexamples to the HFF in English are atomic lexical units, which do not represent a genuine counterexample to the HFF. That such atomised chunks are not subject to FOFC is unsurprising

given the account of FOFC put forth by Sheehan (see chapter 3) and extended to the HFF in section 5. Crucially, in these terms, FOFC is a constraint governing the relationship between hierarchical structure and linear order and so atomic units with no internal structure are immune to it.

4.2 *Counterexamples from Balkan languages*

It has long been noted that a number of Balkan languages appear to permit surface violations of the HFF. Cinque (2010: chapter 4) notes that there are apparent exceptions to the HFF in Russian, Bulgarian, Macedonian, Polish, Ukrainian and Greek. These languages all allow right-branching adjectival phrases to appear preminally (cf. also Babby 1975, Grosu & Horvath 2006 and Pereltsvaig 2007 on Russian, Siewierska & Uhlířová 2000 on Slavic and Androutsopoulou 1995 on Greek). Grosu & Horvath 2006 further note exceptions from Romanian comparatives:

(73)a. [dovol'nyi vyborami] prezident

satisfied elections.INSTR president

‘the president satisfied with the elections’

[Russian – Cinque (2010: 46), citing Bailyn (1994: 25)]

b. [mnogo gordiyat sās svoeto dete] bašta

very proud.the with SELF.the child father

‘the father very proud of his child’

[Bulgarian–Cinque (2010: 46, citing Tasseva-Kurktchieva (2005: 285)]

c. i [perifani ja to jos tis] mitera
 the proud of the son her mother
 ‘the mother proud of her son’

[Greek – Cinque (2010: 46) citing Androutsopoulou (1995: 24)]

In actual fact, it seems that Serbo-Croatian and Slovene also permit slightly marginal surface violations of the constraint, arguably more so, even than Macedonian.³⁰

There are three possible ways of dealing with such counterexamples. In the worst case scenario, they might force one to abandon the HFF as a deep property of grammar and to posit it as a fairly superficial though recurrent language-specific rule. Secondly, it might be the case that the effect is parameterised to hold only in certain languages. Finally, the HFF might still reveal a deep property of grammar with some other language-specific fact serving to give rise to apparent surface violations in some languages. The first two interpretations of the counterexamples are the most common in the literature, but I argue tentatively for the final possibility here.

4.2.1 Russian and Polish

Polish permits surface violations of the HFF, though in many contexts, such orders are slightly marginal, and wholesale extraposition is strongly preferred for the speaker I consulted:

(74)a. ??[ubrany w czern] mezczyzna [Polish]³¹

dressed in black man

b. mezczyzna [ubrany w czern]

man dressed in black

(75)a. ?[starszy od Johna] przyjaciel

older than John friend

‘an older friend than John’

b. przyjaciel [starszy od Johna]

friend older than John

‘a friend older than John’

In Polish, non-branching non-classificational adjectives must precede the noun (Rutkowski 2002, 2007, Rutkowski and Progovac 2005). Extraposition of AdjP therefore appears to be triggered only where AdjP is right branching, in violation of the HFF. These data appear to suggest that prenominal AdjPs in Polish can be right-branching, but that this is only a marginal possibility, and, in fact, the awkwardness serves to make the postnominal position possible, even preferred.

In Russian, too, such word orders are stylistically marked according to Grosu, Horvath & Trugman (2007), and wholesale extraposition is preferred. It is not clear, therefore, whether Russian and Polish are any different from

Serbo-Croatian and Slovene with respect to the HFF. All languages marginally permit surface violations of the constraint but the latter two have additional word orders available via preposing and CP/PP extraposition which are not possible in Polish or Russian.

4.2.2 Greek

In Greek, likewise, the HFF-violating order is slightly marginal (as Grosu, Horvath & Trugman 2007 also note).³² Once again, the prenominal order alternates with wholesale extraposition. However, as is more generally the case with post-nominal adjectives, this is only possible where the adjectival phrase is also marked for definiteness (see Androutsopoulou 1995):

(76)a. (?)i [perifani ja to jos tis] mitera

the proud of the son her mother

‘the mother proud of her son’

[Greek – Cinque (2010: 46) citing Androutsopoulou (1995: 24)]

b. i mitera *(i) [perifani ja to jos tis] [Greek]

the mother the proud of the son her

‘the mother proud of her son’

As such, Greek, too, displays a weak sensitivity to the HFF, though the marginal acceptability of (76a) remains problematic.

4.2.3 Bulgarian

In Bulgarian, the HFF-violating order appears to be fully acceptable, though CP complements in comparatives can still surface in an extraposed position. There is reason to believe, though, that complements of Adj might raise separately from Adj to a prenominal position. In Bulgarian, which has enclitic determiners, where an AdjP is fronted, any material preceding the adjective is obligatorily pied-piped along to the pre-determiner position, whereas any material following it is left behind (cf. Dimitrova Vulchanova and Giusti 1998, Embick & Noyer 2001, Boskovic 2005, Dost & Gribanova 2006, amongst others):

(77)a. mnogo xubavi-**te** knigi

very nice-the books

‘the very nice books’

b. *mnogo-**te** xubavi knigi

(78)a. kupena-**ta** ot Petko kniga

bought-the by Petko book

‘the book bought by Petko’

b. *kupena ot Petko-**ta** kniga

c. vernij-**at** na Vera muž

truthful-the to Vera husband

‘the husband truthful to Vera’

- d. *veren na Vera-**ta** muž [Bulgarian, Boskovic (2005: 31: fn 39)]

Note that in (78), PP complements/modifiers of Adj also surface in a pre-nominal position in apparent violation of the HFF. One way to analyse these word orders, based on Kayne's (1994) analysis of relative clauses is to posit two separate phrasal movements in such cases. The PP complement of the Adjective first vacates AdjP, possibly moving to spec CP and then the AdjP remnant moves to spec DP, where it serves as host to the enclitic D:³³

(79)_{[DP The [_{CP} [_{XP} yellow]_j C [_{IP} [book] I [_e]_j]]]}

(80)a. [_{FP} F [_{CP} [_{PP} na Vera]_i C [_{IP} [_{NP} muž] I [_{Adj} vernij t_i]]

b. [_{DP} [_{Adj} vernij t_i]_j –at [_{CP} [_{PP} na Vera]_i C [_{IP} [_{NP} muž] I t_j]]

In the case of definite DPs, this gives rise to overt discontinuity of AdjP, but where indefinites are concerned D is covert and so the adjective and its complement will be string adjacent, giving the surface appearance of an HFF violation. This analysis seems empirically superior to either a straight head or phrasal-movement account as well as a non-syntactic account because of the facts in (77)-(78).

Although there is no direct evidence for such an analysis in the other Slavic and Balkan languages which permit HFF-violations (with the exception of Macedonian), it might nonetheless be the case that a similar derivation

applies in these cases. For this reason it seems reasonable to maintain the HFF as a universal in the belief that an independently motivated explanation for apparent violations in Russian, Polish and Greek will emerge, possibly also based on remnant movement.

In the following section previous accounts of the HFF, some of which adopt a weaker parameterised stance, are examined and rejected and the constraint is assimilated to FOFC.

5 The HFF as a FOFC effect

5.1 Previous accounts

In an early approach, Abney (1987) proposes an analysis of the HFF whereby prenominal adjectives are heads in the extended projection of N, as mentioned in footnote 9:

(81) $[_{DP} D [_{AdjP} Adj [_{NP} N]]]$

Boskovic (2005) proposes that this structure is available only in languages with determiners. His basic proposal is that in such languages, the DP projection serves to make APs into arguments, whereas in languages lacking determiners no such possibility exists. As APs cannot function as arguments, it follows that, in determiner-less languages, only an NP-over-AP construction is possible (whereby the adjective is adjoined to NP). The attraction of his proposal concerns the other seemingly unrelated parametric effects which

Boskovic attributes to this NP-over-AP structure, notably the possibility of left branch extraction (LBE). From such a perspective, the prediction is that determiner-less languages should *not* be subject to the HFF as, in these languages, adjectival modifiers are phrasal. Compare the structure in (82) with that in (81):

(82) [NP [AdjP Adj [PP/CP ...]] N]

As also noted in footnote 9, Abney's account of the HFF, if correct, renders the effect wholly distinct from FOFC, despite their surface similarities. The crucial fact about (81) is that the Adjective takes the NP as its complement and so can take no other complements (assuming binary branching), hence the HFF. I will argue below, that both Abney's account of the HFF and Boskovic's parameterisation of it are empirically problematic, however.³⁴

While Boskovic's parametric account is highly elegant, it suffers from some obvious empirical problems. The first concerns the predicted correlations between the two properties. The prediction is that languages without determiners will not be subject to the HFF, whereas those with determiners will be. This predicts two classes of languages, when in fact all four possible combinations of the two properties seem to be attested:

[insert table 6.2 here]

Classes A and C on table 6.2 conform to expectations. Russian and Polish are NP languages and hence fail to adhere to the HFF, whereas English, German etc. are DP languages which obey the HFF. Classes B and D, however, are not expected to exist. The NP/DP parameter provides no explanation as to why Bulgarian, Macedonian and Greek should fail to adhere to the HFF as they are all DP languages (as Pereltsvaig 2007 also notes). Some of these languages, might, however, be only superficial counterexamples as proposed in section 4.2. More problematic is the fact that many NP languages are apparently at least weakly sensitive to the HFF. Boskovic notes that Czech, Slovak, Sorbian, Bosnian/Croatian/Serbian and Slovene do freely permit phrasal prenominal modifiers, but with left-branching complements (see also section 3.2.1, Cinque 2010: chapter 4, fn 9, citing Siewierska and Uhlířová 1998: 135f). The problem with this is that the same is also true of German and Swedish which are DP languages, and are thus predicted to pattern differently. In fact, the availability of preposed complements appears to be a compliance strategy for the HFF as argued above.

As Svenonius (1994) and Hankamer & Mikkelsen (2005) point out, there are also serious problems with Abney's (1987) original analysis of the HFF which are retained in Boskovic's account. Firstly, prenominal adjectives fail to block N-to-D movement in many languages which nonetheless adhere to the HFF, suggesting that they cannot be heads (cf. Longobardi 1994). Moreover, as noted by both Greenberg and Williams (see section 2), it is not the case that prenominal adjectives must be heads bearing no complements or

modifiers, merely that they cannot bear right-branching complements/modifiers (as Hankamer & Mikkelsen 2005: 96 note). In essence, Greenberg's Universal 21, which clearly notes that word order is the crucial factor here, indicates that Abney's account cannot be the whole story (cf. Also Cinque 2010: chapter 4 for further problems).

5.2 *Kayne's (1994: section 8.4) discussion*

Kayne (1994: 97-101) proposes the following derivation for preverbal adjective phrases, based on his raising analysis of relative clauses, drawing on a long tradition of raising prenominal adjectives from a post-verbal position (following Chomsky 1957):

(83) $[_{DP} \text{The } [_{CP} [_{AdjP} \text{yellow}]_j \text{C } [_{IP} [\text{book}] \text{I } [e]_j]]]$

In Kayne's terms, after the head noun *book* has raised to spec IP to satisfy the EPP, the AP *yellow* raises to spec CP, giving the surface word order. The implication is that much adjectival modification involves a covert relative clause. As evidence for this derivation, Kayne cites the fact that prenominal adjectives, like RCs and reduced RCs render it possible for a definite determiner to surface with indefinite nominals, which otherwise reject *the*:

(84) *The sweater of John's is beautiful.

(85) The sweater of John's that was lying on the sofa is beautiful.

(86)?The yellow sweater of John's is beautiful.

(87)?The recently arrived sweater of John's is beautiful.

In Kayne's terms, (84) is ungrammatical because the definite determiner *the* simply cannot select an indefinite NP such as *sweater of John's*. In (85), the presence of a relative clause attenuates this incompatibility, plausibly because in such cases D selects CP rather than NP:

(88) [The [_{CP} [_{NP} sweater of John's]_i that t_i was lying on the sofa]] is beautiful.

If (at least some) prenominal AdjPs result from covert relative clauses, then (86)-(87) can be explained in the same way.

Kayne's approach to adjectival modification offers no account of the HFF, as it stands. It does, however, offer the basis of a FOFC-based explanation. If all pre-nominal AdjPs are derived relative clauses, then the lack of head-initial pre-nominal AdjPs is also a ban on derived head-initial specifiers, making the effect look much more akin to a FOFC violation, as construed by Sheehan (2013a) (see [chapter 3](#)). There is a serious problem, though, with assuming that all prenominal modifiers are base generated as relative clauses, namely the well-known fact that not all adjectives can participate in indirect modification (i.e. function predicatively and surface in relative clauses, see Emonds 1976, Cinque 2010: chapter 4). I address this

problem in the next section, before offering an account of the HFF in section 5.4.

5.3 *Direct/indirect modification*

In the discussion of adjectival phrases, a distinction is often made between ‘direct’ and ‘indirect’ modification. Cinque (2010), following Sproat and Shih (1988, 1990) and many others, makes a distinction along the following lines between the two kinds of modification.³⁵

direct (attributive) modification

- obeys the universal adjective hierarchy
- permits only a non-intersective reading

indirect (predicative) modification

- need not obey the universal adjective hierarchy
- permits only an intersective reading³⁶

Sproat and Shih posit this distinction to deal with the two kinds of modification observed in Mandarin, but the distinction also exists in English and many other languages.³⁷

Cinque (2010) pursues the idea that the two readings result from distinct syntactic configurations.³⁸ Direct modification involves an AdjP being externally merged as the specifier of a dedicated functional head, whereas

indirect modification involves a (reduced) relative clause construction.³⁹ If the HFF reduces to a FOFC effect occasioned by movement of a head-initial modifier from a covert relative clause, it follows that only indirect modifiers should be subject to the constraint. Direct modifiers, being externally merged as specifiers, should be immune to FOFC. Unfortunately, deciding which adjectives function intersectively and which do not is, however, far from straightforward. At the two extremes, it is fairly clear that *former* can only function as a subsecutive/direct modifier whereas *red* can only be intersective hence indirect:

- (89)a. A red door = A door which is red
- b. A former colleague \neq a colleague who is former

Clearly, *former* complies with the HFF in that it cannot surface with a post-head complement/modifier. This is, however, perhaps irrelevant to the HFF, as *former* and other clear direct modifiers do not readily accept any kind of modification.⁴⁰

- (90)a. *more former/alleged than John
- b. *a very former/alleged colleague
- c. *A more former/alleged colleague than John

These adjectives may, therefore, be amenable to analysis like that proposed by Abney (1987), as discussed in section 5.1, whereby they are heads in the extended nominal projection, if the additional problems raised above can be addressed.

A crucial question, then, is whether there is any evidence of direct modifiers employing any of the compliance strategies discussed in section 2.4. Some potentially relevant examples are discussed by Cinque (2010), who attributes the two potential meanings of *old* to the direct/indirect contrast:

(91) A friend who is old

(92) An old friend

While (91) can have only a pure intersective reading, where *old* denotes absolute age, (92) is ambiguous between this reading and another reading, whereby *old* denotes length of friendship (cf. Larson 1998, citing Siegel 1976 for discussion).

Cinque (2010) also notes that adjectives like *old* can be followed by a *than-clause* when used comparatively and that, in such contexts, the two meanings of *older* are made more explicit:

(93) a. John is a friend older than Mary/the legal age.

b. John is an older friend than Mary/#the legal age.

In the first example, only the absolute age reading is possible, as expected if this example involves a reduced relative clause. In the second example, however, only the length of friendship reading is possible. If the length of friendship reading involves direct modification, then (93b) provides evidence that direct modification is also subject to the HFF.

It is not clear, though, that the contrast here involves direct vs. indirect modification though. According to Larson (1998), the distinction here does not concern intersectivity per se, but rather the variable which the adjectival phrase modifies. The noun *friend* contains an event variable which can also be intersectively modified by an adjective giving rise to the length of friendship reading in (92).

Recall also the following facts discussed by Bresnan (1973):

(94)a. I know a man taller than my mother

b. #I know a taller man than my mother

Given that phrasal comparatives in English are covert clausal comparatives (Lechner 1999), one way to account for the infelicity of (94b) is to posit the following elided material:

(95)a. I know a man taller [than Op_i my mother ~~is t_i tall~~]

b. #I know a taller man [than Op_i my mother ~~is a t_i tall man~~]

This explains why (93b) and (94b) strongly favour the readings they do, without the assumption that they involve direct modification.

In sum, it seems to be the case that the HFF applies only trivially to direct modifiers, as the latter cannot generally be modified. In instances of indirect modification, however, complements/modifiers are possible and languages make use of the various compliance strategies discussed in section 3.2. It is thus plausible that the HFF reduces to a restriction on the spelling out of head-initial phrases raised from a complement to a specifier position: i.e. to a FOFC effect.

5.4 *Assimilating the HFF to FOFC*

If all prenominal indirect modifiers result from phrasal movement from a reduced relative clause, then the HFF can be assimilated to the PF-account of FOFC, proposed by Sheehan 2013a, (see [chapter 3](#)). In this analysis, FOFC is an effect of the linearization algorithm which relies only on c-command relations between *categories* and not between *phrases* and uses asymmetric c-command only as a last resort where selection based relations are not sufficient to order all categories in a given derivation. For this reason, a difference emerges between right-branching and left branching specifiers: only the latter can be linearized. Consider the following as a simple illustration (with some categories omitted):

(96)a. [NP [AdjP [PP PP] Adj] N [AdjP [PP ...]]

b. $[_{NP} [_{AdjP} Adj [_{PP} PP]] N [_{AdjP} Adj [_{PP} \dots]]]$

In (96a), the category Adj, which does not enter into a selection relation with N, asymmetrically c-commands and so must precede the category N, and the atomic category PP must precede Adj (based on selection), giving the unambiguous order PP>Adj>N. For this reason, preposing PP serves to avoid the HFF, as noted in section 3.2.1. In (96b), on the other hand, the category Adj, which again does not enter into a selection relation with N, must still precede N as it asymmetrically c-commands it, and PP must follow Adj. As such the c-command relations between PP and N must be inspected in order for them to be ordered. Interestingly, N asymmetrically c-commands PP, based on the definition of c-command in Sheehan (2013a, b) (see chapter 3). For this reason the prediction is that AdjP should be spelled out discontinuously, yielding Adj>N>PP. In actual fact, this possibility is not attested with complement PPs (though it is with complement CPs and adjunct PPs). I assume that this results from a fairly superficial processing constraint which requires Adj and its complement to be string adjacent lest PP be construed as the complement of N. The only option then is wholesale extraposition, whereby Adj and PP are spelled out in their base positions, effectively meaning that movement is undone at PF.

Interestingly, whenever extraposition of PP/CP *is* available in a given language, wholesale extraposition is also possible (cf. section 3.2). This must mean that either two distinct linearization mechanisms operate optionally in

such cases or, more likely, movement of relative clauses is optional, and avoided where they are heavy.

Note finally that the HFF applies to what are clearly fronted reduced relatives. As Cinque (2010) notes, the languages which permit surface HFF-violations also do so with reduced relatives:

- (97)a. Sidjaščaja okolo pal'my devuška (očen' krasiva)
 sitting near palm girl (very pretty)
 'the girl sitting near the palm (is very pretty)'

[Russian, Cinque 2010: 46, citing Babby 1973: 358]

- b. ta prósfata sideroména me prosohi pukámisa
 the recently ironed with care shirts
 'the shirts recently ironed with care'

[Greek, Cinque 2010: 46, citing - Melita Stavrou, p.c.]

Kayne (1994: 98-99) gives other reduced prenominal relative clauses, which with the exception of incorporated prepositions, are subject to the HFF:

- (98)a. The recently sent (*to me) book
 b. The much referred to hypothesis
 c. The little slept in bed

These facts make it all the more plausible that fronted AdjPs are reduced relatives, subject also to the same constraint: FOFC.

6 Conclusions

This chapter has considered the HFF and argued that it reduces to an instance of FOFC applying to derived prenominal modifiers. Apparent counterexamples in some languages arguably involve hidden structure which becomes apparent in definite DPs in Bulgarian. Complications arise from the fact that the same effect is observed with adverbial modifiers more generally, at least in many languages (Haider 2004, De Clercq, Haegeman and Lohndal 2011: appendix, for a recent overview). Thus Jackendoff (1977) notes that PP adverbials in English are more limited in their placement possibilities than atomic adverbs.

(99)a. Bill {*with a crash} dropped the bananas {with a crash}.

b. Bill {(very) noisily} dropped the bananas {(very) noisily}.

It is not clear at this point whether the account of the HFF put forth here extends to these kinds of examples, and the investigation of this is left to future research.

References

- Abeillé, Anne, and Godard, Danièle. 2000. French word order and lexical weight. In *Syntactic Categories*, ed. Robert Borsley, 1-27. New York: Academic Press.
- Abney, Steven P. 1987. The English noun phrase in its sentential aspect, MIT: Ph.D thesis.
- Ajíbóyè, Oládíípò. 2001. Ms. 2001. The internal structure of Yorùbá DP. Paper presented at *ACAL 32*. UC Berkeley.
- Androutsopoulou, Antonia. 1995. The licensing of adjectival modification. In *Proceedings of the Fourteenth West Coast Conference on Formal Linguistics*, eds. J. Camacho, L.Choueiri and M.Watanabe, 17–31. Stanford, Calif.: CSLI Publications.
- Babby, Leonard Harvey. 1975. *A Transformational Grammar of Russian Adjectives*. The Hague: Mouton.
- Bailyn, John. 1994. The syntax and semantics of Russian long and short adjectives: an X'-theoretic account. In the proceedings of the *Annual Workshop on Formal Approaches to Slavic Linguistics*, ed. J. Toman, 1-30. Ann Arbor: Michigan Slavic Publications.
- Baker, Mark. 2003. Verbal adjectives” as adjectives without phi-features. In *Proceedings of the Fourth Tokyo Conference on Psycholinguistics*, ed. J. Otsu, 1-22. Keio University.
- Berman, A. 1974. Adjectives and adjective complement constructions in English, Dept. of Linguistics, Harvard University.

Bernstein, Judith B. 1995. Adjectives and their complements. Paper presented at *LSA*.

Bhatt, Rajesh, and Pancheva, Roumyana. 2004. Late Merger of degree clauses. *Linguistic Inquiry* 35:1-45.

Biberauer, Theresa and Michelle Sheehan. 2012. Disharmony, Antisymmetry, and the Final-over-Final Constraint. In M. Uribe-Etxebarria and V. Valmala. Eds. *Ways of Structure Building*. Oxford, Oxford University Press.

Boškovic, Željko. 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59:1-45.

Bouchard, Denis. 1998. The distribution and interpretation of adjectives in French: A consequence of Bare Phrase Structure. *Probus* 10:139-183.

Bouchard, Denis. 2002. *Adjectives, Number, and Interfaces : Why Languages Vary*. Amsterdam: Elsevier.

Boyd, Virginia Lee. 1997. A Phonology and Grammar of Mbodómó, University of Texas at Arlington: M.A. Thesis.

Bresnan, Joan. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4:275-343.

Chomsky, Noam. 1957. *Syntactic Structures*. Gravenhage: Mouton.

Cinque, Guglielmo. 2010. *The syntax of Adjectives : a Comparative Study*. Cambridge, Mass.: MIT Press.

De Clercq, Karen, Haegeman, Liliane and Lohndal, Terje. 2011. Clause Internal scrambling in English and the distribution of PP and DP adjuncts.

- Paper presented at the LAGB-conference. University of Manchester (Manchester, 7-10 September 2011).
- Delsing, Lars. 1993. On attributive adjectives in Scandinavian and other languages. *Studia Linguistica* 47:105-125.
- Dimitrova-Vulchanova, M. & G. Giusti 1998. Fragments of Balkan Nominal Structure. In Alexiadou, Artemis & Chris Wilder (eds). *Possessors, Predicates and Movement in the Determiner Phrase*, 333-360. Amsterdam: Benjamins.
- Dixon, Robert M. W. 2004. Adjective Classes in Typological Perspective. In *Adjective Classes. A Cross-Linguistic Typology*, eds. Robert M. W. Dixon and A. Aikhenvald, 1-49. Oxford: Oxford University Press.
- Dost, Ascander, and Gribanova, Vera. 2006. Definiteness Marking in the Bulgarian DP. In *Proceedings of the 25th West Coast Conference on Formal Linguistics*, eds. Donald Baumer, David Montero, and Michael Scanlon, 132-140, Somerville, Mass.: Cascadilla Proceedings Project.
- Embick, David, and Noyer, Rolf. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555-598.
- Emonds, Joseph Embley. 1976. *A Transformational Approach to English Syntax: Root, Structure-Preserving, and Local Transformations*. New York: Academic Press.
- Fleisher, Nicholas. 2008. A crack at a hard nut: attributive-adjective modality and infinitival relatives. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, eds. Charles B. Chang and Hannah

- J. Haynie, 163-171. Somerville, Mass.: Cascadilla Proceedings Project.
- Fleisher, Nicholas. 2011. Attributive adjectives, infinitival relatives, and the semantics of inappropriateness. *Journal of Linguistics* 47:341–380.
- Fox, Danny, and Nissenbaum, Jon. 1999. Extraposition and scope: a case for overt QR. Paper presented at *WCCFL 18: Proceedings of the 18th West Coast Conference on Formal Linguistics*.
- Giorgi, Alessandra. 1988. La struttura interna dei sintagmi nominali. In *Grande Grammatica Italiana di Consultazione*, ed. L. Renzi, 273-314. Bologna: Il Mulino.
- González Escribano, José Luis. 2004. Head-final effects and the nature of modification. *Journal of Linguistics* 40:1-43.
- González Escribano, José Luis. 2005. Discontinuous APs in English. *Linguistics*:563-610.
- Greenberg, Joseph. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In *Universals of Language*, ed. Joseph Greenberg, 58-90. Cambridge, Mass.: MIT Press.
- Grosu, Alexander, and Horvath, Julia. 2006. Reply to Bhatt and Pancheva's "Late Merger of degree clauses": The irrelevance of (non)conservativity. *Linguistic Inquiry* 37:457-483.
- Grosu, Alexander, Horvath, Julia, and Trugman, Helen. 2007. DegPs as adjuncts and the Head Final Filter. *Bucharest Working Papers in*

Linguistics VIII.

Haider, Hubert. 2004. Pre- and postverbal adverbials in OV and VO. *Lingua*

114:779-807.

Hankamer, Jorge, and Mikkelsen, Line. 2005. When movement must be

blocked: A reply to Embick and Noyer. *Linguistic Inquiry* 36:85-125.

Haspelmath, Martin. 1998. How young is Standard Average European?

Language Sciences 20: 271-87.

Hicks, Glyn. 2009. Tough-constructions and their derivation. *Linguistic*

Inquiry 40:535-566.

Hoekstra, Teun. 1999. Parallels between Nominal and Verbal Projections. In

David Adger et al. (eds.) *Specifiers*. Oxford University Press.

Jackendoff, Ray. 1977. *X-bar syntax: a Study of Phrase Structure*. Cambridge,

Mass.: MIT.

Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT

Press.

Kennedy, Christopher. 1999. *Projecting the Adjective: the Syntax and*

Semantics of Gradability and Comparison. New York; London:

Garland.

Kornfilt, Jaklin. 1997. *Turkish*. London: Routledge.

Larson, Richard. 1998. Events and modification in nominals. In *Proceedings*

from Semantics and Linguistic Theory (SALT) VIII., eds. D. Strolovitch

and A. Lawson, 1-27. Ithaca, NY: Cornell University.

Larson, Richard S., and Marušič, Franc. 2004. On indefinite pronoun

structures with APs: Reply to Kishimoto. *Linguistic Inquiry* 35:268-287.

Larson, Richard, and Takahashi, Naoko. 2007. Order & interpretation in prenominal relative clauses. In *Proceedings of the Workshop on Altaic Formal Linguistics II*, eds. M Kelepir and B Öztürk, 101-120. Cambridge, MA.: MIT Working Papers in Linguistics.

Longobardi, Giuseppe. 1994. Reference and proper names. *Linguistic Inquiry* 25:609-665.

Lechner, Winfried. 1999. Comparatives and DP-structure. University of Massachusetts: Ph.D dissertation.

Leung, Cheong (Alex) and van der Wurff, William. 2012. Language function and language change – a principle and a case study. Ms. Newcastle University.

Luján, Marta. 1973. Pre- and Postnominal Adjectives in Spanish *Kritikon Litterarum* 2, 398-408.

Nanni, Deborah L. 1980. On the surface syntax of constructions with easy-type adjectives. *Language* 56:568-581.

Noonan, Michael. 1992. *A Grammar of Lango*. Berlin: Mouton de Gruyter.

O'Flynn, Kathleen. 2008. Tough Nuts to Crack. Ms. University of California.

O'Flynn, Kathleen. 2009. Prenominal Adjective-Complement Constructions in English. Ms. University of California.

Pereltsvaig, Asya. 2007. The universality of DP: a view from Russian. *Studia Linguistica* 61:59-94.

Platzack, Christer. 1982. Transitive adjectives in Old and Modern Swedish. In

Papers from the 5th International Conference on Historical

Linguistics, ed. A.Ahlqvist, 273-282. Amsterdam: Benjamins.

Reichard, Ulrich. To appear. Inference and grammar: intersectivity,

subsectivity and phases. Paper presented at *Proceedings of the Irish*

Network in Formal Linguistics Conference 2011.

van Riemsdijk, H. 2001. 'A far from simple matter: syntactic reflexes of

syntax-pragmatics misalignments', in I. Kenesei, and R.M. Harnish

(eds.), *Semantics, Pragmatics and Discourse. Perspectives and*

Connections. A Festschrift for Ferenc Kiefer. John Benjamins,

Amsterdam, 21-41.

Roeper, Thomas, and Siegel, Muffy. 1978. A lexical transformation for verbal

compounds. *Linguistic Inquiry* 9:199-260.

Rutkowski, Paweł. 2002. Noun/pronoun asymmetries: evidence in support of

the DP hypothesis in Polish. *Jezikoslovlje* 3:159-170.

Rutkowski, Paweł. 2007. The syntactic properties and diachronic development

of postnominal adjectives in Polish. Paper presented at *Formal*

Approaches to Slavic Linguistics: The Toronto Meeting 2006, Ann

Arbor.

Rutkowski, Paweł and Ljiljana Progovac. 2005. Classification Projection in

Polish and Serbian: The Position and Shape of Classifying Adjectives.

In M. Tasseva-Kurktchieva, S. Franks, and F. Gladney, eds., *Formal*

Approaches to Slavic Linguistics 13: The Columbia Meeting 2004,

- 289-299. Ann Arbor: Michigan Slavic Publications.
- Sadler, Louisa, and Arnold, Douglas J. 1994. Prenominal adjectives and the phrasal/lexical distinction. *Journal of Linguistics* 30:187-226.
- Samiian, Vida. 1994. The ezafe construction: some implications for the theory of x-bar syntax. In *Persian Studies in North America*, ed. M. Marashi. Bethesda, MD: Iranbooks.
- Schütze, Carson. 1995. "PP attachment and Agreement." *MIT Working Papers in Linguistics* 26(Papers on Language Processing and Acquisition): 95-152.
- Sheehan, Michelle. 2010. Extraposition and Antisymmetry. In *Linguistic Variation Yearbook*, ed. Jeroen Van Craenenbroeck, 203-225. Amsterdam: John Benjamins.
- Sheehan, Michelle. 2013a. Some implications of a copy theory of labeling. To appear in *Syntax*.
- Sheehan, Michelle. 2013b. Explaining the Final-over-Final Constraint. In *Theoretical approaches to disharmonic word orders*, eds. Theresa Biberauer and Michelle Sheehan.
- Siegel, Muffy E. A. 1976a. *Capturing the Adjective*. Ph.D. Dissertation, University of Massachusetts, Amherst, MA.
- Siewierska, Anna, and Uhlířová, Ludmila. 1998. An Overview of Word Order in Slavic Languages. In *Constituent Order in the Languages of Europe*, ed. A. Siewierska, 105-149. Berlin: Mouton de Gruyter.
- Sproat, Richard, and Shih, Chinlin. 1988. Prenominal Adjectival Ordering in

- English and Mandarin. In *Proceedings of NELS 18*, eds. Jim Blevins and J. Carter, 465-489. Amherst: GSLA.
- Sproat, Richard, and Shih, Chinlin. 1990. The Cross-Linguistics Distribution of Adjectival Ordering Restrictions. In *Interdisciplinary Approaches to Language: Essays in Honor of S-Y. Kuroda*, eds. C. Georgopoulos and R. Ishihara, 565-593. Dordrecht: Kluwer.
- Svenonius, Peter. 1994. On the structural location of the attributive adjective. In *Proceedings of the twelfth West Coast Conference on Formal Linguistics (WCCFL)*, eds. E. Duncan, D. Farkas and P. Spaelti, 439-454. Stanford, Calif.
- Tallerman, Maggie. 1998. *Understanding syntax*. London: Arnold.
- Tasseva-Kurktchieva, Mila. 2005. The possessor that came home. In *Possessives and beyond: semantics and syntax (University of Massachusetts Occasional Papers in Linguistics 29)*, eds. J.-Y. Kim, Y.A.Lander and B.H. Partee, 279-293. Amherst: GSLA Publications.
- Tat, Deniz. 2010. APs as reduced relatives: the case of *bir* in (some) varieties of Turkic. *Proceedings of WAFL* 7:301-315.
- Williams, Edwin. 1982. Another Argument that Passive is Transformational. *Linguistic Inquiry* 13:160-163.
- Wunderlich, Dieter. 2001. Two comparatives. In *Perspectives on semantics, pragmatics and discourse. A Festschrift for Ferenc Kiefer*, eds. István Kenesei and Robert M. Harnish. Amsterdam: Benjamins.
- Zwart, Jan-Wouter. 1996. On the Status and Position of PPs inside APs in

Dutch. Unpublished manuscript: University of Groningen.

Table 6. 1: compliance strategies

	Slovene	German, Swedish, Dutch, Afrikaan s	Serbo- Croatian	Macedon ian	English	Polish
Preposing	PP, *CP	PP, *CP	PP, *CP	?	*	*
PP/CP extraposition	unrestrict ed	Restrict ed	*	unrestrict ed	restrict ed	*
Wholesale extraposition	unrestrict ed	Unrestrict ed	unrestrict ed	unrestrict ed	unrestrict ed	unrestrict ed

Table 6.2: The Head-Final Filter (HFF) and NP vs. DP languages

Class	Languages	NP language	Obeys the HFF

A	Russian, Polish	Y	N
B	Czech, Slovak, Sorbian, Serbo-Croatian, Slovene, Finnish	Y	? (Y in Finnish)
C	English, German, Dutch, Swedish, Spanish, Portuguese, Italian, French	N	Y
D	Bulgarian, Macedonian, Greek, Romanian (in comparatives)	N	N

¹ A plausibly related phenomenon is the class of adjectives which derive historically from prepositional phrases: *asleep*, *aslant*, *ajar*, *atilt*, and cannot surface preminally. Larson and Marušič (2004: 270, fn 2) propose that *a-* is still a head in such examples, meaning they have the same status as (10e).

² This is not universally accepted, though. See Abney 1987, Kennedy 1999 for analyses which claim that the CP and Deg head do not form a constituent.

³ Thus *as* requires an *as*-clause, *too* requires a non-finite clause, whereas *-er* requires a *than*-clause.

⁴ Note, however, that Romanian displays a mixed behavior, allowing violations of the HFF only in comparatives, as they also note. Grosu & Horvath (2006) propose that atomization is possible in such contexts, but this is little more than a description of the facts.

⁵ I return to other compliance strategies in section 2.4.

⁶ There are problems, also, with the postulation of rightwards quantifier raising (cf. Sheehan 2010 for discussion and an alternative analysis of extraposition).

⁷ Interestingly, tough-adjectives do permit apparent surface violations of the HFF in restricted contexts, a point to which we return in section 4.1:

- (i) a. An easy-to-understand book;
- b. A hard to refute argument;
- c. Some difficult-to-reach places.

Moreover, there appear to be several classes of adjectives with distinct word order possibilities (cf. O'Flynn 2008, 2009 for a lengthy description). I put these additional complications to one side for reason of space.

⁸ Actually, as Fleisher (2008) notes, citing Berman (1974), there are some surprising differences between tough-constructions and tough-nuts, notably regarding the thematic status of overt for-arguments:

- (i) a. This is a tough building for there to be a riot in.
- b. July is an unusual month for it to snow (in).
- c. *This building is tough for there to be a riot in.
- d. *July is unusual for it to snow (in).

He concludes from this that whereas for-arguments are selected by the tough-adjective in tough-constructions, they are contained in CP in tough-nuts. In other respects, though, tough nuts share many properties with tough constructions.

Fleisher (2011) further discusses a superficially similar construction, which he calls the nominal attributive-with-infinitive construction (nominal AIC):

- (i) a. Middlemarch is a long book to assign.
- b. Bob is a short guy for the Lakers to draft.

On the surface, this might be taken to be a further example of the HFF in action. Fleisher argues at length, however, that this construction has a wholly distinct structure, resulting from a non-finite relative clause. Whereas only a limited class of adjectives can surface in tough-nut constructions (the same which can surface in clausal tough-constructions), many more adjectives can participate in nominal AICs. There are thus no paraphrases of (i. a) equivalent to:

- (ii) a. *It is long to assign Middlemarch.
- b. *Middlemarch is long to assign.

Fleisher (2011) argues convincingly that the CP in nominal AICs is a non-finite relative clause rather than a complement of the adjective. This accounts for the fact that not all adjectives participating in this construction can select a clausal complement as well as the fact that nominal AICs can only surface in predicative positions, like other nominals bearing non-finite relatives.

⁹ Interestingly, the opposite possibility, that N is the complement of Adj *has* been pursued, notably by Abney (1987). I return to this proposal and the problems it faces in section 5.1, but note immediately that under Abney's

proposal, the HFF is *not* a FOFC effect, but rather a direct consequence of the fact that Adj can take only one complement (cf. Svenonius 1994 and section 5.1 for a critical discussion).

This is not to say that AdjPs have not been analysed as *complements*. Under Kayne's (1994) influential analysis of relative clauses, certain kinds of intersective adjectival modifiers (reduced and full relatives) are taken to be complements of D. In section 5.4, I argue in favour of this approach and show that this account serves to make the HFF a FOFC effect.

¹⁰ Consider, for example, adjectives functioning as secondary predications which *are* obligatory in certain contexts:

(i) John sneezed himself *(better).

¹¹ But cf. Sheehan (2010), citing Schütze (1995), for some complications regarding the *one*-replacement test as a test for complementhood.

¹² *Proud* is not actually the best adjective in these constructions despite its ubiquitous use to illustrate the HFF. Unlike other adjectives it is not very good as a postnominal restrictive modifier:

(i) ?The man proud of this son asked for him to be promoted.

(ii) The man annoyed with the service asked for a refund.

This seems to be a semantic effect rather than a syntactic one, as the (in)definiteness of the DP also plays a role. This is possibly because modifiers in this post-nominal position have a restrictive reading (without comma intonation) and there is a general assumption that all men are proud of their

sons. Other adjectival phrases, which do not suffer from this drawback are less awkward with *one*-replacement:

- (iii) Mary saw a customer pleased with his meal as well as one annoyed at the delay.

¹³ While this diagnostic seems to be a sufficient condition for adjuncthood, it is clearly not a necessary condition, given the existence of non-intersective adjectives such as *former*, to which I return in section 4.3.

¹⁴ Romanian appears to permit violations of the HFF in comparative constructions, for unclear reasons.

¹⁵ In actual fact, as discussed in section 3, Serbo-Croatian and Slovene are subject to the constraint in a weaker form.

¹⁶ Thanks to Yalda Kazemi Najafabadi for all Persian judgments.

¹⁷ Thanks to Nino Nikolovski for the Macedonian judgments.

¹⁸ This is difficult to test in Dutch and German for independent reasons.

¹⁹ Thanks to Moreno Mitrović (Slovenian and Serbo-Croatian) and Boban Arsenijević (Serbo-Croatian) for judgments.

²⁰ The reason why PPs remain immune to FOFC in Germanic and Slavic remains opaque, however.

²¹ González Escribano also discusses certain marginal cases where it is unclear if the PPs in question are complements or adjuncts:

- (i) a. ?a foolish man about money matters
b. ?a fussy man about wine

-
- c. ?an invisible process to the naked eye
 - d. ?a kind man to strangers
 - e. ?a loyal soldier to his Queen
 - f. ?a particular man about food (González Escribano 2005:PP)

He posits a processing explanation for the virtual acceptability of such examples, whereby the PPs in question are analysed online as complements of N rather than A.

²² Thanks to Anders Holmberg (Swedish), Jenneke van der Wal (Dutch), Theresa Biberauer (Afrikaans) and Ulrich Reichard (German) for help with the data. Note that this strategy is slightly marked in German and Afrikaans.

²³ Actually, the adjectives *boa/bom* (good) and *mau/má* (bad) also marginally allow PP extraposition of the complements:

- (i) Uma boa aluna a matemática

A good student at maths

This is a very restricted phenomenon, however, as extraposition is not possible with the PP complements of *orgulhosa/o* (proud), *chateada/o* (annoyed), *farta/o* (tired), *satisfeita/o* (satisfied).

²⁴ This is a fatal flaw for Abney's (1987) account of the constraint, as discussed in section 5.1.

²⁵ Abeillé and Godard note also that certain Adv-Adj modifiers are also blocked in the preverbal position in French:

- (i) *Une politiquement importante decision

‘A politically important decision’

As such, there must be additional constraints on adjectival modification in French.

²⁶ Note that in Turkish all adjectival modifiers of NP precede the indefinite article (cf. Tat 2010 for an account of this based on Kayne 1994).

²⁷ In fact, as Larson & Takahashi (2007) show, prenominal relative clauses in head-final languages behave unlike post-nominal relative clauses and like prenominal AdjPs in requiring a strict ordering, with direct (individual-level) modifiers occurring closer to N than indirect (stage-level) modifiers:

- (i) a. [Watashi-ga kinoo atta] [tabako-o suu] hito-wa

Tanaka-san desu.

[1SG-NOM yesterday met][tobacco-ACC inhale]

person-TOP Tanaka.-COP

‘The person who smokes who I met yesterday is Miss Tanaka.’

- b. ?*[Tabako-o suu] [watashi-ga kinoo atta] hito-wa

Tanaka-san desu.

- (ii) a. The invisible visible stars (stage level > individual level)

- b. #The visible invisible stars (individual level > stage level)

- c. The stars which are visible which are invisible.

- d. (?)The stars which are invisible which are visible.

In English, the strict ordering between stage-level and individual-level modifiers does not apply to post-nominal relative clauses. This follows if

Japanese can RCs occupy the specifier positions of dedicated functional projections in the extended nominal field. In languages with right-branching relative clauses, this will be blocked by the HFF.

²⁸ Thanks to Makiko Mukai for the Japanese judgments.

²⁹ Van Riemsdijk (2001) discusses other apparent counterexamples involving a superficially right-branching structure, but where the rightmost Adj is semantically the head of AdjP:

- (i) A close to trivial matter
- (ii) a far from trivial matter

These seem to be the adjectival equivalent of ‘measure’ nouns, which, contrary to appearances, are not the heads of the DPs in which they are contained:

- (iii) A load of people are/*is waiting outside.

They do not, therefore, represent robust counterexamples to the HFF.

³⁰ A crucial difference between Serbo-Croatian/Slovene and Polish/Bulgarian, though, is that in the former HFF-violating orders are always highly marginal and significantly worse than other potential orders. From a sampling perspective, note that all of the languages which apparently fail to adhere to the HFF are either Slavic or from the Balkan Sprachbund, meaning that on a typological scale the scope of the counterexamples is quite limited (more so, it must be noted, than the languages adhering to the HFF).

³¹ Thanks to Malgorzata Krzek for Polish judgments.

³² Thanks also to Dimitris Michelidoukakis for discussion of the Greek data.

³³ Giuliana Giusti reminds me that not all analyses of enclitic determiners posit movement. While Dimitrova Vulchanova and Giusti 1998 give strong evidence against N-to-D movement, however, they fail to give compelling evidence against phrasal movement, so in the absence of evidence to the contrary, I tentatively pursue the idea that movement is nonetheless involved.

³⁴ The debate as to the relative merits of parameterizing nominal denotation and thus the presence of D is well-rehearsed. Some conceptual problems with Abney's general approach are discussed by Svenonius (1994) and Pereltsvaig (2007).

³⁵ I limit my discussion to modification within DP in this chapter. The possibility remains, however, that the same contrast exists in the clausal domain, giving rise to intersective vs. non-intersective readings. Moreover, as Emonds (1976) and Haider (2004) note, some version of the HFF is also observed in the clausal domain (cf. Haegeman et al. for recent discussion). I put this matter to one side here for reasons of space (cf. also Larson 1998).

³⁶ There is disagreement in the literature as to whether direct modification gives rise to ambiguity or to only a non-intersective reading. This stems from the fact that many adjectives can participate in both kinds of modification. Cinque advocates the stronger position whereby there is a closer syntax/semantics mapping, and direct modification always gives rise to a non-intersective reading.

³⁷ Not all languages have both kinds of modification, though. Cinque (2010: chapter 3) cites Slave (Athapaskan), Lango, Hixkaryana and Tiriyo as languages lacking direct modification, citing Baker (2003: 207), Noonan (1992: 103) and Dixon (2004: 28f) respectively. He also discusses Yoruba and Gbaya Mbodómó (Niger-Congo) as languages lacking indirect modification, citing Ajíbóyè (2001: 6) and Boyd (1997: section 3.1.3) respectively.

³⁸ Reichard (to appear) proposes that the intersective reading observed with relative clauses falls out from the phasal architecture.

³⁹ Cinque (2010) further assumes that relative clauses are also externally merged as specifiers, but I adopt the more conservative view that they are complements of D, as per Kayne (1994).

⁴⁰ Cinque (2010), citing Tallerman (1998) does mention a few potential examples, but these all plausibly involve idioms or parenthesis:

- (i) I feel the most utter fool
- (ii) The main point in principle is that...