

The Morpho-Phonological Nature of the Generalized Final-Over-Final Constraint

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Abstract

- ◆ Three harmonic constraints have been proposed for the word orders in nominals and phrases/clauses:
 - the No Phrase Constraint on compounds
 - the Head-Final-Filter on prenominal modifiers
 - the Final-Over-Final Constraint on phrases/clauses
- ◆ NPC, HFF and FOFC can be generalized into GFOFC: a morpho-phonological constraint prohibiting compounds from having an internal long juncture (pause).
- ◆ This generalization reveals under what conditions disharmonic orders in nominals and clauses occur in a number of languages.

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Outline

1. Generalizing harmonic constraints on X^n
NPC, HFF, FOFC > GFOFC
2. Exceptions to the harmonic constraints
NPC: phrasal compounds, HFF: phrasal modifiers in prenominal position, FOFC: head-initial DP/PP in head-final VP, etc.
3. Size sensitivity in the harmonic constraints
The harmonic constraints can be violated only if contained phrases are not too long.
4. GFOFC on the syntax-phonology interface
Left/right-branching structure, compound/phrase, etc.
5. Conclusion

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1. Generalizing harmonic constraints on X^n

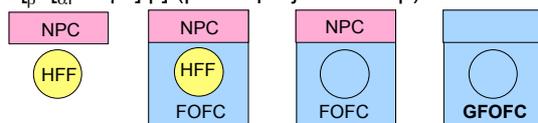
1.1 NPC, HFF and FOFC

- The No Phrase Constraint prohibits compounds from containing syntactic phrases (Aronoff 1976).
* $[\beta \text{ } [\alpha_P \alpha \gamma_P] \beta]$
* $[_N \text{ } [_{AP} \text{ black as coal}] \text{ bird}]/*?[_N \text{ } [_{VP} \text{ running fast}] \text{ shoes}]$
- The Head-Final-Filter rules out nominals in which the prenominal modifier is not head-final.
* $[_{NP} \text{ } [_{\alpha_P} \alpha \gamma_P] \text{ N}]$ (Williams 1982)
*the $[_{NP} \text{ } [_{AP} \text{ proud of his children}] \text{ man}]$
- The FOFC prohibits head-final phrases from immediately dominating head-initial phrases
* $[_{\beta_P} \text{ } [_{\alpha_P} \alpha \gamma_P] \beta]$ (Holmberg 2000)
* $[_{TP} \text{ } [_{VP} \text{ V O}] \text{ Aux}]$

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1.2 Generalized Final-Over-Final Constraint

- * $[\beta \text{ } [_{\alpha_P} \alpha \gamma_P] \beta]$: No Phrase Constraint on compounds
* $[_N \text{ } [_{AP} \text{ black as coal}] \text{ bird}]$
- * $[_{NP} \text{ } [_{\alpha_P} \alpha \gamma_P] \text{ N}]$: The Head-Final-Filter on NP
*the $[_{NP} \text{ } [_{AP} \text{ proud of his children}] \text{ man}]$
- * $[_{\beta_P} \text{ } [_{\alpha_P} \alpha \gamma_P] \beta]$: Final-Over-Final Constraint on XP
* $[_{TP} \text{ } [_{VP} \text{ V O}] \text{ Aux}]$
- ◆ * $[\beta^n \text{ } [_{\alpha_P} \alpha \gamma_P] \beta]$ (β^n = a projection of β): GFOFC



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1.3 Phrasal Affixation ruled out by (G)FOFC

- ◆ * $[\beta^n \text{ } [_{\alpha_P} \alpha \gamma_P] \beta]$ (β^n = a projection of β): GFOFC
- ◆ β^n = a head *including affixes*
- Phrasal Affixation (Ackema and Neeleman 2004)
* $[_{AffixP} \text{ } [_{\alpha_P} \alpha \gamma_P] \text{ Affix}]$ (Biberauer et al. 2008)
* $[_{AffixP} \text{ } [_{NP} \text{ history of science}] \text{ ist}]$
cf. $[[\text{generative grammar}] \text{ ian}]$ (bracketing paradox)
- Phrasal compound or affixation? Stem or affix?
*?XP-like, -ful, -type, -wise (cf. Dalton-Puffer and Plag 2000)

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2. Exceptions to the harmonic constraints

2.1 Exceptions to NPC

- ◆ NPC, HFF and FOFC have exceptions.
- NPC: Phrasal compounds
 - [_N [_{PP} over the fence] gossip]
 - [_N [_{VP} ate-too-much] headache]
 - [_N [_{PP} Vor Ort] Tarif] (German)
before place tariff 'local tariff'
 - [_N [_{PP} uit je bol] muziek] (Dutch)
out-of your head music 'music that thrills'
 - [_N [_{VP} qie cai] tao] (Chinese)
cut vegetable knife 'vegetable-cutting knife'

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2.1 Exceptions to NPC (contd)

- [[_{VP} Y ZP] X] phrasal compound: FOFC violation
[[over [the fence]] gossip]
- [[_{VP} ZP Y] X] recursive compound: harmonic
[[[furansu no] inaka] huu] ryoori
France of county style cuisine
'country-in-France style cuisine'
- [X [_{VP} Y ZP]] semantic-compound: harmonic
una [_N borsa [_{PP} dell' [acqua calda]]] (Italian)
a bag of water hot
- [X [_{VP} ZP Y]] ?: disharmonic

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2.2 Exceptions to HFF

- HFF: Phrasal modifiers in prenominal position
[_{NP} [_{AP} polnaja solnca] komnata] (Russian)
full sun-Gen room 'room full of sunlight'

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2.3 Exceptions to FOFC

- FOFC violation occurs in VP (and possibly in CP)
- [_{VP} [_{PP} nach Berlin] gehen] (German)
to Berlin go 'go to Berlin'
- Johann hat [_{VP} [_{DP} den Mann] gesehen]
John has the man seen
'John has seen the man.' (Biberauer et al. 2008)
- Ta [_{VP} [_{PP} zai gongyuan li] sanbu] (Chinese)
he in park walk
'He is having a walk in the park.'
- FOFC violation with affix
[_N [_{PP} over the top] ist] /-like/-ful/-type/-wise?
- FOFC violation with group genitives
[[_{DP} The man in the hall]'s] taste in wallpaper is
appalling.

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3. Size sensitivity in the harmonic constraints

3.1 NPC and size

- ◆ NPC, HFF and FOFC have size sensitivity.
- NPC can be violated easily in compounds containing an idiomatic hyphenated phrase:
 - [_N [_{PP} over the fence] gossip]
 - [_N [_{PP} over-the-counter] drug]
 - [_N [_{VP} ate-too-much] headache]

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3.2 HFF and size

- HFF: Grosu and Horvath (2006) observe that Russian can violate HFF only as long as the contained phrases are not exceedingly heavy:
 - [_{NP} [_{AP} polnaja solnca] komnata] (Russian)
full sun-Gen room
'room full of sunlight'
 - ??[nesoglasnyj na to, c' toby ego vodili za nos
nonagreeing.NOM on that COMP him.ACC make-a-fool
s pervogo dnja sovместnoj z' izni.] molodoj suprug
from first day common life young spouse
'young spouse unwilling to be made a fool of from their
first day of life together'

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3.3 FOFC and size

- $?[\beta_P [\text{short}\alpha_P \alpha \gamma P] \beta] > *[\beta_P [\text{long}\alpha_P \alpha \gamma P] \beta]$
- $?[PP [NP N \text{Gen}] P] > *[[PP [IP \dots [NP N \text{Gen}]\dots] P_{adv}]$
- N-Gen & NP-P > N-Gen & IP-P_{adv}
- P = P_{adv} (Adverbial Subordinator)
- subordinating conjunctions in traditional grammar: *because, although, when, while, if, before, after*
- [PP after [NP the girl]]
- [PP after [IP the girl left]]
- $?[PP [NP \text{books} [GenP \text{of your friend}] \text{after}]]$
- $*[[PP [IP \text{you read} [NP \text{books} [GenP \text{of your friend}]]] \text{after}]]$

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3.3 FOFC and size (contd)

- $?[\beta_P [\text{short}\alpha_P \alpha \gamma P] \beta] > *[\beta_P [\text{long}\alpha_P \alpha \gamma P] \beta]$
- $?[PP [NP N \text{Gen}] P] > *[[PP [IP \dots [NP N \text{Gen}]\dots] P_{adv}]$
- N-Gen & NP-P > N-Gen & IP-P_{adv}
- An analysis of data in Dryer (2005) shows that ...
- N-Gen & NP-P: 14 languages (8 genera) >
- N-Gen & IP-P_{adv}: 1 language (1 genus) [Buduma]
- Buduma (Afro-Asiatic: Chadic: Biu-Mandara)
- Biu-Mandara languages 10: all N-Gen (VO); P_{adv}-IP 8, mixed 1 (Lagwan), IP-P_{adv} 1 (Buduma)
- This suggests that FOFC is violated only if the contained α_P is not too long (NP/*IP).

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N-Gen & IP-P_{adv}: Buduma



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N-Gen & NP-P: 14 languages (8 genera)



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3. GFOFC as a Constraint on Interface

3.1 Left-branching structure as a compound

- Phrasing asymmetry in German (Wagner 2005)
- OV is pronounced as a prosodic phrase while VO is pronounced as two prosodic phrases.
- a. (*Sie hát*) (*einen Tánego getanzt*)
she has a-Acc tango danced
'She has danced a tango.'
- b. (*Sie tánzte*) (*einen Tánego*)
she danced a-Acc tango
'She danced a tango.'

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3.1 Left-branching structure as a compound (contd)

- Quasi-incorporation in Dutch NV (Booij 2009)
piano spelen (piano play) 'to play the piano'
- a. ... *dat Jan {piano wilde spelen/wilde piano spelen}*
that John piano wanted play/want piano play
'.. that John wanted to play the piano'
- b. ... *dat Jan {de piano wilde bespelen/*wilde de piano bespelen}*
that John the piano wanted play/want the piano play
'.. that John wanted to play the piano'
- c. *Jan is {piano aan het spel-en/aan het piano spel-en}*
John is {piano at the play-INF/at the piano play-INF}
'John is playing the piano'
- d. *Jan is {de piano aan het bespelen/*aan het de piano bespelen}*
John is {the piano at the play-INF/at the the piano play-INF}
'John is playing music on the piano'

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3.1 Left-branching structure as a compound (contd)

- Sequential Voicing in Japanese is blocked only in right-branching structure (Tokizaki 2008b):
[nise [tanuki jiru]] vs. [[nise danuki] jiru] (<shiru)
mock badger-soup mock-badger soup
- Similar blocking in Korean *n*-Insertion (Han 1994)
- Interfixation in Dutch three-word compounds occurs more often at the constituent boundary in right-branching structure than left-branching structure (Krott et al. 2004): [[A B] intf C] < [A intf [B C]]
- Suffixes attach to stems more closely than prefixes (Hyman 2008): [prefix [_{stem} ...]] vs. [[_{stem} ...]-suffix]
- OV languages tend to be agglutinative (Lehmann 1973, Plank 1998, cf. Kayne 1994)

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3.2 Branching and compound/phrase

- *[_{βⁿ} [_{α^P} α [_{γ^P} ... δ]] β]: GFOFC violation
- At the PF-interface, the two right brackets between δ and β are interpreted as a long juncture (pause).
- Syntax-Phonology Mapping (*Linearization*): Interpret boundaries of syntactic constituents [...] as prosodic boundaries / ... /. (Tokizaki 1999, 2008a; cf. Silent Demibeat Addition (Selkirk 1984))
- *// α / ... δ // β/: GFOFC violation
- A long juncture in a (quasi-)compound βⁿ contradicts the nature of compounding.
- A long juncture does not occur in harmonic orders.

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3.2 Branching and compound/phrase

- In GFOFC configuration * [_{βⁿ} [_{α^P} α [_{γ^P} ... δ]] β], βⁿ is a left-branching structure and therefore a (quasi-)compound, and αⁿ is a phrase.
- (1) * [_{βⁿ} [_{α^P} α [_{γ^P} ... δ]] β]: GFOFC violation (comp)
// α / ... δ // β / a comp containing a phrase
- (2) [_{βⁿ} [_{α^P} [_{γ^P} ... δ] α] β]: head-final (compound)
/// ... δ / α / β / a comp containing a comp
- (3) [_{βⁿ} β [_{α^P} α [_{γ^P} ... δ]]]: head-initial (phrase)
/ β / α / ... δ /// a phrase containing a phrase
- (4) [_{βⁿ} β [_{α^P} [_{γ^P} ... δ] α] α]: Initial-Over-Final (phrase)
/ β // ... δ / α // a phrase containing a comp

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3.3 Why does GFOFC have exceptions?

- FOFC: If a phase head PH has an EPP feature, then all the heads in its complement domain **from which it is non-distinct in categorial features** must have an EPP feature. (Biberauer, et al. 2008)
- FOFC: Role-up movement cannot skip cycles.
- GFOFC is a constraint on the PF-interface, not a syntactic principle.

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3.4 Why does GFOFC have size sensitivity?

- GFOFC is a constraint on the PF-interface, not a syntactic principle.
- The size sensitivity of GFOFC is due to the number of brackets between an element in α and β in
*[_{βⁿ} [_{α^P} α γ^P] β]
- As α^P becomes longer, there are more right brackets between the rightmost element in α and β
*[_{βⁿ} [_{α^P} α [_{γ^P} γ ... δ]] β]
**[_{βⁿ} [_{α^P} α [_{γ^P} γ [_{δ^P} δ ... ε]]] β]

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3.4 Why does GFOFC have size sensitivity?

- Hyphenating the words in α^P erases the brackets they make.
- [_N [_{PP} over [the counter]]] drug
[_N [over-the-counter] drug]
- [_N [_{VP} ate [too much]]] headache
[_N [ate-too-much] headache]

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3.4 Why is the violation of GFOFC allowed in certain languages?

- The No Phrase Constraint can be violated in phrasal compounds in Germanic and Chinese.
- The Head-Final-Filter can be violated in Russian.
- The Final-Over-Final Constraint can be violated in German and Chinese.
- ◆ GFOFC can be violated if the main stress position matches the unmarked word-stress location in the language: Right-oriented stress in Germanic (weight-sensitive, antepenult or penult) (cf. Tokizaki and Kuwana 2009)

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3.4 Why is the violation of GFOFC allowed in certain languages? (contd)

Language	FOFC viol	PhrComp	Word stress
German	DP/PP V	[Y ZP] X	R-orient
Dutch	?DP/PP V	[Y ZP] X	R-orient
Afrikaans	?DP/PP V	[Y ZP] X	?
English	DP 's	[Y ZP] X	R-orient
Chinese	PP V, IP Part	[Y ZP] X	Tone
Japanese	-	[ZP Y] X	simple Tone
Thai	VP I?, IP Part	?X [Y ZP]	Tone
Vietnamese	VP I, IP Part	?X [Y ZP]	Tone
Yoruba	?	?X [Y ZP]	Tone
Romance	-	?X [Y ZP]	R-edge
Indonesian	?	?X [Y ZP]	Penult

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3.4 Why is the violation of GFOFC allowed in certain languages? (contd)

Language	GrGen	PhrC	DP-V	PP-V	VP-I	IP-Prt
German		+	+	+	-	-
Dutch		+	+?	+?		
Afrikaans		+				
English	+	+	-	-	-	-
Chinese		+		+		+
Japanese		-				
Thai		-			+?	+
Vietnamese			-			+ +
Yoruba		-				
Romance		-				
Indonesian		-				

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4. Conclusion

- This study shows the close relation between the (dis)harmony in nominals and that in clausal domain, which stems from the same interface condition between syntax and PF.

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