

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

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Themed session 'Disharmony in nominals'
LAGB Annual Meeting, University of Leeds, 2nd Sept 2010

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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

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

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1. Generalizing harmonic constraints on X^n

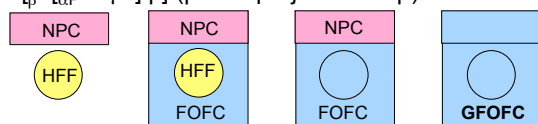
1.1 NPC, HFF and FOFC

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

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1.2 Generalized Final-Over-Final Constraint

- *[_{β} [_{α P} α γ P] β]: No Phrase Constraint on compounds
*[_N [_{AP} black as coal] bird]
- *[_{NP} [_{α P} α γ P] N]: The Head-Final-Filter on NP
*the [_{NP} [_{AP} proud of his children] man]
- *[_{β P} [_{α P} α γ P] β]: Final-Over-Final Constraint on XP
*[_{TP} [_{VP} V O] Aux]
- *[_{β^n} [_{α P} α γ P] β] (β^n = a projection of β): GFOFC



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1.3 Phrasal Affixation ruled out by (G)FOFC

- *[_{β^n} [_{α P} α γ P] β] (β^n = a projection of β): GFOFC
- β = a head *including affixes*
- Phrasal Affixation (Ackema and Neeleman 2004)
*[_{AffixP} [_{α P} α γ P] Affix] (Biberauer et al. 2008)
*[_{AffixP} [_{NP} history of science] ist]
cf. [[generative grammar] 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)

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

- $?[\beta_P [\text{short}\alpha_P \alpha \gamma_P] \beta] > *[\beta_P [\text{long}\alpha_P \alpha \gamma_P] \beta]$
- $?[\text{PP} [\text{NP} \text{ N Gen}] \text{ P}] > *[\text{PP} [\text{IP} \dots [\text{NP} \text{ N Gen}] \dots] \text{ P}_{\text{adv}}]$
- 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]]
- $?[\text{PP} [\text{NP} \text{ books} [\text{GenP} \text{ of your friend}] \text{ after}]]$
- $*[\text{PP} [\text{IP} \text{ you read} [\text{NP} \text{ books} [\text{GenP} \text{ of your friend}]]] \text{ after}]]$

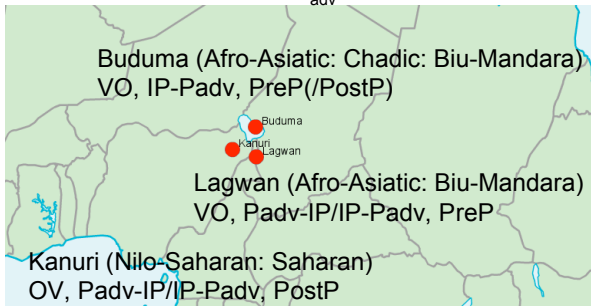
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3.3 FOFC and size (contd)

- $?[\beta_P [\text{short}\alpha_P \alpha \gamma_P] \beta] > *[\beta_P [\text{long}\alpha_P \alpha \gamma_P] \beta]$
- $?[\text{PP} [\text{NP} \text{ N Gen}] \text{ P}] > *[\text{PP} [\text{IP} \dots [\text{NP} \text{ N Gen}] \dots] \text{ P}_{\text{adv}}]$
- 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

- ◆ * $[\beta^n [\alpha_P \alpha [\gamma_P \dots \delta]] \beta]$: 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))
- ◆ * $// \alpha / \dots \delta // \beta /$: GFOFC violation
- ◆ A long juncture in a (quasi-)compound β^n 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 * $[\beta^n [\alpha_P \alpha [\gamma_P \dots \delta]] \beta]$, β^n is a left-branching structure and therefore a (quasi-)compound, and α^n is a phrase.
- (1) * $[\beta^n [\alpha_P \alpha [\gamma_P \dots \delta]] \beta]$: GFOFC violation (comp)
// $\alpha / \dots \delta // \beta /$ a comp containing a phrase
- (2) $[\beta^n [\alpha_P [\gamma_P \dots \delta] \alpha] \beta]$: head-final (compound)
/// $\dots \delta / \alpha / \beta /$ a comp containing a comp
- (3) $[\beta^n \beta [\alpha_P \alpha [\gamma_P \dots \delta]]]$: head-initial (phrase)
/ $\beta / \alpha / \dots \delta ///$ a phrase containing a phrase
- (4) $[\beta^n \beta [\alpha_P [\gamma_P \dots \delta] \alpha]]$: Initial-Over-Final (phrase)
/ $\beta // \dots \delta / \alpha //$ 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 * $[\beta^n [\alpha_P \alpha [\gamma_P] \beta]]$
- As α_P becomes longer, there are more right brackets between the rightmost element in α and β
* $[\beta^n [\alpha_P \alpha [\gamma_P \gamma \dots \delta]] \beta]$
** $[\beta^n [\alpha_P \alpha [\gamma_P \gamma [\delta_P \delta \dots \epsilon]]] \beta]$

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3.4 Why does GFOFC have size sensitivity?

- Hyphenating the words in α_P erases the brackets they make.
- $[_N [_{PP} \text{over} [\text{the counter}]]] \text{drug}]$
 $[_N [\text{over-the-counter}] \text{drug}]$
- $[_N [_{VP} \text{ate} [\text{too much}]]] \text{headache}]$
 $[_N [\text{ate-too-much}] \text{headache}]$

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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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Thank you!

Special thanks to
Yasutomo Kuwana (Asahikawa Jitsugyo High school)

This research is supported by

JSPS
Japan Society for the Promotion of Science

SAPPORO UNIVERSITY
SAPPORO UNIVERSITY WOMEN'S JUDO CLUB

