

Roll-up Movement and Complement-Head orders

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Abstract

- ◆ Cross-linguistic word-order variation supports the idea of roll-up movement.
- ◆ An analysis of the data in Dryer (2005) shows that complement-head orders in most languages are derived by full, partial or zero roll-up movement.
- ◆ Complement-head order within words gives evidence to complement movement to the local spec.
- ◆ Roll-up movement derives compound-like constituents with complement-head order only if the derived constituent has an unmarked word-stress.

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Loadmap

1. Complement movement to Spec

FOFC, snowballs, junctural asymmetry, derivation of CH orders, non-existent orders

2. Typology of snowballs

heads and complements, data of word orders, sizes of snowballs, CH/HC typology, movement domains, deriving Greenberg's universals

3. On Anti-locality

derivation of CH orders, implausible functional categories

4. Stress and snowballing movement

selection checking, overt/covert movement, stress location and CH orders, other correlations

5. Conclusion

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1. Complement movement to Spec

1.1 The Final-Over-Final Constraint (FOFC)

- The absence of certain word orders (e.g. $[_{IP} [_{VP} V O] Aux]$, $[_{CP} [_{VP} V O] .. C])$ in languages is explained with FOFC (Biberauer et al. 2008)
- (1) $*[_{ZP} [_{XP} X YP] Z]$ where XP is the complement of Z and YP is the complement of X.
- FOFC prohibits a complement phrase with head-complement order (XP) from moving into the spec of the head (Z), namely ...
- Roll-up movement cannot skip cycles.

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1.2 Roll up complements to make snowballs

- Roll-up movement has the effect of phonological/morphological compounding.
- The constituent derived by roll-up movement, which moves (potentially) branching complement to the spec of X^0 , has left-branching structure, which has short juncture between its constituents.
- For the difference of juncture (pause) mapped from left-branching and right-branching structure, see the next slide.

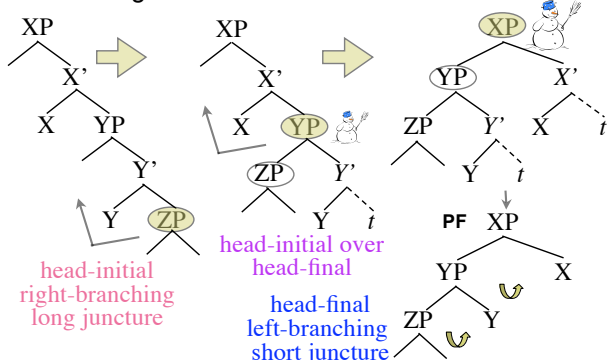
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1.3 Junctural asymmetry: $[_{XP} X YP]/[_X YP-X]$

- Sequential Voicing in Japanese (Tokizaki 2008)
 $[nise [tanuki jiru]]$ vs. $[[nise danuki] jiru]$
mock badger-soup mock-badger soup
- Similar blocking in Korean *n*-Insertion (Han 1994)
- Interfixation in Dutch three-word compounds (Krott et al. 2004)
- Suffixes attach to stems more closely than prefixes (Hyman 2008)
- Phrasing in German VP: (V)(O)/(OV) (Wagner 2005)
- Quasi-Incorporation in Dutch OV (Booij 2009)
- OV languages tend to be agglutinative (Lehmann 1973, Plank 1998, cf. Kayne 1994)

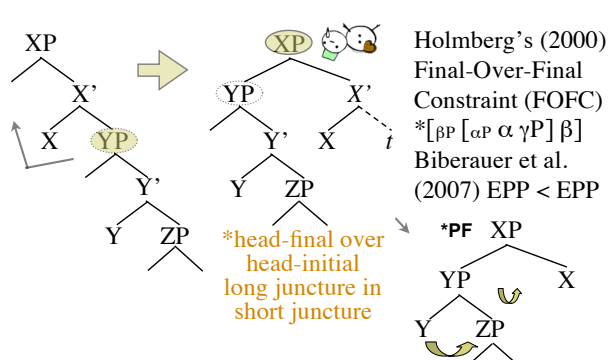
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1.4 Deriving head-final structure to make snowballs



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1.5 Non-existent orders and FOFC



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2. Typology of snowballs

2.1 Heads and Complements

- Heads: non-branching constituents (cf. Dryer 1992)
- Complements: (potentially) branching constituents

Head-Compl

- Prefix-Stem
m-wia (Swa)
- Noun-Genitive
n̄imò ma-Kùkkú (Krongo)
- Preposition-DP
into room
- Verb-Object
read books
- AdvSubordinator-CI
before you go

Compl-Head

- Stem-Suffix
debt-or
- Genitive-Noun
Kukku's-mother
- DP-Postposition
huoneese-en (Fin)
- Object-Verb
Bücher lesen (Ger)
- CI-AdvSubordinator
anata-ga iku maeni (Jap)

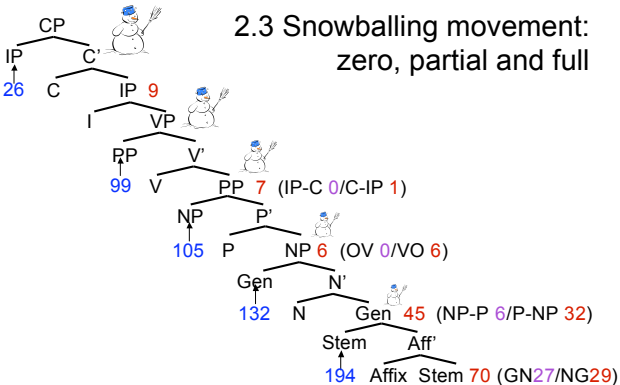
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2.2 Analyzing the data of word orders

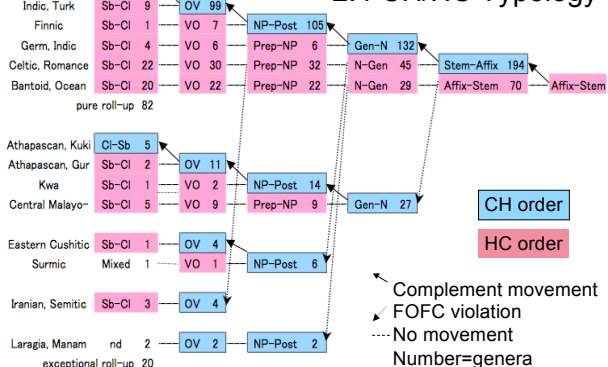
- Roll-up movement makes snowballs (complement-head) of different sizes.
- Some of them can be checked with Dryer (2005)
- Stem-Suffix
Prefixing vs. suffixing in inflectional morphology (#26)
- Genitive-Noun
Order of genitive and noun (#86)
- DP-Postposition
Order of adposition and noun phrases (#85)
- Object-Verb
Order of object and verb (#83)
- Clause-Adverbial Subordinator
Order of adverbial subordinator and clause (#93)

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2.3 Snowballing movement: zero, partial and full



2.4 CH/HC Typology



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2.5 Domains of roll-up movement 1

- Word: Affix-Stem
- No Stem-movement results in Prefix-Stem (prefixing: 70 genera) (No roll-up, strictly head-initial, Bantu)
- Complement movement applies to Prefix-Stem to make Stem-suffix (suffixing: 194 genera)
- NP: Noun-Genitive
- No Genitive-movement results in N-Gen (45 genera) (Partial roll-up, Celtic, Romance)
- Genitive-movement applies to N-Gen to make Gen-N (132 genera)
- PP: Adposition-DP
- No DP-movement results in P-DP (6 genera, Partial roll-up, Germanic, Indic)
- DP-movement applies to P-DP to make DP-P (105 genera)

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2.6 Domains of roll-up movement 2

- VP: Verb-Object
- No Object-movement results in VO (7 genera, Partial roll-up, Finnic)
- Object-movement applies to P-DP to make DP-P (99 genera)
- Subordinate clause: Adverbial subordinator-Clause
- No Clause-movement results in AdvSub-CI (9 genera, Partial roll-up, Indic, Turkic)
- Clause-movement applies to P-DP to make DP-P (26 genera, Full roll-up, harmonic head-final, Japanese, Korean)

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2.7 Deriving Greenberg's universals

- The number of the genera with pure roll-up movement (82) is more than four times as much as the number of the genera with exceptional roll-up movement including FOFC violation (20).
- Moreover, even in exceptional cases, there is no double FOFC violation.
- We can derive Greenberg's (1963) implicational universals #2, 3, 4, 5, 7, 9, 16, 17, 18, 21 and 27 from the theory of roll-up movement.
- These facts support the idea of roll-up movement.

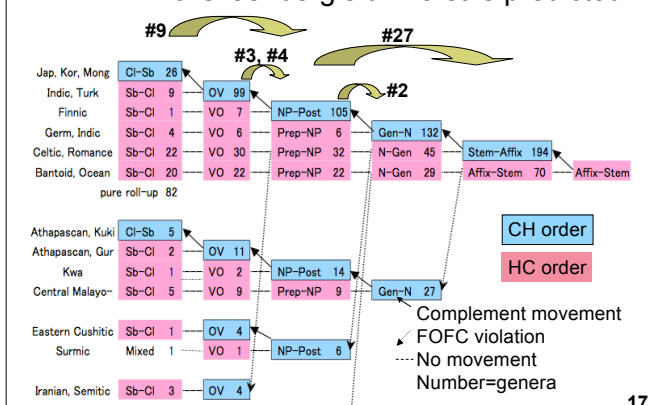
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2.8 Greenberg's implicational universals

- #2: P-NP → N-Gen; NP-P → Gen-N
- #3: VSO → P-NP
- #4: SOV → NP-P
- #7: SOV (or OSV) → Adv-V
- #9: QPrt-IP → P-NP; IP-QPrt → NP-P
- #15: VP-I → OV
- #16: VSO → I-VP; SVO → VP-I
- #17: VSO → N-Adj
- #18: Adj-N → Dem/Num-N
- #21: Adj-Adv → N-Adj, VO
- #27: Prefix-Stem → P-NP; Stem-Suffix → NP-P

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2.9 Greenberg's universals predicted



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3. On Anti-locality

3.1 Derivations of Complement-Head orders

- Complement movement into the local Spec: Anti-locality violation
[_{XP} YP [_{X'} X YP]]
- Complement movement into the Spec of functional head (F): Anti-locality observed (Kayne 1994)
[_{FP} YP [_{F'} F [_{XP} X YP]]]
- We could choose either of these as long as the functional category has no phonetic features.
- But the problem is whether it is plausible to assume any functional category in the constituent.
- Is there any evidence for functional categories?

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3.2 Implausible functional categories

- It is implausible that there is any functional category within a word (cf. Di Sciullo 2005).
 - $[_{AffixP} \text{ Stem } [_{Affix'} \text{ Affix Stem}]]$
 - $[_{FP} \text{ Stem } [_{F'} F [_{AffixP} \text{ Affix Stem}]]]$ (FP=word)
- Stem moves to the spec of Affix as in (a), and not to the spec of a higher functional head than Affix as in (b).
- Complement can move to the local spec at least in word domain.
 - $[_{FP} \text{ Genitive } [_{F'} F [_{NP} N \text{ Genitive}]]]$ (FP=NP)
 - $[_{FP} \text{ DP } [_{F'} F [_{PP} P \text{ DP}]]]$ (FP=PP)
 - $[_{FP} \text{ DP } [_{F'} F [_{VP} V \text{ DP}]]]$ (FP=VP)
 - $[_{FP} \text{ IP } [_{F'} F [_{CP} C \text{ IP}]]]$ (FP=CP)

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4. Stress and snowballing movement

4.1 Questions and short answers

- What is the trigger for roll-up movement?
- Why are there no, partial and full roll-up movement?
 - Complement must be in the Spec position of Head to be checked for selection at LF.
 - A phonological compound made by overt roll-up movement must have the unmarked word-stress in the language.

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4.2 Roll-up movement for selection checking

- The selectional relation needs to be checked in some way (cf. Holmberg 2000).
 - Pure f(eature)-movement (Chomsky 1995)
 - Head movement
 - XP-movement
- Complement or its feature moves to the Spec of its head in order to be licensed at LF.
- Constituents with head-complement order are not interpretable at LF.
- Spec-Head is a local relation but Head-Complement is not.

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4.3 Why is the movement overt in HF languages?

- Compact PF:**
PF representation should have compounds rather than phrases.
- Complements overtly move to the spec in order to make compounds.

$[_{VP} [_{V'} \text{ taberu } [_{NP} \text{ buryusselu waffulu(-o)}]]]$ -->
eat Brussels waffle(-Acc)
 $[_{VP} [_{NP} \text{ buryusselu waffulu(-o)}] [_{V'} \text{ taberu } [_{NP} t]]]$
- Stress Constraint:**
The resulting constituent, which is like a compound because it is left-branching, observes the unmarked stress location of the language.

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4.4 Why is the movement covert in HI lgs?

- Compact PF:**
PF representation should have compounds rather than phrases.
- Complements overtly move to the spec in order to make compounds.

$[_{VP} [_{V'} \text{ eat } [_{NP} \text{ Brussels waffles}]]]$ -->
* $[_{VP} [_{NP} \text{ Brussels waffles}]] [_{V'} \text{ eat } [_{NP} t]]]$
- However, the resulting constituent, which is like a compound because it is left-branching, does not observe the unmarked stress location of the language (e.g. English: right-oriented stress).
- Cf. German: right-oriented but a bit more leftward
 $[_{VP} [_{NP} \text{ Brüssels waffeln}]] [_{V'} \text{ essen } [_{NP} t]]]$

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4.5 Stress position and Coml-Head orders

- The main stress falls on the most deeply embedded element (cf. Cinque 1993).
=the leftmost element in a left-branching structure
- As Complement and Head become longer, the stress moves to the left in the resulting compound:

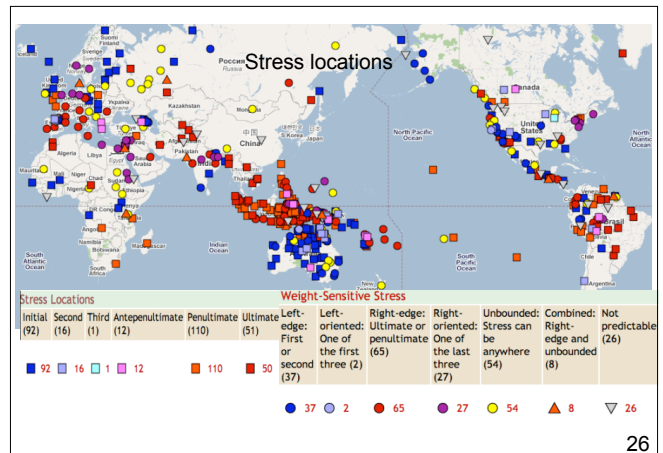
$[_{HP} [_{H'} \sigma] [_{C'} \sigma]]$	-1	ult	Pref-St	Bantu	pen
$[[[_{C'} \sigma] [_{H'} \sigma]]$	-2	pen	St-Suf	Romance	R-edge
$[[[_{C'} \sigma \sigma] [_{H'} \sigma]]$	-3	ant	Gen-N	German	R-orient
$[[[_{C'} \sigma \sigma \sigma] [_{H'} \sigma]]$	-4	DP-P	Finnic		initial
$[[[_{C'} \sigma \sigma \sigma \sigma] [_{H'} \sigma \sigma]]$	-5	DP-V	Ind, Turk		R-orient?
$[[[_{C'} \sigma \sigma \sigma \sigma \sigma] [_{H'} \sigma \sigma \sigma]]$	-6	IP-C	Jap, Kor		No
- Roll-up movement is possible if the main stress location in the derived quasi-compound matches the unmarked word-stress location in the language.

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4.6 Stress locations: Fixed and Weight-sensitive

- ◆ Fixed: $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
initial, second, third ... antepenult, penult, ultimate
- Weight-sensitive:
- Left-edge (37): first or second $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
'kutira, pa't'aa[ak,kaaran (Malayalam)
- Left-oriented (2): first, second or third $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
(Kashaya, Hoka; Laragia, Australian)
- Right-edge (65): penult or ultimate $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
'warra, wa'raa (Epena Pedee, Choco)
- Right-oriented (27): antepen, pen or ult $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
do'mesticus, re'feicit (Classical Latin)
- Unbounded (54): anywhere in the word $\sigma \sigma \sigma \dots \sigma \sigma \sigma$
'hosogid, k'emin'ga'ir (Dongolese Nubian)
- Combined (8): Right-edge and unbounded

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Lang	JpKr	Altai	Supyr	Finn	Germ	Rom	Bant	Lang
Stress	no	unbd	init	init	R-ori	R-ed	pen	Stress
<u>St-Af</u>	+	+	+	+	+	+	-	<u>Af-St</u>
<u>G-N</u>	+	+	+	+	+	-	-	<u>N-G</u>
<u>DP-P</u>	+	+	+	+	-	-	-	<u>P-DP</u>
<u>Q-V</u>	+	+	+	-	-	-	-	<u>V-Q</u>
<u>Cl-Sb</u>	+	+	-	-	-	-	-	<u>Sb-Cl</u>

- ◆ As the unmarked stress position moves leftward, C-H order increases from the smallest constituent (Stem-Affix) to the largest (Clause-Subordinator).
- ◆ Complement moves to the specifier position to make a C-H 'compound' if it observes the word-stress in the language: $[_{HP}[_{H} \sigma] [_{C} \dots \sigma \sigma]] \rightarrow [_{H}[_{C} \dots \sigma \sigma] [_{H} \sigma]]$

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Percentages of genera with H-C/C-H order (WALS)

	L-ed	Initial	Unbd	R-ed	R-ori	Ultimate	Penult
Aff-Stem	0.0	20.7	21.1	16.7	25.0	23.5	35.5
N-Gen	28.0	20.6	100.0	30.4	100.0	51.7	48.4
P-NP	10.0	38.9	38.1	47.4	45.5	53.8	62.1
VO	40.5	40.5	45.5	44.4	45.5	50.0	60.0
Sub-Cl	20.0	83.3	63.2	85.7	85.7	64.7	76.9
H-C Ave	19.6	40.8	41.9	44.9	45.5	48.8	56.6
Stem-Aff	100	79.3	78.9	83.3	75.0	76.5	64.5
Gen-N	72.0	79.4	0.0	69.6	0.0	48.3	51.6
NP-P	90.0	61.1	61.9	52.6	54.5	46.2	37.9
OV	59.5	59.5	54.5	55.6	54.5	50.0	40.0
Cl-Sub	80.0	16.7	36.8	14.3	14.3	35.3	23.1
C-H Ave	80.4	59.2	58.1	55.1	54.5	51.2	43.4

Combinations of less than 10 genera are not colored. 28

4.7 Other universal correlations

- CH order -> simple syllable structure to avoid consonant cluster
* $[[[_{C} \dots VCC] [_{H} CCC \dots]] \rightarrow [[[_{C} \dots V] [_{H} C \dots]]$
- HC order -> simple or complex syllable structure
- Compounding parameter +:
compounds (esp. recursive compounds)
preposition stranding (V-P)
...
- Clitic-V in Bantu and Romance
- Historical changes of stress location and word orders

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5. Conclusion

- To sum up, complement-head orders in languages support the idea of roll-up movement, which also explains language universals in morpho-syntax and its interface with phonology.

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