Roll-up Movement and Complement-Head orders

Hisao Tokizaki, *Sapporo University,* toki@sapporo-u.ac.jp

In this paper, I argue that cross-linguistic word-order variation supports the idea of roll-up movement. An analysis of the data in Dryer (2005) shows that complement-head/head-complement orders in most languages are derived by full, partial or zero roll-up movement. It is argued that complement-head order within words gives evidence to complement movement to the local spec. The compounding effect of roll-up movement is also discussed together with a stress constraint on deriving complement-head order.

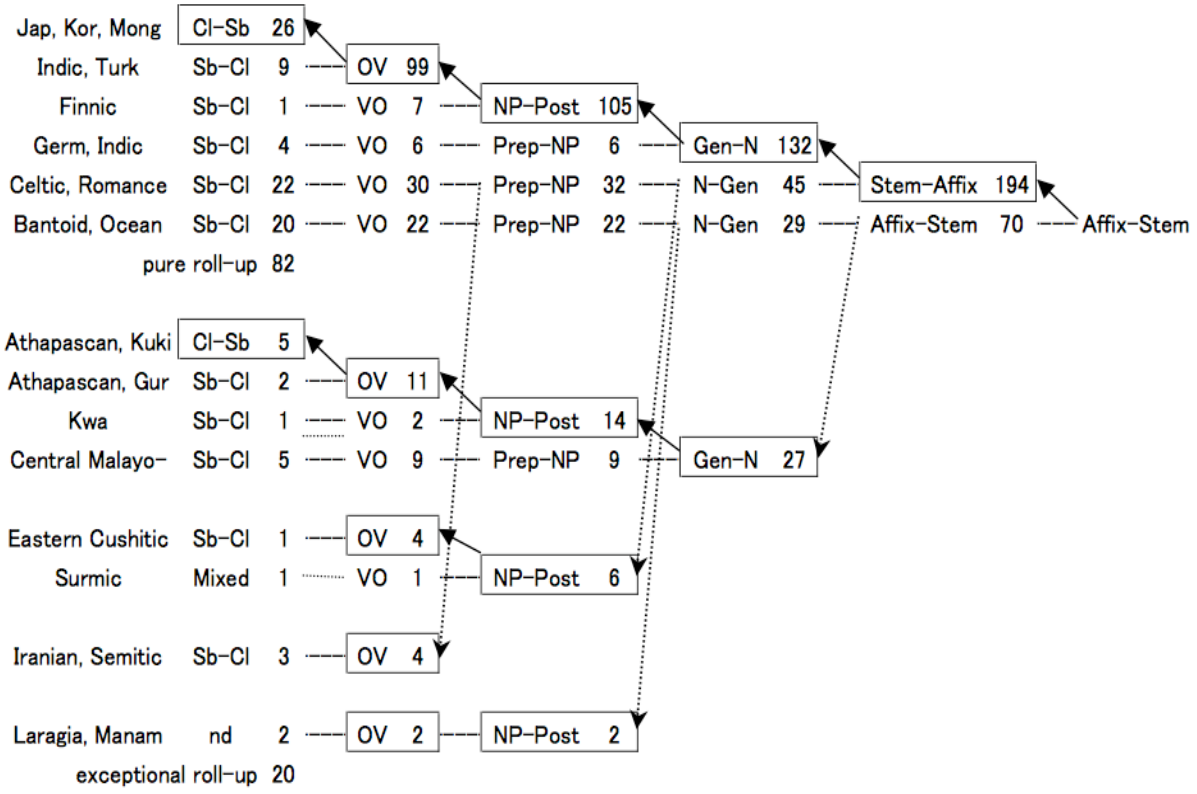
Biberauer et al. (2008) argue that the absence of certain word orders (e.g. [$_{IP}$ [$_{VP}$ V O] Aux], [$_{CP}$ [$_{VP}$ V O] .. C]) in languages is explained with Final-Over-Final Constraint (FOFC):

(1) * [$_{ZP}$ [$_{XP}$ X YP] Z] where XP is the complement of Z and YP is the complement of X.

This constraint prohibits a complement phrase with head-complement order (XP) from moving into the spec of the head (Z): roll-up movement cannot skip cycles.

My analysis of the data in Dryer (2005) shows that roll-up movement makes snowballs (i.e. complement-head orders) of different sizes: word (stem-affix), NP (genitive-noun), PP (NP-adposition), VP (object-verb) and subordinate clause (clause-adverbial subordinator, e.g. Japanese *anata-ga iku maeni* 'before you go'). The result is shown in (2), where complement-head order derived by roll-up movement (shown with a solid-line arrow) is boxed and blue shaded, and head-complement order is red shaded; a dotted-line arrow shows movement with FOFC violation, and a horizontal dotted line shows no roll-up movement.

(2) Number of genera derived by full, partial or no roll-up movement:



First, roll-up movement of complement to the spec can apply in the smallest domain, i.e. word, to make complement-head order (Stem-Affix). 194 genera are suffixing (Stem-Affix) while 70 genera are prefixing (Affix-Stem: harmonic head-initial, e.g. Bantu). Suffixing languages may move genitive to the spec of N to make Gen-N order in 132 genera, or leave genitive in the complement position in 45 genera (N-Gen: disharmonic, e.g. Celtic, Romance).

In Gen-N languages, movement of NP to the spec of P and O may occur in turn, and finally clauses may move to the spec of adverbial subordinator resulting in harmonic head-final languages (e.g. Japanese, Korean). 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. In this way, 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 (cf. Cinque 2005 for #20 about nominals). These facts support the idea of roll-up movement.

As shown in (2), Stem-Affix order is derived from the base order Prefix-Stem by roll-up movement of Stem. It is implausible that there is any functional category within a word (cf. Di Sciullo 2005). Thus, we can conclude that Stem moves to the spec of Affix as in (3a), and not to the spec of a higher functional head than Affix as in (3b).

(3) a. [$_{\text{AffixP}}$ Stem [$_{\text{Affix'}}$ Affix ~~Stem~~]]

b. [$_{\text{FP}}$ Stem [$_{\text{F'}}$ F [$_{\text{AffixP}}$ Affix ~~Stem~~]]]

This argument shows that complement can move to the local spec at least in word domain.

I argue that roll-up movment 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. The compounding nature of roll-up movement relates to the next point.

The languages derived by pure roll-up movement in (2) show a correlation between roll-up movement and word-stress location. No roll-up languages such as Bantu have penultimate stress; partial roll-up languages such as Romance, Germanic and Finnic/Indic (Bengali) have right-edge, right-oriented and initial stress, respectively (cf. Goedemans and van der Hulst 2005): according as more roll-up movements apply, the word-stress location shifts from right to left. Full roll-up languages such as Japanese and Korean have no stress. AUTHORS (2009) argue that roll-up movement is possible if the main stress location in the derived quasi-compound matches the unmarked word-stress location in the language.

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

References

Biberauer, Theresa, Anders Holmberg and Ian Roberts. 2008. Structure and linearization in disharmonic word orders. *WCCFL 26*, 96-104.

Cinque, Guglielmo. 2005. Deriving Greenberg's Universal 20 and its exceptions. *Linguistic Inquiry* 36, 315-332.

Di Sciullo, Anna Maria. 2005. *Asymmetry in morphology*. Cambridge, MA.: MIT Press.

Dryer, Matthew S. 2005. Prefixing vs. suffixing in inflectional morphology/Order of object and verb/Order of adposition and noun phrase/Order of genitive and noun/Order of adverbial subordinator and clause. In Haspelmath et al. (eds.), 110-113/338-341/346-349/350-353/382-385.

Goedemans, Rob and Harry van der Hulst. 2005. Fixed stress locations/Weight-sensitive stress. In Haspelmath et al. (eds.), 62-65/66-69.

Greenberg, Joseph H. 1966. Some universals of grammar with particular reference to the order of meaningful elements. In J. H. Greenberg (ed.) *Universals of Language*. Cambridge, MA: MIT Press, 73-113.

Haspelmath, Martin, Matthew S. Dryer, David Gil and Bernard Comrie. 2005. *The world atlas of language structures*. Oxford: Oxford University Press.