Object Scrambling on the Edge: Evidence for VP as a Spell-out domain

Proposal. The idea that syntactic structure undergoes cyclic Spell-out has been pursued in a number of studies (Uriagereka 1999; Chomsky 2000, 2001; Nissenbaum 2000; Fox and Pesetsky 2005, inter alia). It has not been clear, however, what should be considered as a unit of cyclic Spell-out. Chomsky proposes that phrases must be “propositions”: namely, vP and CP. Others, however, argue that Spell-out may also apply to maximal categories such as VP and PP (McGinnis 2001; Abels 2003; Fox and Pesetsky 2005, Lee-Schoenfeld (2005), inter alia). In this paper, I provide novel evidence for the latter hypothesis. Specifically, building on the claim that scrambling is constrained by Cyclic Linearization (Ko 2005; Fox and Pesetsky 2005), I propose that so-called weak phases (VPs) must undergo cyclic Spell-out, just as strong phases (v*Ps). I show that object scrambling is restricted by the properties of cyclic Spell-out, and that its interactions with secondary predicates can be explained by the current proposal.

Puzzle. In Korean and Japanese, the object (O) may scramble and license a Numeral Quantifier (NQ) across the subject (S), as in (1a). In contrast, S cannot license an NQ across O, as in (1b) (Haig 1980; Kuroda 1983; Lee 1993). This contrast has been taken as evidence that object scrambling may occur freely and license NQobj in contrast to subject scrambling (Saito 1985). Crucially, however, object scrambling does not occur freely. As shown in (2), the object cannot be separated from its NQ by a resultative -ni phrase. If the object kuruma-o and ni-dai were able to scramble, as depicted in (3), we expect (2) to be grammatical, contrary to fact. Note that the paradigm in (2) cannot be explained by the mutual c-command condition (Miyagawa 1989) since the object and NQobj c-command each other in the base position (3). The paradigm in (2) is even more puzzling, given that–ni phrases may scramble individually (4), just like the object in (1a).

Analysis. I propose that the puzzling distribution of scrambled arguments can be explained by the assumption that vP and VP (as well as CP) constitute Spell-out domains. Crucially, scrambling is constrained by Cyclic Linearization (5), and thus the linear order at VP and vP must be consistent with each other. Consider first (6) for (1). As described in (6b), if O scramble to the edge of vP, O<S order is established at PF. If S precedes O in the CP domain, S<O order is sent to PF. This yields an ordering contradiction, so (6b) cannot be pronounced. Note that (6b) contrasts with (6a), where scrambled O at the vP edge continue to precede S at CP. The same account extends to (2) if Spell-out applies to VP, as illustrated in (7a). In the VP domain, NQobj<X-ni is established at PF, but in the vP domain, X-ni<NQobj is sent to PF. Due to the ordering contradiction between vP and VP domains, (7a) cannot be pronounced at PF. Single scrambling of X-ni in (4) is allowed, since X-ni may scramble to the left of O and S before the Spell-out of VP and vP, as in (7b).

Further Support. More generally, the current proposal predicts that O and NQobj cannot be separated by any VP-internal element. As depicted in (8), a VP-internal XP would either follow O and NQobj (in in-situ position), or precede both of them (via movement to the edge). Given Cyclic Linearization, we expect that this ordering restriction in VP will be preserved in the vP domain as well. This prediction is borne out on various tests. First, just like the object, unaccusative subject and its NQ cannot be separated by -ni resultative phrase, as shown in (9). The account presented in (7a) straightforwardly extends to (9). Second, as shown in (10), the scope of lasi ‘again’ in Korean are ambiguous between repetitive (VP-external) and restitutive (VP-internal) reading. When ‘again’ intervenes between O and NQobj, however, it retains only the repetitive reading, as in (11). This is explained by the current analysis. As described in (12), the restitutive ‘again’ follows NQobj in VP (adopting Von Stechow 1996 for semantics of ‘again’). But in the vP domain, ‘again’ precedes NQobj in (11). The ordering contradiction between the vP and VP domains yields ungrammaticality of (11) with the restitutive reading. The repetitive ‘again’, in contrast, is merged outside VP domain, as illustrated in (13). Hence, orderings at vP and VP are constituent. Third, O and NQ cannot be separated by an idiom part related to the predicate, as in (14). This is again expected if the idiom part ‘to candle’ is base-generated within VP (as a complex predicate).
(1) a. **Maykcwu-lul:** (pwumneynghi) John-i t₁ sey-pyeng masi-ess-ta 
   Beer-Acc evidently John-Nom three-CLbottle drink-Past-Dec
   ‘(Evidently) John drank three bottles of beer’

   b. **Haksayng-tul:** (pwumneynghi) maykcwu-lul t₁ sey-myeng t₂ masi-ess-ta
   Student-Pl-Nom evidently beer-Acc three-CLperson drink-Past-Dec
   ‘(Evidently) three students drank beer.’ [Korean; the same fact holds in Japanese]

(2) *John-ga kuruma-o makka-ni ni-dai nutta
   John-Nom car-Acc red-NI 2-Cl painted
   ‘John painted two cars red’ [Japanese]

(3) [NP-ga NP-o₁ X-ni₂ [VP t₁ NQobj t₂ V]]

(4) *Massiro-ni₂ Mary-ga [John-ga kabe-o t₁ nutta to] itta
   White Mary-Nom [John-Nom wall-Acc painted C] said
   “Mary said that John painted the wall white” [Japanese]

(5) **Cyclic Linearization:** The linear ordering of syntactic units is affected by Merge and Move within a Spell-out Domain (phase), but is fixed once and for all at the end of each phase (vP/CP) - the phase containing Spec, head, and Complement is shipped to PF (Fox and Pesetsky 2005).

(6) a. [CP O (adv) ... [VP tobj [S tsubj NQobj V v]]]: see (1a)
   Linearize vP: O<S<NQobj<V; Linearize CP: O<(adv)<S<NQobj<V

   b. *[CP S₂ (adv) ... [VP O₁ [tobj NQsubj tobj V]]]: see (1b)
   Linearize vP: O<S<NQ subj<V; Linearize CP: S<(adv)<O<NQ subj<V

(7) a. *[vP S O₁ X-ni₂ [VP tobj NQobj tṇi V] v]: see (2)
   Linearize VP: O<NQobj<X-ni<V; Linearize vP: S<O<X-ni<NQobj<V

   b. [vP X-ni S [VP tṇi [V tobj tṇi V] v]: see (4)
   Linearize VP: X-NI<O<V; Linearize vP: X-NI<S<O<V

(8) [vP XP [DP O NQ] [v tXP V]]

(9) *Gakusei-ga kutakuta-ni san-nin tukareta
   Student-Nom exhausted-NI 3-Cl tired
   ‘Three students became tired’ [Japanese]

(10) Sally-ka ku mwun-ul tasi yel-ess-ta [Korean]
   Sally-Nom that door-Acc again open-Past-Dec
   ‘Sally opened that door, and she had done that before’ (repetitive)
   ‘Sally opened that door, and the door had been in the state of being open before’ (restitutive)

(11) Nay-ka eyspuleyso kikyey-lul tasi han-tay sao-l-kkeyyo
   I-Nom espresso machine-Acc again 1-Cl buy-Fut-promise
   ‘I will buy an espresso machine again’ [Korean] (repetitive reading, *restitutive reading)

(12) *[vP S O again [VP tobj NQobj [AP tagain A] V] v]: restitutive ‘again’ (11)
   Linearize VP: O<NQobj<again; Linearize vP: S<O<again<NQobj

(13) *[vP S O again [VP tobj NQobj V] v]: repetitive ‘again’ (11)
   Linearize VP: O<NQobj; Linearize vP: S<O<again<NQobj

(14) *John-i haksayng-ul nokcho-lo sey-myeng mantulessta
   John-Nom student-Acc candle-to 3-Cl made
   ‘John made three students tired’ (make.candle=> make one tired) [Korean]