Minimalist merge, destructive feature-checking and sequential unification

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In 1967, Ross tried to characterize the upper bound of the set of well-formed sentences in a natural language focussing on a collection of constraints on, powerful enough, recursive procedures (i.e. rewriting/transformational rules). After 40 years we still face the very same problem: *move* α and the *projection principle* before (Chomsky 1965), *merge*, *move* and *agree* now (Chomsky 2005a) are very general and (too) powerful devices that perhaps allow us to figure out very important universal principles, but that are practically insufficient to constrain many relevant empirical phenomena.

Within the spirit of the minimalist initiative, in this talk I will try to show that a more restrictive definition of *merge* can be successfully rephrased in top-down (*phase*-based), left-right terms, attaining superior results in terms of computational economy and empirical adequacy, at least with respect to a relevant set of phenomena such as argument cluster coordination Vs. fronting/scrambling/clefting asymmetries, (1)-(2) (Phillips 1996, Choi and Yoon 2006), and (time permitting) "spec"-head/multiple agreement, (3) (Chesi 2007):

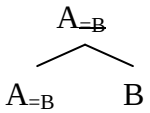
(1) a. Wallace gave [Gromit a biscuit] and [John some cheese] for breakfast
b. *[Wallace a biscuit] and [Gromit some cheese] gave to John
c. *[Gromit a biscuit] Wallace gave for breakfast
d. *What Wallace gave is [Gromit a biscuit]

(2) a. Mary-ga [[John-ni ringo-o 2-tu] to [Bob-ni banana-o 3 hon]] ageta(koto)
M-Nom J-Dat apple-Acc 2-Cl and B-Dat banana-Acc 3-Cl gave (fact)
'Mary gave two apples to John and three bananas to Bob'
b. [[John-ni ringo-o 2-tu] to [Bob-ni banana-o 3-bon]] Mary-ga ageta (koto)
J-Dat apple-Acc 2-Cl and B-Dat banana-Acc 3-Cl M-Nom gave (fact)
'(the fact that) [two apples to John and three bananas to Bob] Mary gave'
c. Mary-ga age-ta no-wa [John-ni ringo-o 3-tu] da
M-Nom give-Pst Nm-Top J-Dat apple-Acc 3-Cl be
'It is [three apples to John] that Mary gave'

(3) a. La grande palla rossa
$The_{sg,\,f}$ $big_{sg,\,f}$ $ball_{sg,\,f}$ $red_{sg,\,f}$
'The big red ball'
b. $Gianni_{3,m,sg}$ $ha_{3,sg}$ paura di essere $arrivato_{m,sg}$ troppo tardi.
G. has fear to be arrived too late
'G. fears to have arrived too late'
c. $Maria_{3,f,sg}$ $li_{3,m,pl}$ $ha_{3,sg}$ già $mangiati_{m,pl}$ $tutti_{3,m,pl}$ (i panini)
M. them has already eat all (the sandwiches)
'M. has already eaten them all'
d. *$Maria_{3,f,sg}$ $ha_{3,sg}$ già $mangiati_{m,pl}$ [tutti i panini] $_{3,m,pl}$
M. has already $eaten_{m,pl}$ all the $sandwiches_{3,m,pl}$

In English, but not in Japanese, constituency tests (e.g. coordination, fronting, anaphor binding) conflict with one another when they target the Subject-Object argument cluster. Phillips explains this fact, deriving phrase structure from left to right (by means of *merge right*): for instance in Japanese (SOV), but not in English (SVO) the intermediate constituent [SO] is built and can be targeted for coordination. On the other hand multiple (selective, non-local) agreement and order effects reported in (3) are not easily implementable within the standard minimalist phase edge driven re-merge.

I will build on Stabler's (1997) proposal discussing some formal problems related to his conception of *merge* and to the *destructive feature checking* (selection-based) algorithm exemplified below ($A_{=B}$ indicates that A selects B in the standard sense; as a result of the merge operation, =B is deleted):

(4) merge ($A_{=B}$, B) = 

In the end I will propose that *merge* would better be described as a partial function that unifies (in the sense of Shieber 1986), sequentially, lexical items (i.e. clusters of features) with (a structured set of) features already present in the tree.

The proposed operation departs from the simplest assumptions discussed within the standard minimalist approach (Chomsky 1995-2005b): *minimalist merge* (and other standard structure building operations) leads to solutions that are only seemingly simpler and more essential than the ones proposed within the government and binding framework: as Stabler's formal implementation of a minimalist grammar suggests, theoretical (and empirical) complexity is mainly projected onto lexical items/features, recasting potential universal properties to language specific properties (much as in transformational, rule-based, approach, Chomsky 1965). This way UG computational core would be really minimal but also problematic for explanatory adequacy purposes.

References

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