

Eliminating external merge

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Preliminaries

- (1) Narrow Syntax = optimal resolution of interface conditions
> turns an unordered collection of linguistic elements into something interpretable
(for sound and meaning)
- (2) Merge (standard definition, cf. Boeckx 2015:27)
Take two lexical items α, β and form the set $\{\alpha, \beta\}$
- (3) Structure
Merge applied iteratively (α/β is the output of Merge)
- (4) Starting point
Everything structured is the output of (a sequence of operations) Merge
(words, phrases, clauses)

Question

- (5) What are α, β ? (call the collection of things to be merged the Numeration)
- (6) Boeckx (2015): 'lexical precursor cells' (LPC)
> minimal mergeable units (devoid of other features) > homogeneous Numeration
- (7) but mostly, at least one of α/β is the output of Merge, i.e. the *object under construction* (OUC) > nonhomogeneous Numeration
- (8) external merge: $\alpha = \text{LPC}, \beta = \text{OUC}$
- (9) internal merge: $\alpha = \text{OUC}, \beta = \text{contained in OUC}$
- (10) both obey the Extension Condition (Chomsky 1993:23)
merge targets the OUC (in fact, the edge of the OUC)

Parallel vs. layered derivations

- (11) in external merge targeting the OUC, α cannot be a LPC
- (12) { John, and, Mary, saw, Bill }
OUC = { saw Bill }
if $\alpha = \text{Mary}$, you get a constituent [Mary saw Bill] and not a constituent [John and Mary]
so α must be [John and Mary], the output of a derivation

- (13) Parallel derivation > homogeneous Numeration, diverging/converging derivations
Layered (cyclic) derivation > Numeration may contain output of separate derivation
- (14) Let's say that a derivation is **contained** iff every operation Merge contains either α or β dominating α

(where α dominates β iff α is the result of an operation Merge involving β or γ dominating β)
- (15) A derivation that is contained has a single continuation at each step (limited)
A derivation that is not contained has a wider range of possible continuations (unlimited)
- (16) Layered derivation is contained, parallel derivation is not contained (by definition)
- (17) Layered derivation gives you (potentially) infinite sentences (infinity is not the issue)
- (18) Layered derivations > Numeration is a mixed bag (not just LPCs)

Phases

- (19) Cyclicity: Numeration contains output of separate derivation
- (20) Standard conception of cyclicity: phases (Chomsky 2001)
- (21) Difference: single derivation, arbitrarily divided
 - externally imposed condition
 - sensitive to category
 - assembly problem (reassemble output at the interfaces)
 - imperfect transfer (edge of the phase not transferred)
 - look-ahead (know what to move to the edge to escape transfer)
- (22) Layered derivations independently needed:
 - feeding the vocabulary (derivational morphology, compounds)
 - feeding inflectional paradigms (in postsyntactic morphology)
 - (arguably) creating idioms/constructions (idiosyncratic sound-meaning pairings)

From Numeration to the interfaces

- (23) Summary
The analysis of every sentence involves a one-time collection of (heterogeneous) linguistic elements, to be turned into something that is interpretable at the interfaces.

> How are we going to do that?
- (24) Bobaljik's (1995) argument
No reification of the spatial metaphor of Merge
- (25) Spatial metaphor ('transfer')



- (26) Merge is not about moving material from NUM to OUC,
but about specifying relations among the members of NUM,
thus creating a new item with its internal relations defined (Bobaljik 1995:47)
- (27) It follows that NUM = OUC
- (28) The Extension Condition [10] now gives us
merge specifies a relation between $\alpha \in \text{OUC/NUM}$ and OUC/NUM
- (29) NUM = $\{ \alpha, \beta \}$
Merge $> \{ \alpha, \{ \alpha, \beta \} \}$ (= movement or internal Merge)
formally $\equiv \langle \alpha, \beta \rangle$ (Kuratowski 1921, cf. Langendoen 2003)
- (30) arguably, the ordered pair is something the interfaces can interpret
- simplified LCA $\langle \alpha, \beta \rangle$ externalized as $/ \alpha \beta /$ (Zwart 2011, cf. Kayne 1994)
- dependency marking: $\langle \alpha^F, \beta \rangle > \langle \alpha^F, \beta^F \rangle$ = feature sharing (Koster 1987)
- interpretation (c-command, scope, subject/predicate, topic/comment etc.)
- (31) Hypothesis
The need to create order is what drives the derivation (turn sets into ordered pairs)
(cf. Moro 2000, Chomsky 2013)

Beyond first merge

- (32) NUM = $\{ \alpha, \beta, \gamma \}$
Merge $> \{ \alpha, \{ \alpha, \beta, \gamma \} \}$ (= movement or internal Merge)
formally $\equiv \langle \alpha, \{ \beta, \gamma \} \rangle$
Merge $> \langle \alpha, \{ \beta \{ \beta, \gamma \} \} \rangle$ (movement to the edge of the unordered element)
formally $\equiv \langle \alpha, \langle \beta, \gamma \rangle \rangle \equiv \langle \alpha, \beta, \gamma \rangle$ (ordered n -tuple, cf. Fortuny 2008)
- (33) Consequence
all merge is internal merge (external merge simply not defined)
- (34) no question of the priority of external merge over internal merge or the other way around

Some consequences

- (35) 'base-generation' in Grammatical Function (GF) positions
> theta-roles are not projected, but bound/controlled (cf. Boeckx 2015)
> no argument positions inside vP
> v-V complex has all the hallmarks of separate derivation outputs (cf. Hale & Keyser 1993)
> no Projection Principle; UTAH/Theta Criterion are about dependency of V to GFs

- (36) copy theory of movement
- > Merge 'copies' elements, but the interfaces 'see' only the ordered pair, in which the copies have disappeared
 - > the question of spell-out of copies does not arise
 - > except for A'-movement, which is an entirely different process
- (37) the notion of subject
- > why do we have to have it (Extended Projection Principle, Chomsky 1982)?
 - > why is it crosslinguistically (almost) uniformly prepredicate (SVO/SOV)?
 - > why is it the prototypical controller of dependencies (agreement, binding)?
 - > how is it defined (thematically, discourse, etc.)?
- Hypothesis: the first element merged is the subject
- (38) different status of A'-movement
- various strategies (fronting, in situ, clefting, doubling)
 - features refer to earlier position in the derivation (reconstruction)
 - does not affect binding relations
 - triggered by additional features (interrogativity, discourse, focus)
 - > minimally: mapping from ordered n-tuples into ordered n-tuples (if not externalization)

Conclusion

- (39) We can achieve the goal of turning an unordered set into a linear order without external merge
- (40) there is no distinction between the object under construction and the numeration
- (41) A-syntax is just internal merge applied to the numeration, creating ordered pairs
- (42) old discussion of merge over move (early minimalism) or move over merge (more recently) can be put to rest
- a. there seems to be a man in the room
 - b. *there seems a man to be in the room

References

Bobaljik 1995 In terms of merge *MITWPL 27* • Boeckx 2015 *Elementary syntactic structures* • Chomsky 1982 *Some concepts and consequences of the theory of government and binding* • 1993 A minimalist program for linguistic theory in Hale & Keyser, eds., *The view from Building 20* • 2001 Derivation by phase in Kenstowicz, ed., *Ken Hale: a life in language* • 2013 Problems of projection *Lingua* • Fortuny 2008 *The emergence of order in syntax* • Hale and Keyser 1993 On argument structure and the lexical expression of syntactic relations also in *The view from Building 20* • Kayne 1994 *The antisymmetry of syntax* • Koster 1987 *Domains and dynasties* • Kuratowski 1921 Sur la notion de l'ordre dans la théorie des ensembles *Fundamenta Mathematicae* • Langendoen 2003 Merge in Carnie et al, eds., *Formal approaches to function in grammar* • Moro 2000 *Dynamic antisymmetry* • Zwart 2011 Structure and order: asymmetric merge in Boeckx, ed., *Oxford Handbook of linguistic minimalism*.