Prospects for top-down derivation

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1. Top-down derivation follows from simplest merge
2. Results: dependency, order, information
3. The problem of movement
4. Opacity: layered derivations
5. A proposal for wh-movement


1. Simplest Merge

(1) *Every derivation needs*
a. a set of elements N manipulated in the course of the derivation (numeration)
b. a procedure establishing relations among the members of N (merge)

(2) *Simplicity*
a. merge manipulates a single element from N at each step of the derivation
b. merge manipulates each element from N only once

(3) *Concretely*
a. N = { a, b, c, d, e }
b. merge: split $x \in$ N off from N
c. $merge_1$ ⟨ a, { b, c, d, e } ⟩
    $merge_2$ ⟨ a, ⟨ b, { c, d, e } ⟩ ⟩
    $merge_3$ ⟨ a, ⟨ b, ⟨ c, { d, e } ⟩ ⟩ ⟩
    etc. until we get   ⟨ a, ⟨ b, ⟨ c, ⟨ d, ⟨ e, ∅ ⟩ ⟩ ⟩ ⟩ ⟩   =   ⟨ a, b, c, d, e ⟩
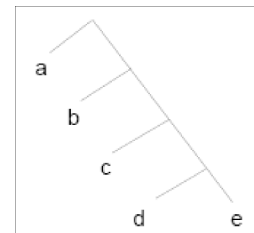
(4) *What drives/ends Merge?*
a. start: the need to create order (information) among the members of N
b. end: the establishment of a total ordering of N

(5) *Features*
a. no need to assume uninterpretable features
b. no mysterious features (EPP)
c. no feature checking

(6) *Top-down derivation*
a. simplest implementation (reordering of N)
b. different from Phillips (2003): no 'transfer' from N to structure; no pair of LIs
c. bottom-up variant: requires 'transfer' from N to structure (one at a time)

2. What merge yields

2.1 Order

(7) *Why split yields an ordered pair*
a. $\{ a, \{ a, b \} \} \equiv \langle a, b \rangle$ (Kuratowski 1921, Fortuny 2007)
b. derivational history: set of elements merged grows at each step

    (cf. (3c)) $merge_1$ $\{ a \}$ derivation yields a nest of sets
                 $merge_2$ $\{ a, b \}$ $\{ a, \{ a, b \} \} \equiv \langle a, b \rangle$
                 etc.   ultimately an ordered n-tuple

(8) *Linear Correspondence Axiom (revised from Kayne 1994)*
   $\langle a, b \rangle \equiv [\, a \; b \,]$

2.2 Information

(9) *Derivational Approach to Syntactic Relations (Epstein 1995/1999)*
   Syntactic relations are a function of merge

(10) $N = \{$ John, kissed, Mary $\}$ $merge_1$ $\langle$ John, $\{$ kissed, Mary $\}$ $\rangle$

(11)   *Generalization (N = Numeration)*
       Merge $\alpha \in N$ turns N into the dependent of α

(12)   *Dependencies*
       predication, complementation, modification, scope, etc.

(13)   The derivation yields a record of dependencies to be interpreted at the interfaces

2.3 Morphology

(14)   *Morphology after syntax*
       Morphology takes a syntactic object and returns a form

(15)   *Features*
       A form is selected from a paradigm on the basis of the features of the syntactic object

(16)   *'Uninterpretable' features*
a.   [number] on a predicate is not inherent, but a function of the dependency of a noun phrase
b.   [number] must be spelled out on a term of the predicate (often the verb)
c.   uninterpretable features are properties **emerging** in the course of the derivation as a function of merge

3. The problem of movement

(17)   *Consequence*
       There is no movement (by (2b))

(18)   *Problem*
       How come we interpret elements as belonging where we don't see them?

(19) *The nature of trace interpretation*
a.   A-movement (raising, passive): argument structure
b.   A'-movement (wh-movement): grammatical function GF (case, agreement)
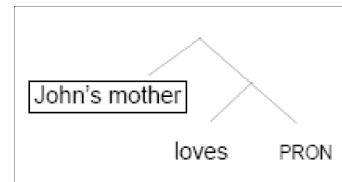
(20) *Answers*
a.   A-movement: phrases are never generated in argument positions
b.   A'-movement: we need a new approach (or this is on the wrong track entirely)
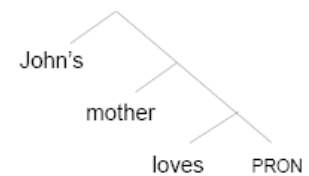
4. Layered derivations

4.1 The principle

Constituency requires layered derivations

(21)   John's mother loves him/*himself
         The mother of John loves him/*himself

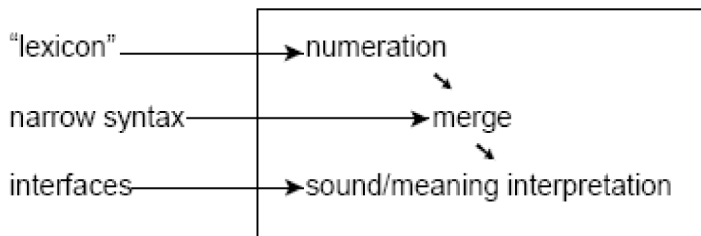(22)   N = { John's, mother, loves, PRON }
         yields ⟨ John's, mother, loves, PRON ⟩

   (Zwart 2002: *him* = spell-out of PRON, *himself* = spell-out of anaphoric PRON)

(23)   N₁ = { John's, mother } yielding ⟨ John's, mother ⟩ = [John's mother]
         N₂ = { [John's mother], loves, PRON } yielding ⟨ [John's mother], loves, PRON ⟩ = (21)

(24)   *Parallel tree formation?*
         Impossible in split-merge

(25)   *Model of grammar (of each (sub)derivation)*

(26)   The output of a subderivation passes through the interfaces

(27)   Idiosyncratic sound/meaning properties: output of a separate subderivation
         (idioms not created 'on the fly' as in Svenonius 2005)

(28)   *Which elements are outputs of subderivations and why?*

	IDIOSYNCRATIC SOUND/MEANING	CONFIGURATIONAL REASONS	INTERPRETIVE STATUS
compounds	✔		
verbs (cf. Hale & Keyser)	✔		
idioms	✔		

specifiers		✔	
adjuncts		✔	
backgrounded material			✔

4.2 Opacity

(29) *A consequence: generalized integrity*
Terms of a member of a numeration are invisible to merge (cannot be split)

(30) if N = { [**John's mother**], does, love, Bill }, split-merge never yields
*__John's__ does **mother** love Bill

(31) *Some (encouraging) results*
   a. Lexical integrity
   b. Idiom integrity: *All trades he's a jack of
   c. Subject/adjunct opacity (cf. Toyoshima 1997, but see Truswell 2007)
   d. Opacity of backgrounded material (cf. Goldberg 2006, chapter 7)

(32) a. It bothered Sue [that the mayor smoked cigars]$_{PRESUPPOSED}$
   b. $^{??}$What did it bother Sue [that the mayor smoked] ?

4.3 A-movement

(33) *Generalization*
A-movement never violates generalized integrity

(34) *Opaque vs. transparent idioms*
   a. Some headway was made
   b. #The bucket was kicked
   c. Some little bird seems to have told me ...
   d. #Chances seem to be that ...

(35) Test case: passive/raising out of subjects in languages where subjects are not islands

(36) *If the facts bear out (33):*
A-trace is not a dependency marker

(37) *Dependency marking does not respect generalized integrity*
I saw [[**the** man] leave]   *the* marked accusative in acc. case-marking lgs.

   - [the man] = specifier, hence output of separate derivation
   - dependency (accusative) marked on a **term** of the output of a separate derivation
   - (36) follows

(38) Passive: subject's sister has one GF unexpressed

4.4 The VP-internal subject/object hypothesis

(39) *The V-v complex*
a. Idiosyncratic sound/meaning pairing (*kill* ≠ cause to become not alive)
b. Integrity (V-v conflation is exceptionless in most analyses)
c. It follows that arguments are not generated inside the V-v complex
d. Argument structure is the *interpretation* of a configuration (Hale & Keyser 1993)

(40) Forces 'base-generation' of arguments in their Grammatical-Function (GF) position

(41) *Layered derivation inside the V-v complex*
a. John gave Mary flak   [CAUSE [(BE [WITH flak)]]]
b. Mary got flak   [INCH. [(BE [WITH flak)]]]
(cf. Richards 2001)

5. A'-movement

(42) *A'-movement raises problems*
a. Which car did they arrest the driver of   (predicted: complement not output of sep. der.)
b. * Which car did the driver of cause a scandal   (predicted: subject island)
c. Which car was the driver of arrested   (predicted on bottom-up, not on top-down)
d. Which car did they see the driver of cause a scandal   (not predicted)

(43) Observation: extraction out of subjects not universally disallowed and anyway better than extraction out of adjuncts (Stepanov 2001)

(44) Further problem: connectivity effects show that wh-elements belong in a GF-position, not in an argument position

(45) We**n**   hast   du   gesehen ?   (German)
who:ACC have:2SG 2SG:NOM seen   'Who did you see?'

(46) *Further observation: strange factors relevant to acceptability of A'-movement:*
a. discourse status (Erteschik-Shir 1973, Goldberg 2006)
b. event structure (Truswell 2007)
c. processing difficulty (Kluender 1998)
d. semantic factors (Szabolcsi & Zwarts 1993, Honcoop 1998)

(47) *How special is A'-movement?*

(48) *Proposal*
A wh-element is an asymmetric (operator-variable) 'double atom'   [who] [e]

(49) A wh-element is interpreted felicitously if its elements are distributed over the members of a dependency pair (output of merge), such that the variable is (a term of) the dependent

(50) N = { [who][e], you, saw } yields ⟨ who, { [e], you, saw } ⟩

           ultimately ⟨ who, you, saw, [e] ⟩

(51) *Long distance OK as long as a single numeration*
a.　　Who do you think you saw [e] ?
b.　　N = { [who][e], do, you, think, you, saw }
　　　　yielding 　〈 who, { [e], do, you, think, you, saw } 〉 etc.

(52) *Wh-islands*
a. *　Who did you wonder why you saw ?
b.　　assumption: complement of *wonder* = output of separate derivation
　　　　(wh-clause is formally identical to a wh-element)

(53) *No COMP-to-COMP relations* (cf. Lasnik & Saito 1984)
a. *　Why did you wonder [e] you saw Bill ?
b.　　Who said what ? (2x) *vs.*
　　　　Who wondered what you did ? (1x)

(54) *Separate derivation*
a.　　N_1 = { [why][e], you, saw, [who][e] }　yielding 　〈 why, { [e], you, saw, [who][e] } 〉
　　　　　　　　　　　　　　　　　　　　　　　　　　ultimately 〈 why, you, saw, who 〉
b.　　N_2 = { you, wonder, [why you saw who] }　will never yield (52a) by Gen. Integrity

(55) *Truswell facts*
a.　　What did John come in whistling ?
b. *　What did John work whistling ?

(56) *Truswell's observation*
　　　　come in whistling represents a single event, **work whistling** does not

(57) Facts follow if [come in whistling] is the output of a separate derivation

(58) *Relevance of backgrounding* (cf. (32))
a. ?? What did it bother Sue that the mayor smoked
b.　　What do you think that the mayor smoked
c.　　[what] [that the mayor smoked]
d.　　*think* + *[that the mayor smoked]* readily interpretable as a unit (verb of propositional content)
　　　　bother Sue + *[that the mayor smoked]* more difficult, as the clause has presupposed content

6. Conclusion

(59)　1.　the simplest derivations are layered
　　　　2.　the output of each subderivation is interpreted at the interfaces
　　　　3.　the output of a subderivation is in principle atomic, yielding generalized integrity
　　　　4.　A'-movement seems to require a noncanonical 'double atom' output, with conditions on acceptability sensitive to the possibility of merging part of the double atom separately

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