

## Chomsky (2004): “Beyond Explanatory Adequacy” [BEA]

Theme: Eliminative minimalism is pushed further so as to conform to the SMT; phase theory, so far rather sketchy (i.e. in MI/DbP), is further consolidated on empirical, conceptual, and technical grounds (w.r.t. the technical system, no changes are made to the MI/DbP framework here, though).

### *Language design*

a. The properties of the attained language L result from the interaction of three factors:<sup>[104]</sup>

(1) *The three factors*<sup>[105]</sup>

1. Individual experience (PLD), which selects among the options allowed by  $S_0$ .  $\Rightarrow$  *Descriptive adequacy*
2.  $S_0$  itself, a product of evolution.  $\Rightarrow$  *Explanatory adequacy*
3. General properties of organic systems.  $\Rightarrow$  *Beyond explanatory adequacy*

b. “[N]atural selection can only function within a “channel” of options afforded by natural law, including properties of complex systems”  $\Rightarrow$  Factor 3: nature’s “Sinn für das Schöne [sic]” (Haeckel)<sup>[105]</sup>

c. “[W]e can seek a level of explanation deeper than explanatory adequacy, asking not only what the properties of language are but also why they are that way”<sup>[105]</sup>

d. *Initial conditions on language acquisition (explananda)*<sup>[106]</sup>

- i. Unexplained elements of  $S_0 \Rightarrow$  *empty under SMT (“too much too expect”)*
- ii. I(nterface)C(ondition) (the principled part of  $S_0$ )
- iii. General properties  $\Rightarrow$  *external to  $S_0$*

### *Architecture*

e. LA/Num, LEX, D(erivation), NS, PHON & SEM (*representations*),  $\Phi$  &  $\Sigma$  (*modules*)<sup>[106f.]</sup>

f. No internal tampering of LIs  $\Rightarrow$  no feature movement, no MLIs

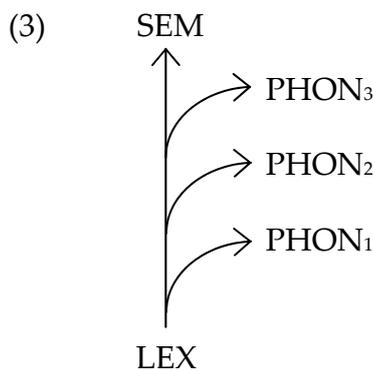
g. Label  $\approx$  head (for all it’s worth)

h. Operation TRANSFER<sup>[107]</sup>

(2) TRANSFER hands D-NS over to F and to S.  
 $\Rightarrow$  Transfer to  $\Phi =$  *Spell-Out (S-O)*

i. **No more LF:** “In this conception there is no LF: rather, the computation maps LA to <PHON, SEM> piece by piece, cyclically. There are, therefore, no LF properties and no interpretation of LF,

strictly speaking, though S and F interpret units that are part of something like LF in a noncyclic conception."<sup>[107]</sup>



j. *The mystery of root S-O (The Apex Paradox)*<sup>[108; fn. 17]</sup>

S-O applies to the phase domain ( $\beta$  in (7) below):

$$(4) [{}_{CP} C^\circ [{}_{TP} T^\circ [{}_{vP} v^\circ [VP \dots ] ] ] ] \Rightarrow S-O \text{ of } VP, \text{ the domain of the phase head } v^\circ$$

As S-O of VP happens upon the Merger of the next higher phase head  $C^\circ$ , S-O may be rephrased as being triggered by that phase head. However, the topmost root CP phase is no complement/domain of any higher phase; thus, phases must (also) be able to be spelled out in full, without a trigger:

$$(5) [{}_{CP} C^\circ [{}_{TP} T^\circ [{}_{vP} v^\circ [VP \dots ] ] ] ] \Rightarrow S-O \text{ of root } CP \text{ (untriggered/default)}$$

In fn. 17, Chomsky reanimates an interesting, yet odd, proposition, to solve the Apex Paradox: Ross's *Performative Hypothesis* (also cf. Speas & Tenny 2003 for an explicit implementation in terms of *Speech Act phrases*):

$$(6) [{}_{SAP} SA^\circ [{}_{CP} C^\circ [{}_{TP} T^\circ [{}_{vP} v^\circ [VP \dots ] ] ] ] ] \Rightarrow S-O \text{ of root } CP \text{ triggered by empty Speech Act head}$$

k. *Phase theory*<sup>[108]</sup>

$$(7) \text{ a. } PH = [\alpha [H \beta]]$$

$$\text{ b. } \alpha-H = \textit{edge}$$

(8) *PIC*

At the phase ZP containing phase HP, the domain of H is not accessible to operations, but only the edge of HP.

l. *Duality of semantics*<sup>[110]</sup>

"[A]rgument structure and everything else" (Correlates with EM-IM<sup>[111]!</sup>)

m. *Interface Conditions*<sup>[109f.]</sup>

- (9) a. SM requires linearization by PHON.  
 b. C-I requires duality of semantics by SEM.

n. *Operations & relations*<sup>[110]</sup>

(10) Merge (freebie)  $\Rightarrow$  internal (IM), external (EM), ‘displacement’ (not considered an imperfection anymore!), CTM ( $\approx$  “null hypothesis”; no reconstruction; fn. 30: no meaningful distinction  $A/\bar{A}$ )

(11) *Conditions on Merge*<sup>[109]</sup>

- a. Locality condition (‘closest’ under c-command)
- b. Extension condition

Covert movement (= IM) after S-O exists (contra LDA in MI & DbP)! Discuss...

(12) *Copy*<sup>[111]</sup>

K is a copy of L if K and L are identical except that K lacks the phonological features of L.

(13) *Agree*<sup>[113]</sup>

- P-G under c-command, minimal search
- a. P & G must be complete<sup>[115]</sup>
  - b. Match under identity (non-distinctness)
  - c. P & G must be active

(14) *Move*<sup>[114]</sup>

= Agree + Pied-Piping + Merge

(15) There are no head-to-Spec relations R(H, Spec) (m-command).<sup>[109]</sup>

o. *No s-selection*<sup>[111f.]</sup>

① Configurational  $\theta$ -theory (à la Hale & Keyser)

② Burzio’s Generalization makes s-selective  $\theta$ -feature redundant

③ No m-command, no head-to-Spec relations (e.g. [Spec [ $v$ [EA]] [...]])

④ Acategorial roots: [ $v_P$   $v$  [ $\sqrt{SEE}$  [ $DP$  the picture ]]] ( $v$  identifies  $\sqrt{SEE}$  as verbal; also gives a rationale to obligatory V- $v$  movement)  $\Rightarrow$  Consider the structure [ $\sqrt{ARRIVE}$  ], from which we cannot predict whether it’s gonna be verbal or nominal (i.e. whether  $v$  is merged next, or  $n$ )  $\Rightarrow$  An s-selective [IA] (*internal argument*) feature with subsequent merger of  $n$  predicts that [ $n$  arrival] needs an argument, contrary to fact (i.e.  $^?[_{nP} n$  [ $\sqrt{ARRIVE}$  [ $IA$ ] [ $DP$  John ]]])  $\Rightarrow$  S-selection is configurational, evaluated at SEM- $\Sigma$

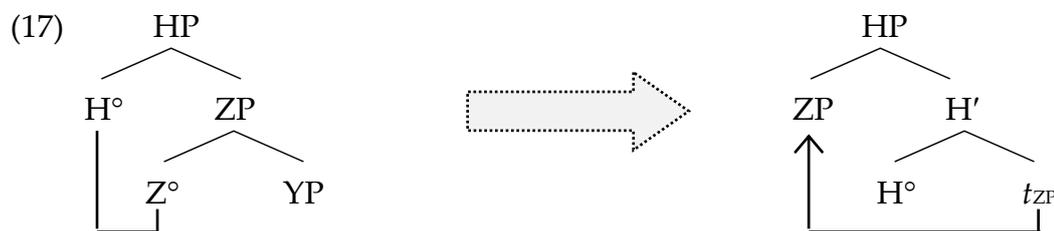
$\Rightarrow$  Derivations cannot be crash-proof (Comparison space all over again? Witness “Perhaps the condition should be that L yields an infinite variety of propositional configurations (CP or  $vP$ ), and that each element of LEX enters into these.”<sup>[112]</sup>)

p. *EPP/OCC*<sup>[113]</sup>

Optional [EPP] (= ‘edge-EPP’) = [OCC]: has “the ‘function’ of providing new interpretations” (non-teleological, under Reinhart’s/Fox’s economy output condition)<sup>[113]</sup>

q. *Spec-Head*<sup>[113]</sup>

(16) Apparent Spec-H relations are in reality head-head relations involving minimal search (local c-command).



(18) Spec-Head (prerequisite 'feature strength'), H is morphologically richer than otherwise. But: McCloskey (2002) shows that *the kind of Merge* (IM or EM) determines the morphology of finite C° (in Modern Irish; examples are from pp. 185f.):

a. an fhlíocht [<sub>CP</sub> *pro* a<sub>[Op, EPP]</sub> chum sí t<sub>pro</sub> ].  
 the poetry aL composed she  
 'the poetry that she composed'

b. Creidim [<sub>CP</sub> **gu-r**<sub>[EM]</sub> inis sé bréag ].  
 I-believe go-[past] tell he lie  
 'I believe that he told a lie.'

(19) Agüero-Bautista (2001) cites examples from Indonesian where successive-cyclic *wh*-movement deletes an otherwise (i.e. in *wh*-in-situ) overt transitivity prefix *men-* (examples are from pp. 149f.)<sup>[116]</sup> [*Strangely, Chomsky discusses this in the context of C-T below...*]:

a. Sally **men-**cintai siapa  
 Sally TRANS-loves who  
 'Who does Sally love?'

b. Siapa<sub>i</sub> yang Sally ∅-cintai t<sub>i</sub>  
 who (FOC) Sally loves  
 'Who does Sally love?'

NOTE: Starke (2001, 2004) actually argues for a *specifier-less syntax*. "What we mistook for specifiers are heads (in the sense that they provide the "label" for the merger they enter into). Put differently, there is no such thing as second merge in any theoretically relevant sense: every instance of merge has the properties of first merge." (Starke 2004: 252). There are only *head-complement* relations.

*ex.*

(1) I wonder [<sub>CP</sub><sup>[+wh]</sup> [<sub>DP</sub><sup>[+wh]</sup> **wh-ich pasta**] C°<sub>[+wh]</sub> [<sub>TP</sub> these boys ate t<sub>DP</sub>]].

(2) I wonder [<sub>CP</sub><sup>[+wh]</sup> [<sub>DP</sub><sup>[+wh]</sup> **wh-ich pasta**] [<sub>TP</sub> these boys ate t<sub>DP</sub>]].

r. *Uninterpretable features*<sup>[113f.]</sup>

[uF]'s are 'imperfections' ...

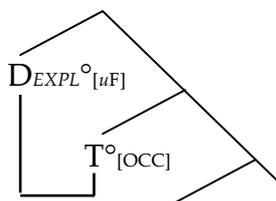
- (20) a. D/N[uCase]  
 b. T[u $\phi$ ] (*subject agreement*)  
 c. v[u $\phi$ ] (*object agreement*)  
 d. Prt<sub>def</sub>[uNumber, uGender] (*participial agreement*)  
 e. T<sub>def</sub>[uNumber, (uGender)]

⇒ For Case-checking (under Agree), categories must be *complete*!  
 ⇒ [OCC] no imperfection, is IC-related (output-oriented).

s. *Expletives*<sup>[114]</sup>

EXPL[uF] ([uF] = Case?) ⇒ If EXPL = head in a label-free phrase structure (à la Collins)

(21) Rel(EXPL, T) = H<sup>o</sup>-H<sup>o</sup>, not H<sup>o</sup>-Spec or H<sup>o</sup>-Spec ⇒ EM licit



t. *Phase simultaneity*<sup>[115]</sup>

Everything that happens within a phase (under the relevant definition) happens simultaneously (the representational residue).

u. *C-T (anticipates Feature Inheritance, once again)*<sup>[115f]</sup>

C-T functions as a unit (T only shows true Tense and agreement if co-occurring with C)

- (22) a. C-T<sub>[u $\phi$ , T]</sub>  
 b. T<sub>def</sub>[uPERSON]

v. *Valuation*<sup>[116]</sup>

Valuation/Interpretability Biconditional: "A feature F is uninterpretable iff F is unvalued."

- ① Valuation under Agree
- ② Valuation ⇒ elimination
- ③ TRANSFER to  $\Phi$  *before* elimination ([uF] may have phonetic reflex, e.g. Case)

⇒ Valuation as part of TRANSFER

w. *EPP (the real one)*<sup>[116]</sup>

T<sub>[OCC]</sub> – why on a non-phase head?

NOTE: In fn. 56, Chomsky gives an argument why [EPP] should still be assumed for (intermediate) defective T, contrary to what is assumed in MI, following Epstein & Seely (i.e. one-fell-swoop movement; example modified):

ex. John seems to Susan [ $t_1$  to appear to himself [ $t_2$  to like Mary]]  
 ⇒ John = himself, despite [John...Susan...himself] ⇒  $t_1$  binds himself

x. *IM in the Case-agreement system*<sup>[116]</sup>

- ① (C-)T[uφ] ⇒ determines category of target
- ② D/N[uCase] ⇒ moved element determined by active target
- ③ P[EPP/OCC] ⇒ determines availability of a position for Merge

y. *Adjuncts & cyclicity*<sup>[117f.]</sup>

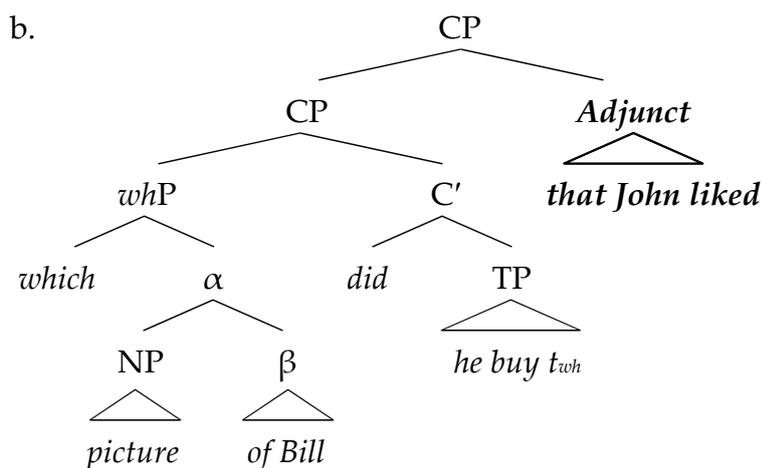
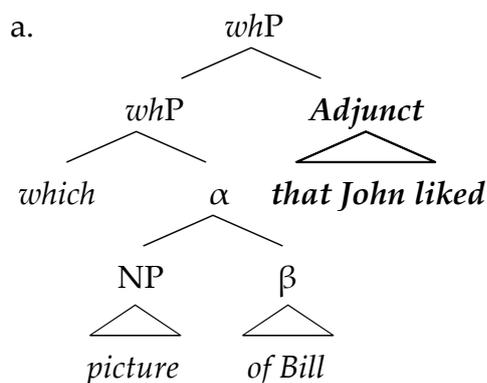
Set Merge (= IM α to β): {β} ⇒ {α, β} (symmetrical, unordered)

Pair Merge (= Adjunction of α to β): {β} ⇒ <α, β> (asymmetrical, ordered)

⇒ Adjuncts are merged to their host on a separate (secondary) computational plane, *preserving* the syntactic properties of the host (e.g. w.r.t. c-command; cf. (23) below)

(23) [<sub>wh</sub> Which [<sub>α</sub> [<sub>NP</sub> picture [<sub>β</sub> of Bill<sub>m</sub> ] ] ] [<sub>Adjunct</sub> **that John<sub>k</sub> liked** ] ] did **he<sub>k/\*m</sub>** buy *t<sub>wh</sub>*? [2 Adjuncts!?!]

⇒ (a) **Cyclic Merge at the phase-level** [*preferred by SMT*] vs. (b) **Countercyclic late Merge at the root-level** [*preferred by binding facts in (23)*]



*Adjunction & the SMT*<sup>[118f.]</sup>

(1) Why does it exist? (2) How does it work?

(1) SEM: Adjunction/Pair Merge is required by C-I to achieve *predicate composition* (in addition to the duality of semantics achieved by set Merge)

⇒ SIMPL: optional operation converting <α, β> to {α, β}, part of TRANSFER

PHON: integration of α (of <α, β>) into primary plane



⇒ If  $\alpha = n$ , OB receives inherent Case and is spelled out

⇒ If  $\alpha = v$ , V moves to  $v$

⇒ If  $\alpha = v_{\text{TRANS}}$ , Agree( $v, \text{OB}$ ), assignment of ACC to OB, OB only raises if  $v$  has [OCC]

- By SMT, S-O should apply as early as *possible* ⇒ this is possible at  $v$ , but mind you, derivation, under the PIC: ‘Spell-Out you sister!’
- Next phase should be CP (given  $\bar{A}$ -movement, V-to-C movement, V-topicalisation, which must all await  $C^\circ$ )
- Phase simultaneity & phase-level evaluation gives rise to *apparent* countercyclicity (see DbP)
  - ⇒ *Wh*-phrases shouldn’t be strandable in [Spec,  $vP$ ], otherwise SU in [Spec,  $vP$ ] couldn’t be detected (by  $T_{\text{[EPP]}}$ ); stranding in [Spec, CP] should be possible (McDaniel 1989 for German)

(29) *Was* glaubt Michael [<sub>CP</sub> *was* ich über Iwo *t<sub>was</sub>* getratscht habe]?

⇒ OS must move on from [Spec,  $vP$ ] (see DbP)

(30) [<sub>TP</sub>  $T^\circ$  [<sub>XP</sub> **OB**  $X^\circ$  [ <sub>$vP$</sub>  *t<sub>OB</sub>* [ <sub>$v'$</sub>  SU  $v^\circ$  [<sub>VP</sub> ...*t<sub>OB</sub>*... ]]]]].

- Semantic and phonological coherence and independence
  - ① Strong phases: CP, transitive/experiencer  $vP$  (DP, PP) ⇒ have [EPP]-positions/escape hatch ⇒ “smallest constructions that qualify for Spell-Out”<sup>[124]</sup>
  - ② Weak phases: nontransitive  $vP$  (DP, PP) ⇒ don’t have [EPP]-positions
  - ③ Non-phases?