Verbal Morphology:
Syntactic Structures Meets the Minimalist Program

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I. Syntactic Structures (1957)

(1) John left   John didn't leave
     John should leave   John shouldn't leave
     John has left   John hasn't left
     John is leaving   John isn't leaving

(2)   *John leftn't
                         *John didn't should leave
                         *John doesn't have left
                         *John doesn't be leaving

(3) John left   Did John leave
     John should leave   Should John leave
     John has left   Has John left
     John is leaving   Is John leaving

(4)   *Left John
                         *Did John should leave
                         *Does John have left
                         *Does John be leaving

(5)
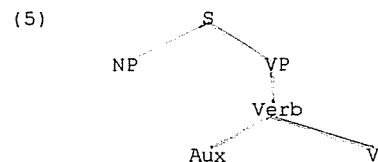
(6)   Aux → C (Modal) (have en) (be ing)

(7)   C → $\begin{cases} S \text{ in the context } NP_{sing} \_\_ \\ \emptyset \text{ in other contexts} \\ past \text{ in any context} \end{cases}$

(8) T_{not} – optional   #16

Structural analysis: $\begin{cases} NP - C - V... \\ NP - C+M - ... \\ NP - C+have - ... \\ NP - C+be - ... \end{cases}$
Structural change: $X_1 - X_2 - X_3 \rightarrow X_1 - X_2 + n't - X_3$

(9) T_A – optional   #17
   Structural analysis: same as #16
   Structural change: $X_1 - X_2 - X_3 \rightarrow X_1 - X_2 + A - X_3$

(10) T_q – optional #18
   Structural analysis: same as #16
   Structural change: $X_1 - X_2 - X_3 \rightarrow X_2 - X_1 - X_3$

(11) Auxiliary Transformation ("Affix Hopping")– obligatory #20
   Structural analysis: X – Af – v – Y (where Af is any C or is en or
ing; v is any M or V, or have or be)
   Structural change: $X_1 - X_2 - X_3 - X_4 \rightarrow X_1 - X_3 - X_2\# - X_4$

(12) Word Boundary Transformation – obligatory #21
   Structural analysis: X – Y (where X≠v or Y ≠Af)
   Structural change: $X_1 - X_2 \rightarrow X_1 - \#X_2$

(13) do – Transformation – obligatory #22
   Structural analysis: # – Af
   Structural change: $X_1 - X_2 \rightarrow X_1 - do + X_2$

(14) The fundamental insight of this system is that the tense-
      agreement inflectional morpheme ('C') is syntactically
      independent, even though always a bound morpheme
      superficially. The analysis is brilliantly successful, but
      when viewed from the perspective of explanation in the sense
   of Chomsky (1965), it has serious shortcomings.

II. Verb Raising Analyses

(15) In the base, Aux includes only C and, optionally, Modal. When
      there is no modal, the 1st instance of have or be following
      the Aux is raised into the Aux. This makes possible a
      substantial limitation on the descriptive power of
      transformations: a non-variable term must be a constituent.
      The non-constituent terms in (8)-(10) above become simply
      Aux in such an analysis.

(16)a have-be Raising – obligatory
    b Affix Hopping – demands adjacency between Af and v –
       obligatory
    c do-support – obligatory and strictly ordered after a.

(17) Restatement in terms of 'head movement':
    a S is the maximal projection of the inflectional morpheme Infl
       (= C of Syntactic Structures).
    b Infl takes VP as its complement.
    c When the head of VP is have or be it raises to Infl, the next
       head up. (not is a modifier of VP?)
    d Otherwise Infl lowers to V (under a condition of adjacency?).
    e Otherwise do adjoins to Infl.

(18) The 'stranded affix' filter: A morphologically realized affix
      must be a syntactic dependent of a morphologically realized
      category, at surface structure. (Lasnik (1981))

(19) UG principles are applied wherever possible, with language-
      particular rules used only to "save" a D-structure
      representation yielding no output. Verb raising and affix
      hopping are universal; do-support is language-particular.
      (Chomsky (1991))

(20)a *John likes not Mary
   b Jean (n')aime pas Marie

(21) In French, all verbs are capable of raising, not just have and
      be. Unlike the situation in English, afffix hopping and do-
      support are never needed. (Emonds (1978))

(22) 'Infl' is not one head; it consists of (at least) Tense and
      Agr, each heading its own projection.

(23)a English Agr, because not morphologically rich, is 'opaque' to
      θ-role transmission. Thus, if a verb with θ-roles to assign
      were to raise, it would be unable to assign them, resulting
      in a violation of the θ-criterion.
   b French Agr, because morphologically rich, is 'transparent' to
      θ-role transmission. (Pollock (1989))

III. Economy of Derivation

(24) Raising is preferred to lowering, because lowering will leave
      an unbound trace that will have to be remedied by re-raising
      in LF. (Chomsky (1991))

(25)a *John not writes books
   b John does not write books

(26) Why isn't (25)a, with overt affix lowering followed by LF re-
      raising, preferred over (25)b, with language particular last
      resort do-support?

(27)
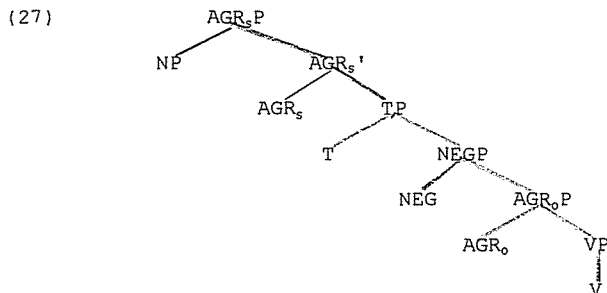
(28) The Head Movement Constraint (reduced to an ECP antecedent
      government requirement) prevents the LF re-raising needed in
      the derivation of (25)a. The intervening head NEG cannot be
      crossed.
(29) But then why is overt raising possible in French, and, in the
      case of have and be, in English as well?

(30)a If AGR moves, its trace can be deleted, since it plays no
      role in LF.
   b If V moves, its trace cannot be deleted.
   c Deletion of an element leaves a category lacking features,
      [e].
   d Adjunction to [e] is not permitted.   (Chomsky (1991))

(31)a When V overtly raises, (20)b, it first adjoins to AGR_o,
      creating $[_{AGRO}$ V $AGR_o]$;
   b Next, AGR_o raises to T, crossing NEG, thus leaving a trace
      that is marked $[-\gamma]$, indicating a violation of the ECP.
      That trace is an AGR;
   c Eventually, in accord with (30)a, the $[-\gamma]$ trace is deleted,
      so there is no ECP violation (where ECP is, as in Lasnik and
      Saito (1984;1992), an LF filter: $*[-\gamma]$.

(32)a When V vainly attempts to covertly (re-)raise in LF, (25)a,
      AGR_s has already lowered overtly to T, leaving an AGR trace
      (which deletes, leaving [e]), and creating a complex T,
   b which has lowered to AGR_o, leaving a T trace and creating a
      still more complex AGR,
   c which has lowered to V, leaving an AGR trace (which deletes,
      leaving [e]), and creating a complex V.
   d This complex V raises to the [e] left by the deletion of the
      AGR_o trace, a movement that is, by (30)d, necessarily
      substitution, thus turning [e] into V.
   e This element now raises across NEG to (the trace of) T,
      leaving behind a $[-\gamma]$ trace which is, crucially, a V trace,
      hence non-deletable. The resulting LF is in violation of
      the ECP.

(33) Note that (30)a, (31)c are inconsistent with a central
      economy condition of Chomsky (1991): Deletion is only
      permitted to turn an ill-formed LF object onto a well-formed
      LF object, where the relevant well-formed objects are
      'uniform chains' (chains all of whose members are X^0s, are in
      A-positions, or are in A'-positions. This is precisely to
      prevent making a short licit head-, A-, or adjunct-movement,
      followed by a long illicit movement, with subsequent
      deletion of the offending trace. But exactly that is
      crucially being allowed here.

(34) Another problem is that generally, an illicit movement
      results in some degradation (e.g., Subjacency effects), even
      if the offending trace is eventually eliminated. But the
      overt V-movement at issue here is fully grammatical.

IV. A Minimalist Approach
                                        (Chomsky (1993))

(35)a Strong lexicalism: verbs are pulled from the lexicon fully
      inflected.
   b There is thus no need for affix hopping.
   c Rather, the inflected V raises to Agr (and T) to 'check' the
      features it already has. This checking can, in principle,
      take place anywhere in a derivation on the path to LF.
   d Once a feature of AGR has done its checking work, it
      disappears.

(36) So what's the difference between French and English?

(37)a In French, the V-features of AGR (i.e., those that check
      features of a V) are 'strong'.
   b In English, the V-features of AGR are 'weak'.

(38)a If V raises to AGR overtly, the V-features of AGR check the
        features of the V and disappear. If V delays raising until
        LF, the V-features of AGR survive into PF.
    b V-features are not legitimate PF objects.
    c Strong features are visible at PF; weak features are not.
        Surviving strong features cause the derivation to 'crash' at
        PF.
(39)   This forces overt V-raising in French.

(40)   In English, delaying the raising until LF does not result in
        an ill-formed PF object, so such a derivation is <u>possible</u>.
        What makes it <u>necessary</u> is:
(41)   'Procrastinate': Whenever possible, delay an operation until
        LF.

(42)   Why do <u>have</u> and <u>be</u> raise overtly?
(43)   <u>Have</u> and <u>be</u> are semantically vacuous, hence not visible to LF
        operations. Thus, if they have not raised overtly, they
        will not be able to raise at all. Their unchecked features
        will cause the LF to crash.
(44)   Questions about (43): (1) Should syntactic operations, even
        those in the LF component, care about purely semantic prop-
        erties? (2) There are languages (such as Swedish in (45))
        where auxiliary verbs have inflectional features but do not
        raise overtly. (3) Even instances of <u>have</u> and <u>be</u> arguably
        possessing semantic content raise overtly.

(45)a ..., om   hon inte ofte **har** sett honom
            whether she not often has seen him
    b *   om hon **har** inte ofte sett honom
    c *   Om hon inte **har** ofta sett honom

(32)a Is there a solution / There isn't a solution
    b Have you any money / I haven't any money

(46)   *John not left
(47)   Chomsky (1993) does not discuss how to rule out (46). Note
        that (32) does not carry over to this framework (even if we
        wanted it too), since (32) crucially relies on affix
        hopping.

V. Notes Towards a Hybrid Minimalist Account

(48)   Chomsky's minimalist account demands that AGR and T are just
        abstract features that check against features of verbs when
        verbs raise to them. All the earlier accounts treated such
        Infl items as bound morphemes that had to become affixes.
        Can both possibilities coexist?

(49)a French verbs are fully inflected in the lexicon (possibly
        correlating with the fact that there are no bare forms; even
        the infinitive has an ending).
    b <u>Have</u> and <u>be</u> are fully inflected in the lexicon (possibly
        correlating with the fact that they are highly suppletive).
    c All other English verbs are bare in the lexicon.

(50)   Infl is freely an affix or a set of abstract features.

(51)a Featural Infl is always strong (as are possibly all featural
        functional heads).
    b Affixal Infl must merge with a V, a PF process demanding
        adjacency.   Halle and Marantz (1993)); Bobaljik (1993))

(52)a ... Infl ... V ...   OK. V will overtly raise.
            +F   +F
    b ... Infl ... V ...   OK. PF merger.
            Af   bare
    c ... Infl ... V ...   * at LF. +F of I won't be checked.
            +F   bare
    d ... Infl ... V ...   * at LF. +F of V won't be checked.
            Af   +F   (Maybe * at PF also, if merger fails.)

(53)a French Infl will thus always have to be featural.
    b English Infl will always have to be featural, when the verb
        is <u>have</u> or <u>be</u>.
    c English Infl will always have to be affixal with any other
        verb.

(54)a *John not left   {Merger couldn't have taken place.}
    b *John left not   {<u>Left</u> isn't in the lexicon, so no
                        feature could drive raising.}

(55)   Jean (n')aime pas Marie
(56)   John has not left

(57)   Why is raising allowed in (55), (56)? Here are 3
        possibilities:
(58)a (32) above, as in Chomsky (1991).
    b NEG is not a head, but a modifier. Note that its major role
        as a head had been to block (54)a, which is now irrelevant
        to the issue.
    c {The most radical} There is no Head Movement Constraint. In
        any theory where movement is driven solely by the need for
        features to be satisfied, the standard HMC example is
        irrelevant: *Read John will <u>t</u> the book won't be generated
        simply because no feature will drive the movement of <u>read</u> to
        Comp. It is only finite verbs that raise to Comp, clearly
        indicating that the crucial feature is Tense.

VI. A Surprising Paradigm: Evidence for the Hybrid?

(59)   John slept, and Mary will too
(60)a *John slept, and Mary will **slept** too
    b   John slept, and Mary will **sleep** too

(61)   ?John was sleeping, and Mary will too
(62)a *John was sleeping, and Mary will **sleeping** too
    b   John was sleeping, and Mary will **sleep** too

(63)   John has slept, and Mary will too
(64)a *John has slept, and Mary will **slept** too
    b   John has slept, and Mary will **sleep** too

(65) **Hypothesis 1:** Any form of a verb V can be 'deleted under identity' with any form of V (reminiscent of Fiengo and May's 'vehicle change').

(66) *John was here, and Mary will too
(67)a *John was here and Mary will **was** here too
    b   John was here and Mary will **be** here too

(68) Could it be that a trace can't serve as (part of) an antecedent for deletion?
(69) Linguistics, I like, and you should to
(70) ?Someone will be in the office, won't there?
(71) That this approach will fail is likely. Yes it is.

(72) **Hypothesis 2:** A form of a verb V can only be deleted under identity with the very same form. Forms of be and auxiliary have are introduced into syntactic structures already fully inflected. Forms of 'main' verbs are created out of lexically introduced bare forms and independent affixes.

(73)a John is not foolish
    b *Be not foolish
    c Be foolish
(74)a The Imperative morpheme (generated in the position of Tense) is strictly affixal, hence there will never be raising to it (just merger with it)
    b OR Imp is freely affixal or featural, and be and auxiliary have are defective, lacking imperative forms in the lexicon.

(75)a *Not leave   {Lack of adjacency blocks merger}
    b *Not be foolish
(76) Leave. I don't want to.
(77) Mary left. I don't want to.
(78) Be quiet. I don't want to.
(79) Mary is quiet. *I don't want to.

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