THE RETURN OF THE SUBSET PRINCIPLE

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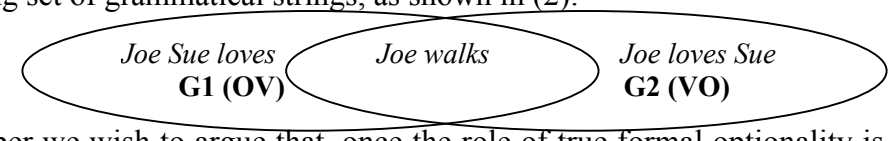
1. The Subset Principle, proposed by Berwick (1985), can be formulated as follows:

(1) "the learner must guess the smallest possible language compatible with the input at each stage of the learning procedure" (Clark & Roberts 1993:304-5)

This principle has the important conceptual advantage of being founded upon what seems to be a clear fact about language acquisition: that acquirers do not have access to negative evidence. Because of this, it is impossible for an acquirer to retreat from a superset hypothesis since the only evidence that would force this to happen would be evidence regarding the impossibility of certain strings, i.e. unavailable negative evidence. Acquisition therefore has to proceed on a highly conservative basis as described in (1). Conceptually well-motivated though it may be, the Subset Principle has arguably foundered as a useful principle for guiding the setting of parameters in language acquisition since most parameters seem to define intersecting languages* rather than languages in a subset-superset relation (*taking a language to be the set of strings generated by a grammar). This is particularly clear in the case of word-order parameters, such "OV" vs. "VO", since the parameter defining these options defines an intersecting set of grammatical strings, as shown in (2):

(2)



In this paper we wish to argue that, once the role of true formal optionality is fully taken into consideration, the Subset Principle once again becomes useful, and indeed can explain certain changes in a natural way, relying essentially on the reasoning above: if evidence for the grammar which generates the larger language is not sufficiently robust, acquirers "default" to a grammar generating a smaller language. We will develop this idea in relation to two types of change: one where a pied-piping option is lost (in favour of obligatory stranding), and the other what we call *restriction of function*, i.e. the narrowing down of an operation to a subset of the contexts in which it formerly applied.

2. Schematically, pied-piping arises when a category which properly contains a Goal, rather than just the Goal, is moved by a Probe's EPP-feature. This possibility is clearly allowed by the system in Chomsky (2001 *et seq.*), and would have to be stipulated not to exist. In (3), pied-piping is the case where YP moves as opposed to Z(P):

(3) … X_{PROBE} … [$_{YP}$ … Z_{GOAL} …] …

We propose that, where X probes Z and has an EPP-feature, UG offers the parametric options of satisfying this feature by moving ZP alone, obligatorily pied-piping YP or optionally pied-piping YP (i.e. moving either ZP or YP). These options give rise to grammars which generate the following range of strings:

(4) a. ZP-movement only: [$_{XP}$ ZP X [$_{YP}$ … (ZP) …]]
b. Obligatory pied-piping: [$_{XP}$ [$_{YP}$ … ZP …] X (YP)]
c. Optional pied-piping: [$_{XP}$ ZP X [$_{YP}$ … (ZP) …]] AND
[$_{XP}$ [$_{YP}$ … ZP …] X (YP)]

It is clear that (4c) represents a superset language in relation to both (4a) and (4b); as such this parametric option must, in accordance with (1), be very robustly triggered.

3. A case where a system like (4c) developed into (4a) is word-order change in Middle English (ME). Following Biberauer & Roberts (2005), assume that Old English (OE) T and *v* both probed a D-feature (i.e. the subject and the direct object respectively) and had an EPP-feature. At this stage, pied-piping of *v*P and VP respectively was optional. In conjunction with V-to-*v* movement, these options therefore gave rise to the following orders:

(5) a. VP pied-piping: [$_{vP}$ [$_{VP}$ … DP-OB …] V+*v* (VP)]
b. VP "stranding": [$_{vP}$ DP-OB V+*v* [$_{VP}$ .. (DP) ..]]

(6) a. *v*P pied-piping: [$_{TP}$ [$_{vP}$ DP-SU [VP] V+*v*] T (*v*P)]

b. *v*P "stranding": [$_{TP}$ DP-SU T [$_{vP}$ (DP) …]]

These options give rise to many of the subordinate-clause word orders found in OE. In Early ME, (5a) was lost, with important consequences for the position of VP-internal material other than direct objects. This change was caused by two factors: (i) a large incidence of French borrowings which replaced particle verbs and thereby removed from the input *O-Part-V* orders, an important piece of evidence for (5a); and (ii) the loss of dative case and the concomitant rise of indirect object-PPs (cf. Allen 1995), resulting in the possibility of argumental (and not only adverbial) PPs surfacing in the "leaking" configuration in (5b), at the expense of the *IO-DO-V* orders which had formerly triggered (5a). So (5a) was insufficiently robustly triggered, and the Subset Principle favoured the grammar allowing only (5b). Later in ME, object movement as in (5b) was lost for non-quantified objects (a case of restriction of function; see §4 below). This meant that *v*P-pied-piping as in (6a) was frequently indistinguishable from *v*P-stranding as in (6b), since *v*P after the loss of generalised object movement often contained only the subject and the verb. Again, the Subset Principle favoured (6b) over the option of (6a) **and** (6b), and so (6a) was lost. This change effectively made SpecTP a "canonical subject-position", with consequences for expletive distribution, passive and unnaccusative "raising-to-subject", and so-called "Stylistic Fronting" structures.

4. We characterise "restriction of function" as the development from a movement operation applying to a relatively large class E of elements to one applying to a subset D ⊂ E. We discuss two cases: the change in object movement mentioned above, and the "obligatorisation" of optional *do*-support in the 17th century. After the loss of VP-pied-piping, movement of definite objects remained an option until c.1400 (van der Wurff 1997, 1999). Thus *v* had an optional EPP-feature which was consequently associated with a discourse effect (Chomsky 2001: 34) connected to defocusing. Around 1400, this was lost, while negative and quantified DPs continued to move. So the earlier ME grammar allowed the orders in (7), while the post-1400 one only allowed those in (8):

(7) a. … Ob$_{\pm def}$ V … b. … V Ob$_{\pm def}$ …

(8) a. … O$_{-def}$ V … b. … V O$_{\pm def}$ …

The grammar in (8) is clearly favoured by the Subset Principle. In practice, this change was caused by certain ambiguities in V2 and Verb Projection Raising structures which placed defocused (i.e. shifted) definite objects in string-final position. We will speculate that quantified and negative object-movement to Spec*v*P remained since it involved operator-like movement to a phase-edge (cf. the well-known shift from full to residual V2, involving restriction of fronting to a class of operators).

The modern *do*-support system arose in the 17th century from the 16th century system in which *do* was a freely inserted auxiliary (cf. Jespersen's "exuberant *do*"; also Denison 1985, 1997). We propose that after the loss of V-to-*v*-to-T movement in the 16th century, *v*-to-T movement remained: auxiliaries were merged in *v* and raised to T and, where there was no auxiliary, "empty" *v* raised to T (more precisely: T probed *v*'s features and its EPP-feature attracted the feature-bundle associated with *v*, with the result that this raised to T, but ended up being spelled out as null in the relevant cases). Since there was no direct evidence for "empty" *v* movement, this was replaced by a system in which certain auxiliaries (e.g. epistemic modals, negative auxiliaries) were merged in T, with the result that T was readily lexicalised independently of the presence of an EPP-feature on T. This meant that T no longer had to have an obligatory EPP-feature; instead, the EPP-feature became optional and hence attraction of *v* began to have a discourse effect, such as interrogativity, emphasis or licensing of VP-ellipsis. So, again, we see general *v*-to-T movement being replaced by *v*-to-T only under specific conditions. In this case, the change was caused by the reanalysis of Aux+*n't* as a negative auxiliary merged in T, itself caused by contraction of *n't* in c. 1600 (Jespersen 1909-49 V: 429).