The Composition of Heads: Evidence from [MASS]

Goals: In this paper we have two goals. First we argue that the category mass noun does not simply arise in the absence of number, but instead that it is a grammatical primitive encoded by the feature [MASS]. Second, we also show that features of heads (such as [MASS]) are combined by external Merge (EM) and not simply constrained by a feature geometry. Thus, we take seriously the notion of “syntax all the way down” (Julien, 2002, Marantz, 1997) and assume that syntactic merge applies not only to syntactic heads but also to the syntactic features which comprise these heads.

Introduction: We investigate how the count/mass distinction is encoded in the DP. We argue, contra Borer (2005), that mass is not simply the lack of number, but that a feature [MASS] is active in the grammar and is syntactically represented. We further argue that complex head formation (just like structure building at the phrasal level) can proceed either by internal Merge (traditional head movement) or by external Merge (as proposed here). Thus, if a feature [MASS] undergoes external Merge with another feature, say [GENDER], the result is either (1)a or (1)b, depending on which feature projects.

Empirical Puzzle: Asturian Spanish (Corbett, 2000) presents a puzzling asymmetry wrt the encoding of mass. (2) shows that the count/mass distinction is morphologically active on nominal suffixes and the corresponding object clitics for masculine nouns, but that this distinction is neutralized for feminine nouns. Conversely, (3) shows that gender is neutralized for mass nouns in adjective agreement, but that the masculine/feminine distinction is marked on count nouns. We interpret these data to mean that: (i) mass is a syntactically active feature which can trigger agreement and (ii) that mass is parasitic on gender, which we take to be encoded on GenderP (Picallo, 1991). But how does the asymmetry illustrated in (2) and (3) arise? First, we dismiss a feature geometric approach to the problem, then present our analysis.

Against Feature Geometries: First, on theory-internal grounds, the elimination of feature geometries in favour of the pre-existing operation Merge leads to a simplification of UG. Furthermore, we believe the data presented here are incompatible with a feature geometric approach. Considering the logical possibilities for a feature geometric representation, (4), none of them predicts the pattern found in Asturian Spanish. (4)b captures the agreement pattern on the adjectives, (3), but not on the nouns themselves, (2). (4)c captures does just the opposite, and (4)a captures neither set of facts.

Analysis: We argue that the asymmetric interactions between mass and gender arise as a consequence of cyclic Agree (Béjar, 2003, Rezac, 2003, 2004). We assume the internal structure for heads comprised of gender and mass in (5). Accordingly, the nominal gender agreement markers and pronominal object clitics always agree with the highest feature on the complex Gender head. Adjectival agreement however works differently. Suppose that in Romance adjectival constructions, a functional head (call it Agr0) probes for a gender feature to agree with. Suppose further that the Probe is specified as in (6)a (modifying a proposal by Béjar). If so, assuming cyclic Agree, each Probe can undergo a second round of Agree, if the Probe and Goal did not fully Match. That is, we assume the structure in (6)b is active on the second round of Agree, and agreement can take place with any count/mass-gender combination.

The derivations of (3)d is as follows, then. In (3)d, the Gender0 in the DP is actually represented by (5)b, giving [mass, masc]. The Agr0 in the adjectival construction contains the Probe in (6)a. The Probe and the Goal undergo Agree, and the Goal values the Probe as [mass, masc] since the Probe and Goal are identical here. (3)e is similarly straightforward. Turning now to (3)f, Gender0 on the nominal expression is comprised of the feature structure in (5)c. Again, this structure is headed by [FEM], so the nominal expression is marked feminine. Now, when the probe in the adjectival construction searches for a goal, it will not find a match (since there is no [MASS] in the goal). This triggers a second round of Agree, but with a defective Probe, (6)b, that matches with whatever Gender0 it finds. In (3)f, Gender0 is comprised of (5)c, so feminine agreement obtains on the adjective. Note it is crucial that the Probe undergo cyclic Agree so that mass agreement appears regardless of the gender of the noun.

Conclusion: We have argued that [MASS] is an independent feature available to UG and not simply the absence of Number. We have also highlighted the inadequacies of feature geometries and argued that features on heads are put together by EM, with certain features projecting, in the sense of BPS, with the empirical consequences shown above.
(1) a. [MASS] b. [GENDER]  
    [MASS] [GENDER] [MASS] [GENDER]

(2) a. object pronominal clitics: lu [masc, count]; lo [masc, mass]; la [fem, count or mass]
    b. i. píl-u (hair, count, masc) ii. pél-o (hair, mass, masc);
     iii. borón-a (cornbread, mass, fem) iv. maér-a (piece of wood, count, fem)

(3) a. négr-u [sg. masc] b. négr-a [sg. fem] c. négr-o [mass]
    d. el kafé négr-o ‘the black coffee’
     the.MASC coffee.MASC black-MASS
    e. la borón-a négr-o ‘the black cornbread’
     the.FEM cornbread.FEM black-MASS
    f. la maéra tába sék-a ‘the piece of wood was dry’
     the.FEM piece.of.wood.FEM was dry-FEM

(4) a. Gender^0 b. Gender^0 c. Gender^0
   | [FEM] | [MASS] | [FEM] | [MASS] |
   | [MASS] | [FEM] | [MASS] | [FEM] |

(5) a. [FEM] b. [MASS] c. [FEM] d. [GEN]
   [FEM] [MASS] [MASS] [GEN] [FEM] [GEN]
   [MASS] [GEN] [MASS] [GEN]

(6) a. Agr^0 b. Agr^0
   [MASS] Agr^0 [MASS] Agr^0
   [MASS] [GEN] [MASS] [GEN]