Multiple probing in A-over-A configurations

This paper agues that apparent A-over-A violations in Ndebele (Bantu, Zimbabwe) follow from a theory of ɸ-probes as articulated geometries (Béjar & Rezac 2009 a.o.), whose segments may be valued independently and non-obligatorily (Preminger 2011, 2014). The relevant configurations are nominalizations, which are simultaneously possible targets for agreement and A-movement, and permeable to these operations.

1. A-over-A violations in nominalizations. In Ndebele, as in most Bantu languages, so called 'infinitives' are nominalizations of class 15. Like other DPs, they control ɸ-agreement and undergo A-movement (1)-(2).

(1) Abafana ba-ya-ku-funa   uku-bala.
     2boys   2s-prs-**15o**-want **15**-read
     'The boys want to read'

(2) Uku-bala$_i$ ku-funwa t_i ngabafana.
     15-read   **15s**-want.PSV   by.boys
     lit.'Reading is wanted by the boys'

Nonetheless, infinitives are permeable for A-movement and ɸ-agreement. In (3), the matrix verb may optionally agree with a DP *contained in* the nominalization, apparently ignoring the closer class-15 target.

(3) Ba-ya-(**si**)-funa [$_{DP}$ uku-**si**-pheka isitshwala]
     2s-prs-**7o**-want   15-**7o**-cook   7porridge
     'They want to cook porridge'

Furthermore, a DP contained in a nominalization may undergo raising to subject. This is possible with unaccusative verbs selecting nominalizations, as in (4). As elsewhere in the language, raising is optional. When the subject remains in its base-generated position, it is interpreted with narrow focus (5).

(4) UZodwa$_i$ u-qala   [$_{DP}$ uku-pheka t_i].
     1Zodwa   1-first.do   15-cook
     'Zodwa first cooks'

(5) Ku-qala   [$_{DP}$ uku-pheka uZodwa]
     15-first.do   15-cook   1Zodwa
     'Zodwa$_{Foc}$ first cooks'

2. Analysis. I argue that the observed transparency of nominalizations is due to i) featural deficiency of class 15 and ii) the possibility to satisfy a single ɸ-probe using multiple DPs. I assume that both ɸ-probes and ɸ-goals are feature geometries (Harley & Ritter 2002, Béjar & Rezac 2009), focusing here on DPs with class (=number+gender) features. The root node of the geometry (ɸ) has one dependent in singular classes (e.g. Class 1) and two dependents in plural classes (e.g. Class 2). I propose that what we call Class 15 is a ɸ-geometry with no dependents (6). Finally, I assume that ɸ-probes in Ndebele are articulated as in (7): they are fully matched by DPs with at least one dependent to ɸ.

(6) "Class 1": ɸ   "Class 2": ɸ   "Class 15": ɸ   (7) ɸ-*probe:* ɸ
                 | /\ |
                 1   PL 1   —

Following previous work (Béjar & Rezac 2009, Deal 2015 a.o.), I assume that articulated probes, such as (7), may be satisfied by multiple DPs. This happens in configurations in which the closest target does not satisfy all segments of the probe, leaving it active and probing. I argue that this is the case in Ndebele nominalizations. Class 15, having no dependents to ɸ, is matched with the probe but satisfies it only partially. The probe remains active and searches for a more specified target. Thus, class 7 object-agreement on the matrix verb in (3) is a realization of agreement with two DPs: the nominalization first, and subsequently with class 7 of the embedded object (8). Valuation is implemented here as feature-geometric union: the valued probe is a union of the probe's and the goal's geometries (Preminger 2017). Since the first target in (8) is a proper sub-geometry of the second, the result of valuation is identical to agreement with class 7 only.
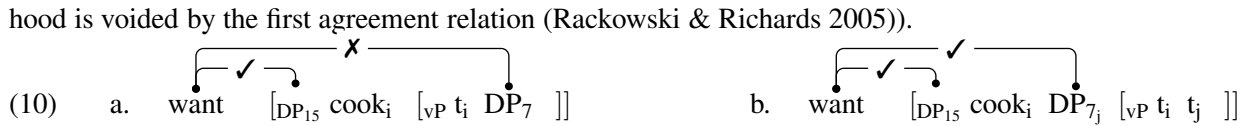
(8)   *partial match*   *full match*
     STEP 1: ɸ–__   [$_{DP}$ ɸ   [$_{DP}$ ɸ–7]]   STEP 2: ɸ–_7_   [$_{DP}$ ɸ   [$_{DP}$ ɸ–7]]

Similarly, raising out of an infinitive is a two step probing process. Movement to Spec,TP in Bantu languages is linked to agreement (in-situ DPs don't control agreement, moved DPs have to). I assume this is due to obligatory bundling of ɸ and EPP on T (Baker 2003, Carstens 2005). In (4), the matrix T agrees with the nominalization (partial matching) and subsequently with the embedded subject of class 1 (full matching). EPP is satisfied by raising the DP which fully matched the probe, resulting in raising out of a nominalization.

3. Evidence The proposed analysis has further explanatory value. **First, it derives blocking of a higher agreement relation by a lower one**. Long-distance object agreement, as in (3), is contingent on local object agreement with the same target (cf. (9)). I argue this is due to phasal locality. In Ndebele, agreed-with objects are dislocated, while not agreed-with objects are in-situ. Thus, the object of 'cook' is in-situ in (9), but is dislocated in (3), schematized in (10-a) and (10-b), respectively. Assuming phasal vP, in-situ embedded objects are inaccessible to the matrix probe. Local object agreement is then necessary to bring the DP to locality with the matrix probe. (The infinitival DP is either not a phase or its phase-hood is voided by the first agreement relation (Rackowski & Richards 2005)).

(9) *Ba-ya-**si**-funa [$_{DP}$ uku-pheka isitshwala]
     2s-prs-**7o**-want   15-cook   7porridge
     'They want to cook porridge'

(10) a. want [$_{DP_{15}}$ cook$_i$ [$_{vP}$ t$_i$ DP$_7$]]   b. want [$_{DP_{15}}$ cook$_i$ DP$_{7j}$ [$_{vP}$ t$_i$ t$_j$]]

In (10-a), the probe is partially matched by the nominalization's φ-geometry (STEP 1 in (8)) and finds no other target. Despite the lack of full valuation, the derivation is well-formed, giving class 15 agreement (11). We correctly predict that class 15 agreement is possible only in cases like (10-a), where the nominalization doesn't contain another accessible DP. In (10-b), the dislocated embedded object is a possible target and thus bleeds the appearance of class-15 agreement on the matrix verb (12).

(11) Ba-ya-**ku**-funa [$_{DP}$ uku-pheka$_i$ [$_{vP}$ t$_i$ isitshwala]]
      2s-prs-**15o**-want   15-cook   7porridge

(12) *Ba-ya-**ku**-funa [$_{DP}$ uku-**si**-pheka$_i$ isitshwala$_j$ [$_{vP}$ t$_i$ t$_j$]]
      2s-prs-**15o**-want   15-**7o**-cook   7porridge

Second, a nominalization may not undergo A-movement if it contains an external argument (13), cf. (5). Assuming that external arguments are generated at the edge of the vP phase, they are accessible for the probe on matrix T. Thus, probing will inescapably reach the embedded subject and raise it out of the nominalization (giving (4)). As predicted, raising of the entire nominalization is possible in the absence of an external argument: e.g. when the nominalization contains only an in-situ object (14) or no DP at all (15). As with object agreement, the subject agreement probe is satisfied by the deficient class 15 only if it finds no other, more φ-specified DP inside the nominalization (but outside the nominalization's internal phase).

(13) *[$_{DP}$ Uku-pheka$_j$ uZodwa [$_{vP}$ t$_j$]]$_i$ ku-za-qala   t$_i$
      15-cook   1Zodwa   15-fut-first.do
      ('Zodwa's cooking will be first')

(14) [$_{DP}$ Uku-pheka$_j$ [$_{vP}$ t$_j$ inyama]]$_i$ ku-za-qala   t$_i$
      15-cook   5meat   15-fut-first.do
      'Cooking meat will be first'

(15) [$_{DP}$ Uku-qanda]$_i$ ku-za-qala   t$_i$
      15-be.cold   15-fut-first.do
      'It will first be cold'

4. Discussion We have derived three puzzling observations: i) apparent A-over-A violations in agreement and raising, ii) blocking of a higher agreement relation by a lower one (12) and iii) constraints on raising of a DP based on material contained in it ((13) vs (14)-(15)). These facts receive a unified analysis in a theory of φ-agreement in which probes are (or at least may be) internally complex, and in which (full) valuation is not required for convergent derivation. The appearance of class 15 agreement is always the result of partial valuation, which in turn derives its elsewhere distribution. Finally, the proposed account sheds light on the structure of φ-geometries in Bantu languages, in which every DP that's not 1st/2nd person belongs to one of the seventeen-or-so classes. Class 15, viewed here as absence of both person and class features, is analogous to 3sg (neuter) in other systems, which has been shown to be similarly underspecified. This underspecification is often reflected in the exponence of 3sg (neuter) agreement when the probe fails to be valued, suggesting that the 3sg geometry is as unspecified as the probe itself (e.g. just φ;Preminger 2014). The claimed deficiency of class 15 is corroborated by the fact that an unvalued φ-probe, e.g. in weather-constructions (16), is exponed as class 15 agreement.

(16) Ku-za-qanda.
      15-fut-be.cold
      'It will be cold'

(keywords: Phi-agreement, raising, nominalizations, locality, feature geometries, Bantu)