

**N-to-D movement, scrambling, and DP-internal constituent order in Chichewa**

**Background** Chichewa DPs are strictly noun-initial, with all the nominal modifiers linearly following the noun (Mchombo 2004). The relative order of the modifiers, however, is highly flexible (Downing & Mtenje 2017). As illustrated in (1a–f), the six mathematically possible orders of the demonstrative, the numeral, and the adjective are all acceptable, and they may all give an expression that can naturally occur in out-of-the-blue contexts; also, all of these orders can be used felicitously in the slot in (2b) to answer (2a) (focusing other types of modifiers with these different orders is possible as well):

- (1) a. zipéwá iizi zitáatu zázíkúulu [N>Dem>Num>Adj]  
       8.hats 8.these 8.three 8.big ‘these three big hats’  
   b. zipéwá zitáatu iizi zázíkúulu [N>Num>Dem>Adj]  
   c. zipéwá zázíkúulu zitáatu iizi [N>Num>Adj>Dem]  
   d. zipéwá iizi zázíkúulu zitáatu [N>Dem>Adj>Num]  
   e. zipéwá zitáatu iizi zázíkúulu [N>Adj>Dem>Num]  
   f. zipéwá zázíkúulu zitáatu iizi [N>Adj>Num>Dem]
- (2) a. *Did you buy these two big hats?*  
   b. íyaayi, ndi=ná=gúla \_\_\_\_\_ ‘no, I bought these THREE big hats’  
       no 1P.SG=PST=buy

Based on two groups of novel data, this paper argues that a universal c-commanding hierarchy (see (5), Dem>Num>Adj>N being part of it; Cinque 2005, Martin et al. 2020) systematically maps to a left-to-right linear order; the free order in (1) results from (i) N-to-D movement and (ii) DP-internal scrambling of the modifiers. Two alternatives are then examined and argued against, in a broader typological perspective.

**Dataset 1: ellipsis** Notice that both (4a) and (4b) can naturally follow (3) (the order in (3) does not matter). However, there is an important asymmetry in their interpretations: while (4a) implies that Chikondi bought three *white* hats, (4b) only implies that Chikondi bought *any number* of white hats, not necessarily three:

- (3) mávúuto a=ná=gúla zipéwá zóyéela zitáatu ...  
   1.Mavuto 1SM=PST=buy 8.hats 8.white 8.three ‘Mavuto bought three white hats ...’
- (4) a. ... cikondíi=nso a=ná=gúla zitáatu  
       1.Chikondi=also 1SM=PST=buy 8.three  
       *lit.* ‘Chikondi also bought three’ (implication: Chikondi bought *three white* hats)
- b. ... cikondíi=nso a=ná=gúla zóyéela  
       1.Chikondi=also 1SM=PST=buy 8.white  
       *lit.* ‘Chikondi also bought white’ (implication: Chikondi bought *white* hats)

(3–4) indicate that although a numeral can license ellipsis of an adjective, an adjective is unable to license ellipsis of a numeral. Different kinds of modifiers (e.g., possessives, different types of adjectives) are tested, showing parallel results: assuming a universal structural hierarchy of modifiers (partially shown in (5); c.f., Cinque 2010), a hierarchically higher element can always license ellipsis of a lower one, whereas the reverse never happens. Importantly, while the linear order among these elements is in most cases free (recall that the flexibility is independent from information structure conditions), it plays no role regarding ellipsis.

(5) Dem > Num > Adj<sub>evaluative</sub> > Adj<sub>color</sub> > Poss

**Dataset 2: hybrid concord** Corbett 1991 reports that some so-called hybrid nouns in Chichewa may trigger either morphological concord (6a) or semantic concord (6b). In (6), *ngwazi* ‘hero’ is morphologically of class 9 and can trigger class 9 concord (6a); however, it may also induce meaning-based class 1 concord (6b) (class 1 is the default class for singular human nouns). Crucially, it is possible for one modifier to show morphological concord and the other to show semantic concord (6c). However, Corbett 1991 observes that the modifier ‘more distant’ to the noun cannot show morphological concord if the other modifier closer to the noun shows semantic concord (6d).

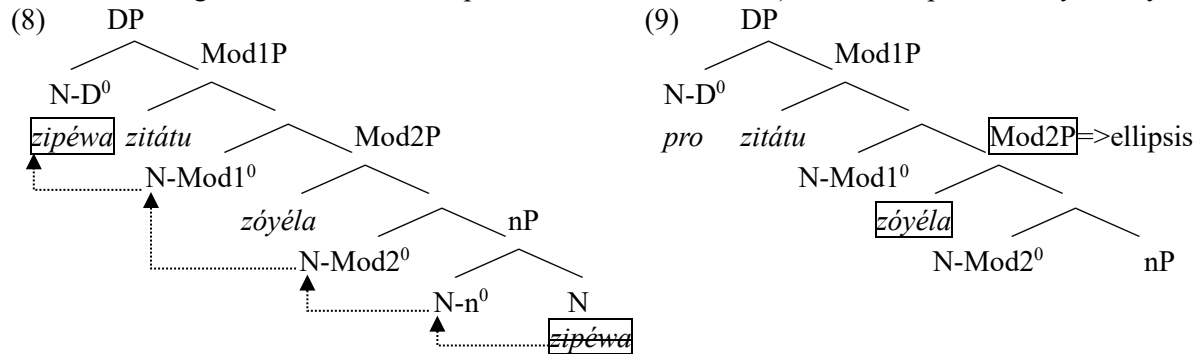
- (6) a. ngwazi yáthú yóyáamba      b. ngwazi wáthú wóyáamba  
       9.hero 9.our 9.first            9.hero 1.our 1.first  
   c. ngwazi yáthú wóyáamba      d. \*ngwazi wáthú yóyáamba  
       9.hero 9.our 1.first            9.hero 1.our 9.first ‘our first hero’

It is important to add that what plays a role in (6c–d) is by no means linear order, but the underlying

hierarchy. New data (7) show that even though it is possible for a possessive to linearly follow an adjective (the ordinal is an adjective in Chichewa), in such cases the asymmetry does not change (7c–d): the possessive cannot obtain meaning-based concord if the adjective gets morphological concord ((7a–c) are slightly degraded for independent PF factors to be addressed in the presentation):

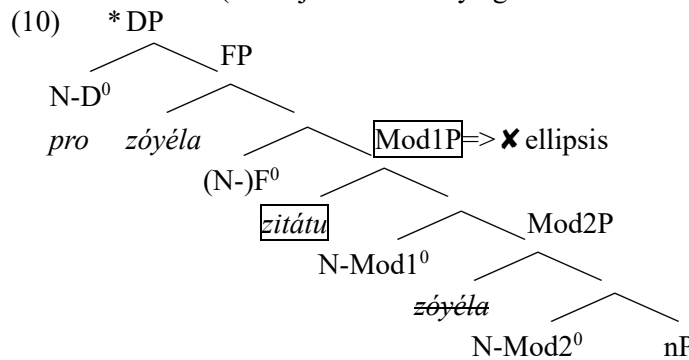
- (7) a. ?ngwazi yóyáamba yáathu      b. ?ngwazi wóyáamba wáathu  
       9.hero 9.first 9.our                9.hero 1.first 1.our  
       c. ?ngwazi wóyáamba yáathu      d. \*ngwazi yóyáamba wáathu  
       9.hero 1.first 9.our                9.hero 9.first 1.our      ‘our first hero’

The scrambling account I suggest that the structural hierarchy (5) invariably maps to a left-to-right linear order in Chichewa, which may be obscured by further operations, including N-to-D which is obligatory for the strict N-initiality of DP. (8) is an exemplar based on *zipéwa zitátu zóyéla* ‘hats>three>white’ (3). The modifiers in specifier positions agree with the noun via local Spec-head agreement (I assume that concord and canonical agreement are the same process; see Carstens 2020), as N-to-D processes cyclically:



I further assume that the licensing of ellipsis requires Spec-head agreement (Lobeck 1990, Saito & Mura-sugi 1990). In (9), the numeral *zitátu* ‘three’ shares phi-features with the noun, via Spec-head agreement with the complex head N-Mod1, so Mod2P (containing the adjective) can undergo ellipsis, as expected (4a).

However, I argue that the Adj>Num order results from scrambling (10). The adjective *zóyéla* ‘white’ is base generated in SpecMod2P, lower than the numeral in SpecMod1P; it is then scrambled over Mod1P, deriving the reverse linear order. Crucially, it is argued by several authors that the landing site of scrambling does not involve Spec-head agreement (Mahajan 1990, Fukui 1993, Saito 2003; I take this to be a defining property of scrambling). As a result, Mod1P (which contains the numeral) in (10) cannot get elided, so (4b) may not involve ellipsis of the numeral, as expected. Note the lack of Spec-head relations in Chichewa scrambling is derivable, by saying that a featural relation between two exactly same elements cannot be established twice (the adjective already agrees with the noun within Mod2P, before scrambling).



The hybrid concord data (6–7) are also captured by the scrambling account. I will argue based on independent evidence that, in terms of timing, a hybrid goal can trigger morphological concord only *before* semantic concord. (7) reflects the base generated order of the modifiers (the possessive is merged at SpecnP; Carstens 2020). The noun first agrees with the possessive, and then with the adjective above nP, along with N-to-D. (6) results from scrambling of the possessive to a position above the adjective. Cru-

cially, this operation does not involve Spec-head agreement; and thus will not alter the pattern (6).

Alternatives Two alternative analyses will be compared with the scrambling approach, i.e., Cinque’s 2005 famous antisymmetry-based approach and Carstens’s 2010, 2017 base-generation approach. The latter keeps the hierarchy (5) but suggests that modifiers are adjuncts that can be either left- or right-adjoined to the structure, deriving different surface orders. I will show that (i) neither account can actually derive all the possible orders in (1), and that it is difficult for both of them to capture the two datasets above.