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Navigating number marking in Akan nominals and predicates

Background: Akan(a Kwa-Niger Congo) morphologically distinguishes between singular and plural nouns. Whereas singular nouns are marked by only vowel prefixes, plural nouns are marked through either prefixation ***a-/n-*** or through a circumfix-like configuration ***a-/n-. . . -nom*** and a***-. . . -foɔ*** (cf. [Osam, 1993], [Osam, 1994], [Ofori, 2016]). Akan also marks a singular-plural distinction in the verbal domain as predicate reduplication. The interaction between the number marking in the nominal and verbal domains present theoretical puzzles that are interesting to a morpho-semantic interface approach. We motivate a semantics for this interaction based on two puzzles that we present here.

Puzzle (1): Multiple events reading: In English, a sentence like (1) can have a reading, where there is a single walking event in which both John and Mary were participants, or a reading, where there are multiple walking events, each with Mary and/or John as a participant.

(1) John and Mary walked (at the same time and place(single event reading) or at different times or places (multiple event readings))

In Akan, these two readings are realized morphologically through predicate (non)reduplication. That is, whereas the non-reduplicated form enforces a single event reading as in (2), the reduplicated predicate allows for only multiple events reading,as in (3). These readings are available for both collective and distributive predicates

(2) Ama ne Mary **nanti** yɛ
Ama and Mary walk COMPLET
'Ama and Mary walked'
⇒ Ama and Mary walked together at the same time and place [single event]

(3) Ama ne Mary **nanti nanti** yɛ
Ama and Mary walk-RED COMPLET
'Ama and Mary walked'
⇒ Ama walked by herself ∧ Mary walked by herself at different spaces/time
⇒ Ama and Mary walked together at different places or times [multiple events]
⇏ Ama and Mary walked together at the same time and the same place

To capture this paradigm, we propose that predicate reduplication in Akan is an overt morphological realization of [Lasersohn, 1995] 's pluractional operator that introduces multiple events reading, where the sub- events can be temporally and/or spatially discrete.

(4) V-RED $= \lambda V \lambda y \lambda E[Card(E) \geq 2$ Plurality
$\&\forall e \forall e' \in E[V(e)(y)$ Event type
$\&\neg\tau(e) \circ \tau(e')$ Non-overlap
$\&\exists t[between(t, \tau(e), \tau(e'))\&\neg\exists e''[V(e'')(y)\&t = \tau(e'')]]]]$ Hiatus

We also propose, however, that the event plurality requirement on the reduplicated predicate is a presupposition. This allows us to derive the single-event reading of the non-reduplicated form as an implicature , using [Heim, 1992]' Maximize Presupposition.

Puzzle (2) Non-maximality: An interesting interaction between the nominal and verbal domain emerges when the subject position has a definite plural. Akan has two exponents for the plural of the noun *nua* 'sibling': ***a-nua-nom*** and ***a-nua-foɔ***. These two forms interact differently with predicate (non)-reduplication. For instance, if John(J), Ama(A), Mary(M), and Kofi(K) are a set of siblings, a version of (2) with ***a-nua-nom*** requires the event of walking to involve all four siblings, while a version with ***a-nua-foɔ*** allows for 'pragmatic slack'.

To capture the difference in (non)-maximality, we follow [Schwarzschild, 1992] and [Brisson, 1998] and argue that the predicate has a covert D operator that is accompanied by a context-dependent variable, *Cov* whose assigned value always takes the form of a cover of the universe of discourse. A maximal reading, thus, results from a good fit *Cov*. *'A Cov is a good fit with respect to X iff* $\forall y[y \in X \rightarrow \exists Z[Z \in Cov \wedge y \in Z \wedge Z \subseteq X]]$'([Brisson, 2003]:141). An ill-fit *Cov*, on the other hand, triggers non-maximal reading. Given a *Cov* as in (5-b), we propose that a version of (2) with ***a-nua-nom*** requires a good fit *Cov* such as H and a version of (2) with ***a-nua-foɔ***, an ill-fit *Cov* like G.

(5) a. ⟦sibling ⟧ = { A, M, K, J}
b. Cover: H={ {J} {M} { A} {K} {t,f }} good-fit a-...-nom

G = { {J} {M} { A} {K, t,f }} ill-fit a-...-foɔ

(6) $[_{TP}\ [_{DP}$ sibling$]\ ^{D}[_{VP}$ walk/walk-walk$]] \Rightarrow \forall\ x \in [\![DP]\!] \rightarrow \exists\ e\ [[\![V]\!](e)(x)]$

We are assuming a structure like (6) and with D cued to a good-fit *Cov* like H, we get a maximal single-event reading with the non-reduplicated verb with ***a-nua-nom*** as subject: *walk(*e, J) ∧ *walk*(e, M) ∧ *walk*(e, A) ∧ *walk*(e, K). However, with an ill-fitting *Cov* like G, we get a non-maximal single-event with the non-reduplicated verb with ***a-nua-foɔ*** as subject:*walk*(John,e) ∧ *walk*(Mary,e) ∧ *walk*(Ama, e) ∧ ¬ *walk* (Kofi,e).

When we turn to reduplicated predicates,***a-nua-foɔ*** and ***a-nua-nom*** further reveal interesting differences. For instance, whereas ***a-nua-nom*** in (7) requires each sibling to be a participant of a sub-event,***a-nua-foɔ*** in (8)allows some but not all siblings to be a participant of a sub-event.

(7) **A-nua-nom** no **nanti nanti** yɛ
PL-sibling-PL DET walk-RED COMPLET
'The siblings walked'
⇒ walk(John,e') ∧ walk(Mary,e") ∧ walk(Ama, e"') ∧ walk (Kofi,e"") [maximal]

(8) **A-nua-foɔ** no **nanti nanti** yɛ
PL-sibling-PL DET walk-RED COMPLET
'The siblings walked'
⇒ walk(John,e') ∧ walk(Mary,e") ∧ walk(Ama, e"') ∧ ¬ walk (Kofi,e"") [non-maximal]

The reduplicated version, therefore, leads to multiple-event reading with a maximality inducing good-fit *Cov* H for (7)and a non-maximal reading with an ill-fit *Cov* G for (8).

So far we have looked at reduplicated forms where each sub-event has a distinct atomic participant. Reduplicated forms which involve pluralities within sub-events also present an interesting difference between ***a-...-nom*** and ***a-...-foɔ*** forms. The first requires all siblings to participate in each sub-event as in (9-a), the latter allows different non-overlapping sets to participate in different events as in (9-b).

(9) a. Sub-Event-1: walk = { A, M, K, J}, sub-event-2 = { A, M, K, J} a-...-nom
b. Sub-Event-1: walk ={ A, M}, sub-event2 = { K, J} a-...-foɔ

To capture the readings involving *a-...nom*, we force a good-fit *Cov* to take effect under sub-events as shown in (10), and by so doing, we ensure that every member in the denotation of sibling participate in each sub-event (=maximal readings).

(10) $\exists\ E\ [\ card(E) \geq 2 \wedge \forall\ e \leq E\ [\forall\ x \in [\![DP]\!] \rightarrow [\![V]\!](e)(x)]]$

Now, suppose instead that we have ***a-nua-foɔ***, it is possible for each sub-event to be non-maximal (due to an ill-fitting *Cov*). We then end up with the second scenario given in (9-b) and the following additionally scenarios for ***a-...-foɔ*** as well:

(11) Sub-Event-1: walk ={ A, M}, sub-event2 = { J} a-...-foɔ

Again, we propose that this is a result of a competition between the requirement of a good fitting *Cov* with ***a-...nom*** and an ill-fitting *Cov* with ***a-nua-foɔ***.

The proper account of maximal and (non)-maximal readings is theoretically interesting. We will compare the account provided here to our earlier account in terms of groups, in the sense of [Link et al., 1983] and [Landman, 1989]. We will also compare it to an account in terms of homogeneity as in the work of [Križ, 2016], [Bar-Lev, 2021] and [Chierchia, 2022] (among others).

Broader implication: The morphological distinctions in Akan provide a particularly clear testing ground for theories of competition. It makes it theoretically interesting to an interface approach relevant to our understanding of how precisely number marking in the nominal and verbal domain more generally works in natural language.

References

[Bar-Lev, 2021] Bar-Lev, M. E. (2021). An implicature account of homogeneity and non-maximality. *Linguistics and Philosophy*, 44:1045–1097.

[Brisson, 2003] Brisson, C. (2003). Plurals,'all', and the nonuniformity of collective predication. *Linguistics and philosophy*, 26(2):129–184.

[Brisson, 1998] Brisson, C. M. (1998). *Distributivity, maximality, and floating quantifiers*. Rutgers The State University of New Jersey-New Brunswick.

[Chierchia, 2022] Chierchia, G. (2022). 'people are fed up; don't mess with them.'non-quantificational arguments and polarity reversals. *Journal of Semantics*, 39(3):475–521.

[Heim, 1992] Heim, I. (1992). Presupposition projection and the semantics of attitude verbs. *Journal of semantics*, 9(3):183–221.

[Križ, 2016] Križ, M. (2016). Homogeneity, non-maximality, and all. *Journal of semantics*, 33(3):493–539.

[Landman, 1989] Landman, F. (1989). Groups, i. *Linguistics and philosophy*, pages 559–605.

[Lasersohn, 1995] Lasersohn, P. (1995). Pluractional markers. *Plurality, conjunction and events*, pages 238–266.

[Link et al., 1983] Link, G. et al. (1983). The logical analysis of plurals and mass terms: A lattice-theoretical approach. *Formal semantics: The essential readings*, 127:147.

[Ofori, 2016] Ofori, E. A. (2016). Distributed morphology of akan-twi plurals.

[Osam, 1993] Osam, E. K. (1993). The loss of the noun glass system in akan. *Acta linguistica hafniensia*, 26(1):81–106.

[Osam, 1994] Osam, E. K. A. (1994). *Aspects of Akan grammar: A functional perspective*. University of Oregon.

[Schwarzschild, 1992] Schwarzschild, R. (1992). Types of plural individuals. *Linguistics and Philosophy*, pages 641–675.