

## Plural Semantics in Akan: An Experimental Investigation

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With initial native speaker judgements suggesting an exclusive plural morpheme in downward entailing contexts in Akan, as reported by Ahenkora (2022), this research seeks to test these claims through experimental means and to provide a more comprehensive picture of Akan's plural semantics. The current literature on exclusive and inclusive plurals focuses mainly on English, with some investigation of Turkish, Armenian, and Arabic (Rennans et al 2020; Bale & Khanjan 2008; Mathieu 2014). In most languages, plurals in an upward entailing context (1a) refer only to a plurality, making them exclusive of the atomic reading. However, plurals in a downward entailing context, such as negation (1b), refer to atoms and pluralities, rendering them inclusive.

(1) a. John planted trees.

#'John planted one or more trees.' [Inclusive]

'John planted more than one tree.' [Exclusive]

b. John didn't plant trees.

'John planted one or more trees.' [Inclusive]

#'John planted more than one tree.' [Exclusive]

However, for Akan, a Niger-Congo language spoken in Ghana and Côte d'Ivoire. Ahenkora (2022) claims that the plural circumfix, which marks kinship terms, is inclusive, similarly to English, but that the plural prefix, which marks most Akan nominals, is exclusive. The present experiments test these two plural morphemes in multiple downward-entailing contexts. One experiment for each morpheme was run, using the same design: The two-level factor `CONTEXT` [0, 1] (i.e., how many of each object occurs in the context) was fully crossed with the four-level factor `SENTENCE_TYPE` [positive, negative, question, universal\_quantifier]. Using auditory stimuli, 24 test items were interspersed with 12 filler items and shown in random order.

Using auditory stimuli, native Akan speakers rated each test item on a five-point scale. Results were analyzed using a linear mixed model analysis in R. *P* values were obtained through likelihood ratio tests.

Both morphemes were found to be inclusive in all three downward-entailing contexts. These results are contrary to Ahenkora's claim for the plural prefix, but in line with her claim concerning the plural circumfix. In Ahenkora's original analysis, she suggests each morpheme has a different meaning contribution. However, to account for the results of the experiments, we claim that the prefix is the only morpheme that contributes plural meaning to nominals in Akan. The circumfix, in turn, is comprised of the plural prefix, and a kinship suffix that adds no additional plural meaning to the noun. These results, furthermore, give credence to the idea that multiplicity inferences are equal to scalar implicatures.

With this study, we provide a more comprehensive picture of the plural semantics and plural morphology in Akan, a language that certainly deserves more attention in the literature. The results of this study support the idea of inclusive plurals in downward entailing contexts as a semantic universal. Therefore, our analysis further augments the understanding of plurality cross-linguistically and introduces data from an additional language and language family to the discussion of monotonicity, which had previously only focused on languages found in Europe and the Middle East. Lastly, this research aims to additionally bring attention to the study of semantics in African languages, a body of literature which remains sparse when compared to the amount of work available on European languages, but has the potential to increase our knowledge of language and, specifically, plurality as a whole.

## References

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