

THE EXPRESSION OF NUMBER IN KAIOWÁ (TUPÍ-GUARANÍ): ALTERNATIVES AND IMPLICATURES

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The aim of this work is twofold: (i) to provide further evidence for an implicature based approach to pluralization based on novel data from Kaiowá (an indigenous language of the Tupí-Guaraní stock, spoken in the mid-west of Brazil) and (ii) to argue that this approach demands considering alternatives that are semantically activated without being morphologically realized. Kaiowá belongs to a class of languages that deserve more attention, i.e. those with number neutral unmarked nouns but also optional pluralization. Such languages do not quite fit in Chierchia's (1998) characterization based on [+/- arg] and [+/- pred] and therefore may have a lot of implications for theories of number, kinds and the mass-count distinction. It is a bare nominal language, so, a sentence like (1) can be glossed in four different ways, depending on the context:

- (1) *Ha'e o-hecha oga.* 'S/he saw a house.' 'S/he saw Ø houses.'
s/he 3p-see house 'S/he saw the house.' 'S/he saw the houses.'

As far as nominal agreement is concerned, Kaiowá's only inflectional marking is the optional number morpheme *-kuera*, which invariably occurs (when it occurs) in post nominal position. Interestingly, as shown in (2), this morpheme can appear in most sorts of environments, including indefinite ones, and it can combine with all sorts of nouns, including those denoting inanimate beings, showing a different behavior from what is generally observed in other languages with similar markers, such as Mandarin, whose optional plural marker *-men* is restricted to definite contexts and can only combine with nouns referring to human beings (cf. Li (1999) and Jiang (2017) for Mandarin data):

(2) *Indefinite, human*

- a. *Che a-ha Ø/petei y'ahape,*
I 1-go a/one party
ha upepe a-hecha hente (-kuera) iñambu'eva tekoha-pe-gua (-kuera).
and there 1-see person -Pl different place.to.live-Loc-Circ -Pl
'I went to a party, and there I saw people from different reservations.'

Indefinite, animate, non-human

- b. *Che sy o-pyta o-juka anguja(-kuera) ojoapygueri upe araroy-pe.*
my mother 3-keep 3-kill mouse -Pl one.after.the.other that winter-Loc
'My mother kept killing mice repeatedly that winter.'

Indefinite, inanimate

- c. *Che a-hecha heta ita(-kuera) yvy-pe.*
I 1-see a.lot stone -Pl ground-Loc
'I saw a lot of stones on the ground.'

The difference between Kaiowá and languages like English – and even other determinerless languages such as Hindi and Russian (cf. Dayal, 2004), which morphologically express the singular/plural distinction – is that, whereas in these languages the distinction is *morphologically* meaningful, in Kaiowá it is not, as the base form, being number neutral, can indifferently have the singular or the plural meaning. Despite being optional, the occurrence of *-kuera* is quite unconstrained. There seem to be only two constraints to its presence: (i) it cannot be attached to mass nouns (3a) and (ii) it is incompatible with numerals (3b). The first constraint clearly shows us that *-kuera* is one of the loci of the count/mass distinction in the language; as far as the second constraint is concerned, the intuition is that the occurrence of *-kuera* would be redundant in the presence of a numeral which already marks the cardinality on the nominal it modifies:

- (3) a. *Che a-hecha heta tuguy (*-kuera) yvy-pe.*
I 1-see a.lot blood -Pl ground-Loc
'I saw a lot of blood on the ground.'
b. *Po kunã(*-kuera) o-japo mbojape.*

five woman-Pl 3-make cake
 ‘Five women made a/the cake(s).’

Since *-kuera* is optional and, we dare say, a last resort, its absence does not necessarily convey singularity, as seen in (1). On the other hand, its presence in upward entailing environments will give rise to non-singularity inferences, so a sentence like *Ha’e ohecha oga-kuera* will correspond to ‘S/he saw Ø/the houses’. Tests with negation show that both the number neutral base form and the one modified by *-kuera* are singular-inclusive. The sentence ‘S/he didn’t see Ø/the houses’ *Ha’e nd-ohecha-i oga(-kuera)* is only true in situations in which no houses – not even one – have been seen. If the plural were not compatible with singularities, the singular would not be under the scope of negation, and therefore the sentence would be true in a situation in which exactly one house has been seen, contrary to fact. Based on this observation, we assume the semantic account of plural in Sauerland (2003), Spector (2007), Chierchia (2010), Mayr (2015), among others, in which the extension of the singular noun is $\{a, b, c\}$ and that of the plural is $\{a, b, c, a+b, a+c, b+c, a+b+c\}$, departing from Chierchia (1998), in which the plural excludes the singular from its extension: $\{a+b, a+c, b+c, a+b+c\}$. Kaiowá’s number neutral base form, then, is living proof that, by assuming the inclusion of singularities in their extension, the denotation of plurals should be considered, in some sense, number neutral, mass-like, “blind” to the singular/plural distinction. By adopting this reasoning, however, we must now face the problem, pointed out by Spector (2007), that the at-least-two-reading in UE environments, even in constructions involving morphologically plural nouns (i.e. modified by *-kuera*), is not a direct consequence of compositional semantics: in the plural reading of *Ha’e ohecha oga* and in *Ha’e ohecha oga-kuera*, *oga(-kuera)* ‘houses’ receives an at-least-two-reading, but the logical negation of these sentences yields an interpretation equivalent to ‘S/he didn’t see any houses at all’, which corresponds to an at-least-one-reading, given the view of plural adopted here. The asymmetry observed in UE environments vs. DE environments is symptomatic of scalar implicatures, and it requires an account parallel to the one that has been advocated for more familiar languages, in which the at-least-two-reading does not come for free, but has to be derived as an implicature. What is particularly interesting about Kaiowá is the fact that this plural implicature takes place in the presence of a bare noun that appears to be fully amenable to plural interpretations. How is this possible? Our proposal is simple. The paradigm we are facing forces us to assume that the bare noun in Kaiowá is underspecified for number. At the same time, singular meanings must be active in the grammar of the language and act as alternatives to *-kuera*-marked nominals. Being “number-neutral” does not mean that the conceptual distinction between singular and plural does not exist. Actually, *-kuera* is an overt manifestation that its counterpart singularity is somehow active in the grammar of the language, even though the distinction singular/plural is not morphologically expressed in the base form. It is here that a theory of alternatives comes in handy. (4a) below corresponds to the atomic reading of bare unmarked nouns, and (4b) corresponds to the plural reading of bare unmarked nouns, where ‘*’ is the familiar plurality operator that closes something of type $\langle e, t \rangle$ under sums (Link, 1983):

- (4) $\|oga\| =$ a. $\lambda x : AT(x) . oga(x)$
 b. $*\lambda x : AT(x) . oga(x)$

-kuera, on the other hand, whose meaning is in (5), being a function of type $\langle \langle e, t \rangle \langle e, t \rangle \rangle$, typical of plural marking, can only combine with (4b), a sum.

- (5) $\|kuera\| = \lambda P : *P = P.P$

This qualifies *-kuera* as the only alternative activator in Kaiowá as far as number marking is concerned. The singular function is not morphologically available in the language, being activated only semantically, as an alternative of *-kuera*. The two competing readings constitute the set of scalar alternatives in (6):

- (6) $\|kuera\|^{ALT} = \{\lambda P : *P = P.P, \lambda P : AT(P) = P.P\}$

Since the at-least-two-reading is not straightforwardly yielded by nominals modified by *-kuera*, due to the view of plural adopted here, the idea is that the role of this morpheme is to activate a “special” singular alternative, or, in Spector’s terms, a “pragmatically enriched” alternative, whose propositional content is equivalent to *Ha’e ohecha petei oga* ‘I saw (exactly) one house’, computed

as an implicature by the hearer. The at-least-two-reading is then derived as an implicature, based on the comparison of the semantic content of this last sentence with the one which contains the nominal modified by *-kuera*.

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