

Mass nouns and number agreement in Nukuoro

1. Introduction This paper aims to shed light on the analysis of mass nouns – in particular, the interaction between the count/mass distinction and the number system – working from novel data from Nukuoro (Austronesian; Polynesian). Its main goal is to highlight a typologically unusual pattern of number agreement: in Nukuoro, mass nouns pattern like plurals, not singulars, for agreement purposes. Mass nouns in languages like English are distributionally puzzling. They take singular agreement morphology, yet pattern like plurals in other respects: for instance, singulars always take a determiner, but masses and plurals need not. Nukuoro prompts a further complication: in some languages, mass nouns *can* trigger “plural” agreement. We suggest two analyses that could account for such a pattern: either (i) plurals and masses lack some marked singular feature, or (ii) plurals and masses share some meaningful feature: in Nukuoro, [+cumulative]. To illustrate, we first show that number marking and the mass/count distinction in Nukuoro are themselves fairly typical. We discuss the surprising interaction between the two systems, and the potential implications of each analysis: support for a “default number” analysis of masses under one and the existence of a cumulative number feature under the other.

2. Number marking The Nukuoro number system makes a singular/dual/plural distinction. Nouns do not directly inflect for number; instead, number is indicated by the form of the determiner. The definite determiner *de* precedes singular count nouns (1); *luu*, dual count nouns (2); and *denga*, plurals (3) (we gloss *denga* as DET.PL throughout for convenience). Bare nouns may receive singular (4) or plural (5) interpretations (*dahi* and *hanu* are predicates here); we assume bare nouns denote semilattices, e.g. $\llbracket \text{hale} \rrbracket = \{a, b, c, ab, bc, ac, abc\}$.

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|---|--|---|
| (1) <i>de maasina</i>
DET moon
‘the moon’ | (2) <i>luu gauligi</i>
DET.DU child
‘the (2) children’ | (3) <i>denga daane</i>
DET.PL man
‘the men’ |
| (4) <i>E dahi naa daonga.</i>
IPFV one DEM.MED party
‘There will be a party.’ | (5) <i>E hanu biigi i Nuguolo.</i>
IPFV some pig PREP Nukuoro
‘There are pigs on Nukuoro.’ | |

3. Mass nouns Nukuoro mass nouns behave as do English mass nouns with respect to various diagnostics: they cannot combine with numerals without an accompanying measure phrase (6), they do not take stubbornly distributive adjectives (Schwarzschild 2011), they may combine with quantifiers like *alodahi* ‘all’ as plural nouns do (7), and coercion to a count denotation results in a packaging or kind interpretation.

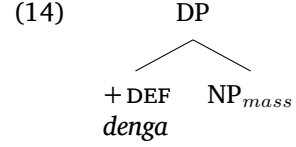
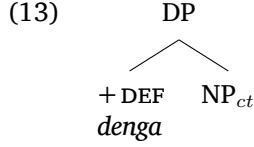
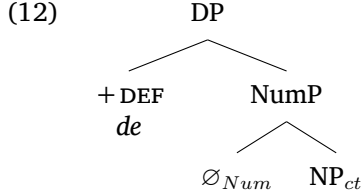
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|--|---|
| (6) <i>Au ne unu dahi *(kaba) vai.</i>
1SG PFV drink one cup water
‘I drank a cup of water.’ | (7) <i>Johnny gu unu denga galeve alodahi.</i>
Johnny INC drink DET.PL galeve all
‘Johnny drank all of the galeve.’ |
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4. Mass/number interaction Number marking on English and Nukuoro mass nouns differs systematically. English mass nouns (*water*) and singular count nouns (*dog*) pattern together; neither take overt number morphology. Plural count nouns (*dog-s*), by contrast, take the overt suffix *-s*. By contrast, it is *singular* nouns in Nukuoro that pattern exceptionally, taking the determiner *de* (8); mass nouns (9) and plural nouns (10) both take the determiner *denga*. Mass nouns taking *denga* are not associated with any additional semantics; *denga laaisi* refers to a mass, not a collection of grains, nor an abundance of rice (Tsoulas 2006).

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| (8) <i>De gauligi ne gage.</i>
DET.SG child PFV climb
‘The child climbed.’ | (9) <i>Gaina denga laaisi!</i>
eat.CIA DET.PL rice
‘Eat the rice!’ |
| | (10) <i>Denga gauligi ne gage.</i>
DET.PL child PFV climb
‘The children (3 +) climbed.’ |

5. Potential analyses and implications The Nukuoro data can be accounted for in two ways. Under one analysis, the “plural” marker actually indicates the lack of a Num projection (13), (14), c.f. (Harbour 2007). The Num head $\emptyset_{Num}$ (11a) would restrict its complement NP to atoms only, and the D head spellout *de* would result from agreement with the Num head, while *denga* surfaces if D fails to agree. As such, NP complements to *denga* would be the semilattices instantiated by the bare noun ($\{(a, b, c,) ab, bc, ac, abc\}$).

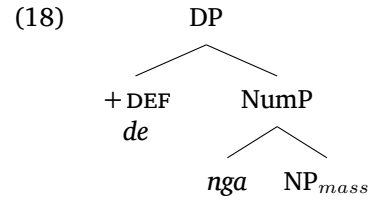
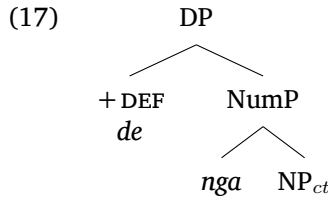
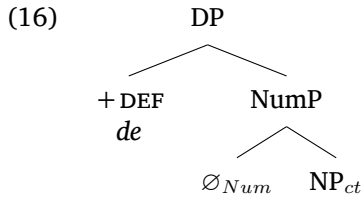
$$(11) \quad a. \llbracket \emptyset_{Num} \rrbracket = \lambda P. \{x : AT(x) \ \& \ x \in P\}$$



Under another approach, *denga* is morphologically decomposable, and *de* always realizes the D head. The Num head has two forms: $\emptyset_{Num}$, which denotes atomization (15a), and *nga*, which ensures the predicate *P* it combines with is cumulative (15b), i.e. that any sum of parts that are *P* are also *P* (Quine 1960) (other feature choices, like [-atomic], fail to predict certain inclusivity facts). Since bare nouns are closed under summation, they are cumulative, and so *nga* applies vacuously. In the syntax, all NPs would project a NumP, which restricts its complement to either a set of atoms (16) or a set of which cumulativity holds (17), (18).

$$(15) \quad a. \llbracket \emptyset_{Num} \rrbracket = \lambda P. \{x : AT(x) \ \& \ x \in P\}$$

$$b. \llbracket nga \rrbracket = \lambda P. \{\forall x \forall y [P(x) \wedge P(y) \rightarrow P(x \oplus y)]\}$$



Both analyses are compatible with the data, but make distinct predictions. First, an analysis under which mass nouns lack a number feature, either singular (Chierchia 2010) or plural, might suggest that cross-linguistically, mass nouns do not project Num; in most languages, default agreement is singular, but default plural agreement is not ruled out, and is indeed instantiated in Nukuoro. By contrast, a system of type (15) would suggest that mass nouns do have contentful semantic features relevant to agreement: specifically cumulativity, a feature they share with plurals. Such a system would not challenge the cross-linguistic status of singular as the morphological default. It might also align more straightforwardly with the observed morphology, and save us from positing two types of null number markers ($\emptyset_{Num}$ and absence of a Num projection). However, it would increase our inventory of number in natural language, since a cumulative number feature has little to no precedent in the typological literature (e.g. Corbett 2000), and departs from other analyses of number features as functions from singulars or dividers (e.g. Borer 2005). In either case, the inability of mass nouns to combine with numerals falls out as a result of ill-defined atomic reference.

6. Conclusion The data from Nukuoro make a contribution to the semantic typology of number marking. We have seen that Nukuoro has a fairly typical number system, with obligatory number marking of nouns, and an English-type mass/count distinction. Strikingly, however, plurals and mass nouns take the same number marking, unlike most other languages with the same constellation of properties. Regardless of one’s particular analysis of mass nouns with respect to the number system, the data from Nukuoro must be accounted for. The Nukuoro data suggest another formulation of the puzzle: given that masses resemble plurals semantically in many respects, why do they so rarely inflect like plurals cross-linguistically? We speculate that the uncoupling of number morphology from the noun, allowing bare NPs to denote pluralities, plays a key role.

7. Selected references Bale, Alan (2021). “Number and the mass–count distinction”. Borer, Hagit (2005). *Structuring sense: Volume 1: In name only*. Vol. 1. Oxford University Press. Chierchia, Gennaro (2010). “Mass nouns, vagueness and semantic variation”. *Synthese* 174, pp. 99–149. Corbett, Greville G (2000). *Number*. Cambridge University Press. Deal, Amy Rose (2016). “Do all languages make countability distinctions? Evidence from Nez Perce”. *Proceedings of Sinn und Bedeutung*. Vol. 20, pp. 180–197. Schwarzschild, Roger (2011). “Stubborn distributivity, multiparticipant nouns and the count/mass distinction”. *Proceedings of NELS*. Vol. 39. 2. Graduate Linguistics Students Association, University of Massachusetts, pp. 661–678. Tsoulas, George (2006). “Plurality of mass nouns and the grammar of number”. 29th glow meeting, Barcelona, pp. 5–8.