All notional mass nouns are count nouns in Yudja.

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Overview. In Yudja (Tupi, Brazil; 348 people), all nouns can be directly combined with numerals and count quantifiers. We show that this is not due to coercion, i.e. that all nouns have a default count interpretations. This result is significant, since it means that some languages do not fit in the three classes recognized in the typology of countability: number marking, number neutral and classifier languages (Chierchia 2010).

Countability and coercion. In Yudja notional mass nouns can be directly combined with numerals without intervening classifiers or container phrases, as illustrated by the acceptability of sentences (1) and (3):

(1)   Txabïu asa   he   wï   he
       Three flour in   port in
       'There are three (bags of) flour in the port.'

(2)   Itxïbï iidja   a'i   (3)   Itxïbï y'a   a'i
       Many   woman   here   Many   water here
       'There are many women here.'   'There are many (portions of) water here.'

Note that (1) and (3) do not show that *asa* ('flour') and *y'a* ('water') have a default count interpretation: the acceptability of (1) might be due to mass-to-count coercion. This form of coercion (aka 'universal packager') is illustrated in 'three beers' (for 'three <u>bottles of</u> beers'). Its availability in English is dependent on the existence of standardized or otherwise naturally occurring bounded amounts of the relevant substance (cf. Gleason 1965, Pelletier 1975, Frisson and Frazier 2005, Wiese and Maling 2005). If coercion played a role in Yudja, speakers would consistently refuse scenarios where a notional mass noun is combined with a numeral and a standardized container is not involved in the individuation of the portions of substance. The following observations show that this is not the case.

Production task. This is a scenario-based elicitation session carried out with 2 adult Yudja speakers. <u>Methods:</u> (i) oral/visual presentation of a scenario; (ii) the consultants had to provide a sentence to describe the scenarios provided. <u>Materials:</u> 20 notional mass nouns were used in two different scenarios: one that included individualized portions and a standardized container (4a) and another that included individualized portions, but not a standardized container (4b). <u>Results:</u> the two speakers combined numerals directly with notional mass nouns in both scenarios, even when containers are not available at all.

(4a)   A woman brought three bowls of water to the school and put them on a bench.
        Txabïu y'a   pïkaha   txade anu.
        Three water bench   above ASP
        'There are three (bowls of) water on a bench.'

(4b)   A woman was carrying a pan of water. Three drops fell on the ground.
        Txabïu   y'a   anu.
        Three   water   ASP
        'There are three (drops of) water.'

Quantity judgments task (QJ) This task was carried out with 18 adult Yudja speakers. It follows a paradigm proposed in Barner and Snedeker (2005). <u>Materials and methods</u> While presenting two different drawings, one with a big portion of *x* (Volume drawing) and another with three different portions of *x* (Number drawing), we asked: *Ma de bitu x dju au?* ('Who has more *x* ?'). Subjects answered 3 questions with a notional mass noun (e.g., *asa* 'flour'), 3 questions with a notional count noun (e.g., *xãã* 'bowl') and

2 questions with an aggregate noun (e.g., *abeata* 'clothes'). Participants had to point to one of the drawings to answer the question. <u>Results</u> Yudja speakers consistently chose the 'Number' drawing for all noun categories (notional mass nouns: 85% of 'Number' responses; notional count nouns: 83% of 'Number responses'; aggregate nouns: 79% of 'Number' responses). Mixed effects modeling using Helmert contrasts confirmed that there was no effect of noun type. <u>Conclusion</u> The default reading for notional mass nouns like *water* in Yudja is not a mass reading, but a count reading (the number of concrete portions of *x*).
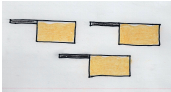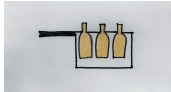
Lack of mass quantifiers. To the best of our knowledge, there is no mass quantifier in the language. In picture elicitation tasks aimed at eliciting mass quantifiers such as 'a lot', speakers used volume adjectives, as illustrated in (5) and (6).

(5) Urahu aka   Tuba Tuba   he.   (6) Urahu y'a   yuhaha   he.
     Big   house Tuba Tuba   in   Big   water lake   in
     'There is a big house in Tuba Tuba.'   'There is a big portion of water in the lake'

Container phrases One way to individuate portions in the extension of mass nouns in number marking languages is to use a container phrase (e.g. 'a bottle of whiskey'). In Yudja, container phrases have the syntax of locatives, as illustrated in (7).

(7) Maria   yauda awatxi'i   xãã   he   dju wï
     Maria   two   rice   bowl in   bring
     'Maria brought two portions of rice in bowls'

The following study show that container phrases are actually interpreted as locatives and not as partitive measure phrases. <u>Method:</u> picture/sentence matching; <u>Materials:</u> 12 critical items counterbalanced in two lists (10 fillers unrelated to the manipulation). The critical items consisted of a target sentence and a drawing. Two types of scenarios were manipulated: one where the individuation criterion for the notionally mass noun matches the container phrase (8a), and one where does not (8b).

(8)   Txabïu awïla   wã'ẽ he.   Scenario 1 (8a)   Scenario 2 (8b)
     (There are) three   honey pan   in.

<u>Results</u> For all participants the target sentence could describe both scenarios. <u>Conclusion</u> Container phrases are not interpreted as partitive measure phrases (e.g. Schwarzschild 2006) but as locatives. Since there are no dimensional measure nouns (e.g. 'meter') in Yudja, this means that there is no partitive measure phrases at all in the language. This observation brings indirect support to our conclusion: if all nouns are count, there is no functional motivation for the inclusion of partitive measure phrases in the grammar of Yudja.

Analysis. We propose that any noun in Yudja denote a set of maximally strongly connected entities (Casati and Varzi 1999, Grimm 2012), closed under sum formation (since Yudja is number neutral, see Lima 2007). For notionally count nouns such as *iidja* ('woman'), these will be natural units of the associated kind. On the other hand, the extension of nouns that describe substances such as *y'a* ('water') is relative to a topic situation: it is defined as the closure under sum formation of the set of maximally strongly connected portions of the substance *in that situation*.

Conclusion The main contribution of this paper is typological. The facts described in this paper offer robust descriptive and experimental evidence for the inclusion of a fourth class of languages in the typology of countability, aside from number marking, number neutral and classifier languages.