Counting, Indefinite Articles, and the Mass-Count Distinction

According to both cognitive (cf. Heine (1997)) and formal linguistics (cf. Chierchia (1998)), the English indefinite article exemplifies the prototypical behavior of this grammatical category: it combines only with count singular nouns (or with mass nouns that allow to be coerced into a "count denotation"):

(1) a. John found a pen. b. *John found a money. c. *John found a pens.

Chierchia explains the distribution in (1) by the hypothesis that "mass are lexicalized plurals". The typological prediction associated to this position is that there cannot be any determiners that combine exclusively with count singular and mass nouns, while excluding count plurals. Heine associates an implicational scale with indefinite articles, stating that a language allowing an indefinite article with mass nouns will also allow that indefinite to combine with a plural.

The Southern German indefinite article presents a counterexample to both predictions, as illustrated in (2), and crucially, (2b). Indeed, this indefinite article combines without problems with singular count and mass nouns, but is agrammatical with plural count nouns:

(2) a. dr hans suacht an kuli. b. dr hans suacht a gealt. c. *dr hans suacht a kulis.
the Hans searches a pen. the Hans searches a money. the Hans searches a pens.

Nouns like *money* in (2b) are notoriously difficult to coerce, such that the acceptability of (2b) cannot be explained away by coercion effects. Apart from its acceptability in combination with mass nouns, the Southern German indefinite article does not seem to be any different from the standard German indefinite. The theoretical questions associated with (2), and that I will address in the talk, are the following: i) if mass is really plural, why should *a* not be able to apply to the (count) plural; and ii) what are the selectional restrictions of this indefinite article?

In order to explain the facts in (2), I will assume (cf. Moltmann (1998)) that countability is about individuation (or: *integrated wholes*), and not about atomicity (clearly, every morning: man $\oplus$ coffee = man, and man $\ominus$ urin = man). The ideas I will develop are the following: i) although both mass and plurals share the properties of cumulativity and divisivity, mass are not plurals; and ii) nouns denote different types of covers on the partially ordered domain of entities.

Since the notion of "integrated whole" is not very precisely defined (and maybe not precisely definable), I will largely rely on standard mereological tools, but I will use them in the service of the notion of 'integrated whole' rather than of 'atomicity'.

Like Rothstein (2010), I assume that mass nouns denote a Boolean algebra. Not quite in accordance with her hypothesis (but probably compatible with it), I assume that a count noun P defines a cover C over the partial order $\langle D, \sqsubseteq \rangle$ by means of an individuation function i_P. This individuation function depends on the intrinsic properties of the noun predicate. i_P defines *for all possible situations* a situationally unique cover C_P, that is, a set of non-overlapping individuals satisfying P in that situation.

Contrary to count nouns, mass nouns are unable to provide an intrinsic individuation function. However, secondary individuation functions (like subtypes, or consumption units) may be available. This is meant to capture the fact that in languages like German or English, while mass nouns may be coerced into count denotations, they still do not denote 'individuals' in any relevant sense. It is important to note that both intrinsic and secondary individuation functions provide largely situation-independent criteria for establishing covers, such that the resulting covers are *comparable*: one and the same individual (say a) would be delimited in roughly the same way (we must allow for some vagueness) by one and the same individuation function in two different situations in which a appears.

A part from these covers C_p, which exist independently from particular contexts, we will also define purely situational covers (written C^s_P). For a noun P, this defines P-units as aggregates of

entities satisfying P in that given situation. Such a situational cover will be available for mass noun denotations in any single given contexts, since a substance, e.g., *water*, will appear in given aggregates in given contexts (e.g., bottles, glasses, puddles, lakes, etc.). Therefore, in a quite vague sense, *water* can be said to form units in a given context. Such a situational cover need not be unique. Clearly, if there is a cover C_P as a result of a primary individuation function i_P, this will also qualify as a situational cover. The reverse, however, will not be true: there is no reason why — given a situational cover C^s_P — there should be comparable covers in other situations. Moreover, there is no general criterion on how to construe a situation-independent cover C_P, based on an arbitrary C^s_P. The intuition behind these two kinds of covers is the following: an individual is not a purely situational aggregate, but something that remains cohesive throughout situations. However, in a given situation, (nearly) everything comes in aggregates — which need not have any persistence beyond the specific situation.

The plural denotation $^*P$ of a count noun P builds on a situation-independent cover C_P, and presupposes therefore that there exists an individuation function i_P. I assume that the denotation of $^*P$ includes all subparts of the supremum of C — including the empty set —, and not simply the powerset of C (or the sum of all members of C). This is meant to take care of the fact that numbers smaller than one, and numbers containing commas more in general, like, e.g., 0.23, require a plural (*0,23 apples*, not **0,23 apple*).

The net result of these assumptions is that plurals require an individuation function to be defined, that is, they presuppose a count-noun base, whereas mass nouns presuppose that there is no intrinsic noun-related individuation function, and are not "about several things".

Let me now briefly sketch the combinatorial restrictions of the indefinite articles in Southern German and in English. In English, as with other 'standard' indefinite articles, *a* requires to combine with a noun that defines situation-independent covers — that is, count nouns — and its denotation is then one of the elements of C_P in that particular context. In Southern German, however, the use of the indefinite article only requires that the situational cover C^s_P with respect to the noun is not empty, and denotes one member of the situational cover. Therefore, the resulting denotation is in some sense a unit, but it need not be a countable one, since there is no guarantee that it remains stable under situation change. This assumption also accounts for the fact that with generic judgments and kind reference, where no context — and therefore no contextual cover — is involved, the indefinite article is infelicitous with mass nouns:

(3) ?* an pfeafr isch scharf.
a pepper is hot.

Last, let me briefly address the restrictions against the plural. First, why cannot we apply the indefinite article to a plural noun, both for the English and the Southern German indefinite article? This restriction is puzzling, since the plural denotation contains as a subset the denotation of the singular, and as the acceptability of 1.0 *apples* shows, the cardinality '1' itself does not seem to be the problem. The most probable answer I see is partial blocking: a formally less marked, and therefore more economic form — the singular — is available for the same meaning, and blocks therefore the more marked plural. The second question is why the Southern German indefinite article in itself does not allow for pluralization. My tentative answer is that it relies on purely situational covers, which in itself do not provide a possibility of being generalized to an individuation function, which is precisely what a plural requires.

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[1] Chierchia, G. (1998). "Plurality of Mass Nouns and the Notion of "Semantic Parameter"". In: *Events and Grammar*. Ed. by S. Rothstein. Dordrecht: Kluwer: pp. 53–103. [2] Heine, B. (1997). *Cognitive Foundations of Grammar*. Oxford: Oxford University Press. [3] Moltmann, F. (1998). "Part Structures, Integrity, and the Mass-Count Distinction". In: *Synthese* 116.1: pp. 75–111. [4] Rothstein, S. D. (2010). "Counting and the Mass–Count Distinction". In: *Journal of Semantics*: pp. 1–55.