Some three students: Towards a unified account of *some*

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OVERVIEW: This paper investigates the semantics of the *some*+numeral construction exemplified in (1), proposing an analysis that aligns this *some* to ordinary indefinite *some*, and sheds light on certain aspects of the behavior of the latter.

(1) Some 20 cars were involved in the accident.

Data: In addition to the cardinality use illustrated in (1), *some* can occur with a variety of measure expressions, including amounts in the mass domain (2), spatial and temporal extents (3)-(4), and certain adjectival measures (5). However, not all numerical expressions are possible, a notable exception being temporal designators, as in (6)-(7). The generalization is that *some* is possible with all and only those numerical expressions that can be interpreted as sets of individuals of some sort.

(2) some 5 ounces of gold
(3) The tree is some 10 feet from the house.
(4) Sue sang for some 45 minutes.
(5) some 5 feet long / longer
(6) *Sue was born in some 1989.
(7) *The meeting was at some 3 o'clock.

Some+*n* has an approximative interpretation for many speakers, which has prompted analyses that treat it on par with approximators such as *about* (Sauerland & Stateva 2007; Anderson 2014). However corpus examples such as the following (COCA; Davies 2008-), in which an exact interpretation is clearly intended, show that *some* on its numerical usage cannot be inherently approximative. We report experimental findings that some but not all speakers have the approximative reading.

(8) Of some 206 students who responded to the survey, 52% were female.

Some+*n* also differs from true approximators in not having a pure degree interpretation: it is infelicitous in mathematical statements and as the answer to *how many* questions:

(9) How many students passed the test? 10 / about 10 / ??some 10
(10) Six times seventeen is about 100 / roughly 100 / ??some 100

Analysis: We follow Rothstein (2012, 2017) in taking number words to have interpretations as both predicates and arguments. In its predicative instantiation, *three* denotes the equivalence class of entities composed of three atoms; its argument interpretation (type *n*) is derived via nominalization of this predicate, creating a duality parallel to that proposed for kind expressions (Chierchia 1998; see also Scontras 2017).

(11) $[\![three_{<et>}]\!] = \{x: |x|=3\}$ (12) $[\![three_{n}]\!] = \cap\{x: |x|=3\}$

Turning to *some*, we draw on recent proposals that indefinite determiners manipulate domains of quantification (Kratzer & Shimoyama 2002; Alonso-Ovalle & Menéndez-Benito 2010, 2011) and propose that *some* – on all its uses – encodes a variable *f* over functions from sets (domains) to sets (see also Anderson 2014 for a related proposal). Departing from the above literature, we assume a non-quantificational approach in which this function is the sole content of *some*; quantificational force when present arises via existential closure.

(13) $[\![some_{<\alpha t,\alpha t>}]\!] = \lambda P_{<\alpha t>}\lambda x_{\alpha}.f(P)(x)$

On its indefinite use (e.g. *some student(s)*), *some* takes the nominal as argument. In the *some*+*n* construction, it composes with the numeral on its predicative interpretation:

(14) a. $[\![some\ twenty]\!] = [\![some]\!]([\![twenty]\!]) = \lambda x.x \in f(\{y:|y|=20\})$
b. $[\![some\ twenty\ cars]\!] = \lambda x.x \in f(\{y:|y|=20\})\ \&\ cars(x)$

(15) $[\![(1)]\!] = 1$ iff $\exists x[x \in f(\{y:|y|=20\})\ \&\ cars(x)\ \&\ involved\text{-}in\text{-}accident(x)]$

The varying interpretations of *some+n* can then be traced to the value assigned to the function *f*. The exact interpretation arises when *f* is interpreted as a subset function (i.e. $f(P) \subseteq P$); the result is truth-conditionally indistinguishable from the corresponding sentence without *some*, but has an emphatic effect, for which we provide a pragmatic analysis. The approximate reading (for speakers who have it) obtains when *f* expands the set to include pluralities of cardinality close to *n*.

The other felicitous examples (2)-(5) can be analyzed similarly to (1). In (2), *some* operates on the equivalence class of portions of matter weighing 5 ounces. In (3), the relevant set is a set of spatial vectors (Zwarts & Winter 2000), per (16); a vector-based analysis can also be applied to adjectival cases such as (5). Finally, (4) involves a set of temporal intervals *t* (Krifka 1989), per (17).

(16) $\exists v[v \in f(\{v': |v'|=10\ ft\})\ \&\ start(v,the\ house)\ \&\ end(v,the\ tree)]$

(17) $\exists e[singing(e)\ \&\ Agent(e,Sue)\ \&\ \tau(e) \in f(\{t:\ 45\text{-}minutes(t)\})]$, where τ = runtime

By contrast, expressions such as *1989* and *3 o'clock* cannot be construed as denoting sets over which *some* can operate, but instead refer directly to points or intervals on the time line; hence the infelicity of (6) and (7).

The present analysis also accounts for the infelicity of (9) and (10) with *some*: these contexts require the argument interpretation of the number word (Rothstein 2012), whereas to compose with *some*, the predicative interpretation is required.

Extensions to 'ordinary' *some*: It has been observed that *some* $N_{singular}$ yields an ignorance effect, while *some* N_{plural} does not. *Some+n* patterns with the plural case:

(18) a. Some student called. #It was John.
b. Some students called – John, Sue and Ann.
c. Some three students called – John, Sue and Ann.

Alonso-Ovalle & Menéndez-Benito (2011) account for a similar singular/plural asymmetry with Spanish *alguno(s)* 'some' by proposing that the function *f* lexicalized by the indefinite determiner satisfies an anti-singleton constraint (*f(P)* is a non-singleton set). In the singular case, an ignorance inference is derived via pragmatic reasoning about singleton-domain alternatives. In the plural case, there are no acceptable alternatives, so no implicature is generated. This analysis extends to singular *some* and (with some additional assumptions) its plural counterpart. It also correctly predicts the absence of ignorance effects with *some+n*. (18c) expresses the proposition (19a). Its alternatives would be of form (19b). However, each such proposition is equivalent to one of the form (19a) (which could have been the one intended by the speaker). E.g., if *f* in (19b) picks out a singleton set containing the triple of students $j \oplus s \oplus a$, the resulting proposition is equivalent to one of the form (19a) in which *f* picks out the non-singleton set containing $j \oplus s \oplus a$ plus some triple(s) of non-students. As with plural *algunos*, there are thus no acceptable alternatives, so no ignorance effect arises. Thus the same mechanism that explains the distribution and interpretation of *some+n* (the function *f*) also accounts for the varying pattern of ignorance effects with *some* more generally.

(19) a. $\Box_w \exists x[x \in f([\![three]\!]) \,\&\, students(x) \,\&\, called_w(x)]$, where $|f([\![three]\!])| > 1$

b. $\Box_w \exists x[x \in f([\![three]\!]) \,\&\, students(x) \,\&\, called_w(x)]$, where $|f([\![three]\!])| = 1$

The present approach to *some* also explains its non-occurrence in characterizing generics and kind reference (e.g. *(#some) dogs bark; (#some) dinosaurs are extinct*). These may be analyzed as involving the kind (argument) interpretation of the noun phrase (Chierchia 1998); but *some* must compose with the nominal on its predicative type. This is essentially the nominal equivalent of the degree-reference case in (9)-(10), and further demonstrates the parallel operation of *some* in the two domains.

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