Quantification over singular terms in Hebrew

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Partitive quantifiers in English (*three of the*, *all of the*, *some of the*, etc') can apply to singular terms, not only plural terms (e.g. *all of the paper*). In English, partitives always require the use of the word *of*. However, in Modern Hebrew (of the African language family), this restriction does not exist. Every non-cardinal quantifier (e.g. *three*, *at least two*, *many*) can be used to quantify over a singular term, as long as it is definite. For example:

(1) a. dan axal et kol ha-ʃnitsel.
Dan ate.3sg acc all the-schnitzel
'Dan ate the whole schnitzel.'

b. kol ha-tafrit be esrim ʃekel.
all the-menu in 20 NIS
Distributive reading: 'Every item on the menu costs 20 NIS.'

As can be seen in (1), when a quantifier applies to a definite singular term, the domain of quantification is a subset of the term itself. In the case of (1a) (a non-group count noun), the domain of quantification is a cumulative set of material parts. In the case of (1b) (a group noun), the domain of quantification is a discrete set members. I call this kind of quantification Quantification over Singular Terms (QST).

Interestingly, there are different entailment patterns for (1a) and (1b). In (1a), if A is part of the schnitzel and B is part of A, then Dan ate B. In (1b), if A is on the menu and B is part of A, then it is not necessarily the case that B costs 20 NIS.

I operate within a standard Boolean Semantics framework (in the spirit of Link (1983)). I propose that QST induces a semantic shift which maps their argument into a subset of a Boolean algebra. The shift is represented by the $\downarrow_i$ operator, which is based on the Fission operator $\downarrow_o$ defined in Landman (2010), and the distribution operator $\downarrow$ defined in Landman (1989a;b). For non-group count terms, $\downarrow_i$ is equivalent to $\downarrow_o$, except it does not include the supremum of the resulting algebra. For group terms, $\downarrow_i$ is $\downarrow$. Thus, for non-group singular count terms T, $\downarrow_i(T)$ returns an atomless Boolean algebra without supremum. For group terms T, $\downarrow_i(T)$ returns the atoms of an atomic Boolean algebra (the members of the group denoted by T). Crucially, this means that the domain of quantification is not the same for group and non-group terms.

QST is not restricted to distributive or to collective predicates. I argue that predicates can be divided into (at least) three classes, listed below, with regard to how much collectivity/distributivity they allow in quantified singular terms. I demonstrate how my proposal accounts for the difference between these predicates.

(This division is applicable both to Hebrew and English translated from Hebrew)

1. *Be eaten, be incinerated, be in Denmark...*
   Both the distributive and the collective interpretation are allowed, and they are in fact synonymous. For example, (1a) has the same meanings under the collective and distributive interpretations.

2. *Cost 20 NIS, jam a pipe, weigh the zeppelin down...*
   For quantified singular group terms, these predicates are ambiguous between the collective and distributive interpretation. For quantified singular count non-group terms, these predicates force a collective interpretation. For example, while (1b) is ambiguous between the collective and distributive interpretations, (2) has meaning only under the collective reading:

   (2) kol ha-ʃnitsel be-esrim ʃekel.
   all the-shcnitzel in-twenty NIS
   'The schnitzel costs 20 NIS.'

3. *Be sitting, be tall, be invited...*
   These predicates force a distributive interpretation of quantified singular expressions. For non-group nouns, this causes unacceptibility. Consider the contrast in (3):

   (3) a. ✓The mountain is tall.
   b. # All of the mountain is tall.

Finally, if time permits, I will offer an account of a restriction of QST. As mentioned above, cardinal quantifiers can never apply to quantified singular group terms (as in (4a)), even though they can apply to plural terms (as in (4b)):

(4) a. * ʃloʃet ha-vaada.
three.pl the-committee
Intended: 'The three people of the committee.'
b. ʃloʃet ha-yeladim
three.pl the-child.pl
'The three children.'

I suggest that this restriction can be accounted for if we assume that sub-atomic quantification is undergoing a process of grammaticalization, on par with evidence from British English (Pearson, 2011).

References

Landman, Fred. 1989a. Groups, I. *Linguistics and Philosophy* 12:559–605.

Landman, Fred. 1989b. Groups, II. *Linguistics and Philosophy* 12:723–744.

Landman, Fred. 2010. Count nouns, mass nouns, neat nouns, mess nouns. In *The baltic international yearbook of cognition, logic and communication*, ed. Jurgis Skilters, 115–143.

Link, Godehard. 1983. The logical analysis of plurals and mass terms: A lattice-theoretic approach. In *Formal semantics - the essential readings*, ed. Paul Portner & Barbara H. Partee, 127–147. Blackwell.

Pearson, Hazel. 2011. A new semantics for group nouns. In *Proceedings of the 28th West Coast Conference on Formal Linguistics*, ed. Mary Byram Washburn et al., 160–168. Somerville, MA: Cascadilla Proceedings Project.