COMPOUND MASS TERMS: A REPLY TO PELLETIER

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F.J. Pelletier, editor of *Mass Terms: Some Philosophical Problems*, tried in that volume to respond to my article 'The Indeterminacy of Mass Predication'. In my article, I showed that the referential indeterminacy that W.V. Quine has found in count nouns is found also in mass terms.

The point is worth making, because Quine himself had written that a significant difference between, for example, the mass term 'sepia' and the count term 'rabbit' is that one can learn the word 'sepia' by ostension alone, but one cannot learn the word 'rabbit' by ostension (Quine 1968, pp. 31-32; see also Quine 1950, pp. 69-73; 1960, pp. 98-99).

Why not? Because the *collection* of rabbits is not the same thing as the *collection* of integral parts of rabbits, but those *collections* have a unique *fusion* between them. Thus, if one points to rabbits, one points also to integral parts of rabbits, and conversely. Therefore, one cannot separate 'rabbit' and 'integral rabbit part' by ostension. (Notice that this is much more than a case of two "intensions" and one "extension": here, the extensions themselves are clearly distinct.)

What I showed is that the same thing can happen with *mass predicates* – predicates which represent attributes which are (i) cumulative and (ii) atomless. That is to say, it is false that

If F, G are (i) cumulative and (ii) atomless, then if $(\vartheta x \cdot Fx) = (\vartheta x \cdot Gx)$, then $\{x : Fx\} = \{x : Gx\}$.[1]

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[1] I write '$(\vartheta x \cdot Ax)Bx$' for

$$(\exists x)(Ax \cdot (y)(Ay \supset y \leq x) \cdot Bx),$$

where '$\leq$' represents the relation of being part of (see Sharvy 1980). I write '$(\vartheta x \cdot Ax)Bx$' for 'B(the A)'.

An attribute A is *atomless* $\equiv$

$$(x)[Ax \supset (\exists y)(y < x \cdot Ay)],$$

where '$<$' represents the relation of being proper part of.

Here is a counterexample: Fx: x is yolk and white (i.e., a sum of sm egg yolk and sm egg white); Gx: x is sm egg. (I spell 'some' as 'sm' when used with mass and plural predicate terms. See Cartwright 1965, pp. 469-472.)

What makes possible this situation is that mass terms are not always *dissective*. An attribute is *dissective* if all the parts of anything that has it also has it. For example, being sm space is dissective, because all the parts of a quantity of space are quantities of space also. (Points, lines, surfaces are only *limits*; they are not parts of a quantity of space. See Aristotle, *Physics* VI.1.)

Being sm men is dissective also: every part of a quantity of men is a quantity of men. But the left arms of the men in New Zealand are not part of the men in New Zealand (they are parts of these men); the men in Auckland are part of the men in New Zealand.

What *is* true is that

If F, G are (i) cumulative and (ii) dissective, and if $(\vartheta x \cdot Fx) = (\vartheta x \cdot Gx)$, then $\{x : Fx\} = \{x : Gx\}$.

Therefore, it does not matter whether an attribute is atomic or not. But mass attributes – attributes which are (i) cumulative and (ii) atomless – are not always dissective. We can easily construct examples. Form the direct product of two atomless mereologies, for example, space × time (see also Sharvy 1980, note 8, and Sharvy 1983, p. 234). Or recall 'sm yolk plus sm white'.

Pelletier has observed of my example of being SCB-succotash that I included a certain third condition only to make an attribute cumulative. (That condition was 'or is a sum of sm C-succotash and sm B-succotash'.) He complains that this condition is trivial and *ad hoc*.

Not at all. Let us suppose that in our dialect there are the mass predicates 'egg yolk' and 'egg white', but that there is no term with the signification of 'egg'. Thus, if we want to define 'is sm egg', it is necessary to write

is sm yolk or sm white or sm yolk + white.

We need the third condition, because there are many quantities of egg which are neither yolk nor white. For example, the matter of the omelet on my plate is sm egg, but it is neither yolk nor white; it is

yolk + white. Therefore, these third conditions arise quite naturally; they are not *ad hoc*.

Now being atomless and being dissective are not the same thing. Being sm space and time is an atomless attribute, but it is not dissective: the space in my room is part of the world's space and time, but it is not space and time. But it is easy to confuse being atomless with being dissective. For example, Pelletier wrote that 'if one takes mereology seriously, one will take mass terms as (completely) dissective' (p. 58). He has confused being dissective with being atomless. All mass terms are atomless, but not all are dissective.

I have pointed out that there are many mass terms where Quine's 'almost dissective' condition fails. That condition was that

> In general a mass term in predicative position may be viewed as a general term which is true of each portion of the stuff in question, excluding only the parts too small to count. Thus 'water' and 'sugar', in the role of general terms, are true of each part of the world's water or sugar, down to single molecules but not to atoms; and 'furniture', in the role of general term, is true of each part of the world's furniture down to single chairs but not down to legs and spindles (1960, p. 98).
> ...there are parts of water, sugar, and furniture too small to count as water, sugar, furniture (p. 99).

I have pointed out that the whisky in my glass of whisky-and-water is enough of the stuff to count as whisky-and-water, but that it is not whisky-and-water.

But Pelletier says that my interpretation is 'perverse'. He writes

> Clearly Quine has some notion that every stuff [*sic*] described by a mass term is composed of some smallest *naturally occurring* part... and that the parts of such a part are not truly described by the mass term nor is any arbitrary combination of parts of these parts truly described by the mass term (p. 54).

But that is not what Quine meant. The smallest particle of corn that one finds in nature is a kernel. But the matter of the northern half of a kernel of corn is sm corn. It is not because it is too small that the corn

in my succotash is not succotash.

One could replace the locution 'too small to count' with 'that don't count'. The result would be a true sentence, but a quite trivial one. I think that by 'too small', Quine meant 'too small', and that he did not mean what Pelletier says he meant.

The principal confusion in Pelletier is between being dissective and being atomless. Mass terms are not all dissective; they are not all "almost dissective". The condition that it is necessary to satisfy is of being atomless.

I am not the first to say this – the point was made by Helen Cartwright, in her underground classic, *Classes, Quantities, and Non-Singular Reference* (chs. X, XI).

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