

## Re: Heap-Set Theory H-S

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On Tue, 29 Jan 2008 16:17:31 -0800 (PST), [Zaljohar@xxxxxxxxxx](mailto:Zaljohar@xxxxxxxxxx) wrote:

And right, imho it's natural (though not necessary from a logical point of view – it seems) to rule out the "empty heap".

My personal argument (again a quote):

"... of course there's no "empty heap", if there are no objects there is simply no heap, it "vanishes".

Indeed I agree with you totally on that aspect.

But I think in Mereology it is axiomatized that there is a heap that is a part of every heap and they call it the Null heap.

No, IIRC there are different systems, some with and some without the null "heap". (As I already mentioned: the null "heap" is possible from a pure logical –or formal– point of view.)

"... few authors have gone so far as to postulate the existence of a ?null entity? that is part of everything:

(P.11) EzAxPzx Bottom"

(<http://plato.stanford.edu/entries/mereology/>)

My point is, that for a /theory of heaps/ (i.e. a special mereological theory) it is natural do exclude the "null heap", since "if there are no objects, there is simply no heap, it "vanishes"."

I understand that the Null heap is not empty of course since this would contradict the first axiom in Mereology that is  $Ax (x c x)$ .

Imho your error here is to read/interpret "c" as "is an element". Note that in set theory, we also have

$0 \in 0$  (!).

– still 0 is the empty set (i.e. is empty).

But what is the intuitive basis for axiomatizing the existence of such an object?

Well, the Stanford Encyclopedia of Philosophy again:

"(Two exceptions are Martin 1965 and Bunt 1985; see also Bunge 1966 for a theory with several null individuals.) Without such an entity, which one could hardly countenance except for good algebraic reasons, the existence of a mereological product is not always guaranteed. Hence (P.7) must remain in conditional form. Likewise, differences and complements may not be defined — e.g., relative to the universe U. Hence, the corresponding closure principles (P.8) and (P.9) must also remain in conditional form."

In my above theory I didn't axiomatize that, because I don't see the intuitive basis behind the existence of such a Null object?

You are right in doing so. There is none. It contradicts the "natural meaning" of /heap/.

F.

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