Re: Heap−Set Theory H−S

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- *From*: Zaljohar@xxxxxxxxx

- *Date*: Tue, 29 Jan 2008 16:17:31 −0800 (PST)

On Jan 29, 3:34 pm, G. Frege <nomail@invalid> wrote:

> On Tue, 29 Jan 2008 15:03:58 −0800 (PST), Zaljo...@xxxxxxxxx wrote:
>
> > but Frege I also had [ ] in my mind , but I see it too heavy for that
> > purpose.
>
> > I wanted the lightest symbol,
>
> I see. While on the other hand, ' seems to "light" to me. :−)
>
> Moreover, one might mistake them for quotation marks. ;−)
>
> > Ideally we would use spaces to do the job
>
> I don't think so. :−)
>
> > so for example we say z = xy
>
> Uhhh... :−)
>
> > so xy here is actually the heap of xy

> Well ... But this way you would not even be able to _formulate_:
>
> [[x, y], z] = [x, y, z].
>
> > but I feel that a lot of objections will be raised against that
>
> Indeed! (Yo may count on me here! :−)
>
> > so I preferred to use the lightest symbol like ' ' , so 'xy'
> > would be the nearest to xy, I guess?
>
> Well... Another point, I guess: [ ] resembles the usually braces { }
> used for sets.

Good point.

But one might object that [,] are used in mathematics to represent
bounded interevals, so it can cause some confusion with binary heaps,
don't you think so.

I think you should omit the coma inside the [ ]

[xy] makes a better notation than [x,y]

However I still feel that we should use a lighter symbole than [ ].

What about the symbole ` ` , I think this will not be confused with
the quotation mark.

so ` x y ` is the heap of which x and y are its only atomic parts.

what do you think?

> I like your notation c to represent 'is a constituent of' or what I call ' is part of' .

Yes. Parthood has indeed some "features" in common with the usual set theoretic "c", I guess.

Yes, there are some common features no doubt.

Especially

[a, b] c [a, b]

etc., of course.

> But what is interesting to me is that if we stipulate that all sets are atomic (NOTE: this is not the standard, that standard is to stipulate that all singleton sets are atomic: Review David Lewis in Parts of Classes) However in this theory I stipulated that all sets are atomic,

Good idea. After all they ARE, from the viewpoint of heaps. (Since a set is not a "molecular" heap − but just a heap consisting of that very set. It's an atom.)

> and from comprehension in this theory we can actually get the heap of any sets that we fulfill P(x) for any P(x) provided that there should exist at least one set for which P holds.

Very nice approach. Yes, it's certainly a nice idea to combine set theory with "heap theory". Or with other words, to do set theory in the context of a heap framework. (This way we might get the best from both theories, I guess.)

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".

Beautiful!

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.

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).

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

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?

Zuhair

> So in this way we can have the heap of all ordinals, the heap of all sets, the heap of all well founded sets, the heap of all sets bijective to a set, the heap of all sets bigger than a set, etc..., the heap of all sets other than a set, the heap of all sets that are not members of a set etc....

Yes. It's a nice approach, indeed.

F.

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