ELECTRONIC NEWSLETTER ON
REASONING ABOUT ACTIONS AND CHANGE

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Today

Newsletters and News Journals in Postscript

It appears that a number of our readers like to print the Newsletter issues and read them from paper, for example while travelling. Until now, Newsletters have only been produced in plaintext and HTML format. As a result of some additional hacking, we know offer past and forthcoming Newsletters in postscript format (via Latex) as well. At present, most Newsletters issues during 1998 exist in postscript (although still with minor bugs in some places), and the new software makes it possible to produce forthcoming Newsletter issues in postscript at once.

Another result of this software step is that the generation of the monthly News Journal issues in postscript goes more smoothly than before. The News Journal issues for January and February have been posted in the ENRAC web structure (go to the page for back issues!), and the following months are forthcoming. Participating authors, please check that your contributions have been rendered correctly. These News Journal issues will be published officially by the end of the month, allowing some time for corrections.

Since the News Journal in postscript issue is the official appearance of the discussions that evolves in this Newsletter, it is recommended to use it for any citations e.g. from regular articles. The News Journal is formally published, it has a journal "look and feel" with respect to e.g. page layout and page numbering.

The present Newsletter issue contains a contribution by Jixin Ma to the discussion about Ontologies for time.

Debates

Ontologies for time

From: Jixin Ma

Reply to Sergio Brandano (ENRAC 8.5.1998)

> *The only one "minor adjustment" I made consists in the first four lines of my contribution to ENRAC 3.5.1998, where no inequality appears at all. Concerning the hypothesis, I remind you what I wrote in ENRAC 24.4.1998:*

When you presented the (classical) axiom of completeness (ENRAC 23.4.1998), you used $\leq$ in the hypothesis (You are now still using it, see below). But for the case where elements in domain S are just intervals, you used $<$ instead (otherwise, Pat's example is valid, see below).

> *The axiom of completeness imposes $\leq$, so no "alternation" is needed at all. The reason why I wrote $<$ instead of $\leq$ is simply due to my need to stress the example, since the case $\langle s1, t1\rangle = \langle s2, t2\rangle$ is trivial. If you like to check, the reference is ENRAC 24.4.1998.*

Again, if you re-claim that the axiom of completeness imposes $\leq$, then Pat's example is valid (see below).

> > ...when you construct intervals out of points. In the case where intervals are taken as primitive, the need of such alternative is indeed more conceptually necessary). However, your adjustment is not enough, or you haven't reached the proper form for general treatments. In fact, you need address the issue regarding different cases. To see this, you may just consider the difference between the case where at least one of $\langle s1, t1\rangle$ and $\langle s2, t2\rangle$ is "closed" at $t1$ ($= s2$), and the case where both $\langle s1, t1\rangle$ and $\langle s2, t2\rangle$ are "open" at $t1$ ($= s2$). In the former case, you need use $<$ in the hypothesis; otherwise, Pat's example will be a valid counterexample. In the latter case, you need

> *... at least one is closed. So we have, since $s2 = t1$:*
>
> 1. $[s1, t1] \leq [t1, t2]$
> 2. $[s1, t1] \leq (t1, t2]$
> 3. $[s1, t1) \leq [t1, t2]$
>
> *where $\xi = [t1, t1] \in S$ in all cases.*
>
> *Note I used $\leq$, as required by the axiom of completeness. If I use lt, as you recommend, then all cases* trivially *fail.*
>
> *Pat's example:*
>
> - *trivially fails when using $<$,*
> - *trivially succeeds ($\xi = [q, q]$) when using $\leq$.*

This is exactly what I wanted to show and have shown a few times now. That is, in the case where your domain S contains intervals, to fulfill the axiom of completeness, S has to contain singletons (single points) as well, not as you specially claimed that S contains points or (exclusive-or) intervals. My observation that Pat's example would be valid is under your assumption that the domain S refuses to take both intervals and singletons (points). I think when Pat gave the example, he also followed this assumption of yours. (Actually, Pat did specially claim that "unless you allow intervals consisting of a single point" when he gave the example in ENRAC 24.4.1998).

> > use $\leq$ in the hypothesis; otherwise, your axiom cannot not prevent a "gap" between $\langle s1, t1)$ and $(s2, t2\rangle$, that is, there is no guarantee that the singleton $[t1, t1]$ is contained in S (Do you think this is consistent with the "classical" concept of contiunity?).

> *... the latter case. So we have, since $s2 = t1$:*
>
> *4.* $[s1, t1) \leq (t1, t2]$
>
> *where $\xi = [t1, t1] \in S$. I used $\leq$ here too.*

This is exactly what I have suggested in my message to you (see above).

> *The problem about intervals is whether one needs to introduce them into the temporal domain, and the few argument-examples I encountered are far from being convincing. Furthermore, in this debate, you and Hayes proposed the DIP, and I refuted it.*

The DIP was proposed much earlier in the literature. What you have done, is just a **re**-Writing of a model where the DIP arises. Could you please check carefully what exactly is the problem and if it can be solved by your formulation?

Jixin

This newsletter is issued whenever there is new news, and is sent by automatic E-mail and without charge to a list of subscribers, in plaintext format. The present postscript issue is a bona fide rendering of the same information in alternative typography. Instruction for contributors and other additional information is found at the following URL:

`http://www.ida.liu.se/ext/etai/actions/njl/`