

Re: Turing Machines and Physical Computation

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On Sun, 28 Nov 2004 03:38:29 +0000 (UTC), Neil W Rickert
<rickert+nn@cs.niu.edu> wrote:

>>> *I have trouble making sense of that. Why does an entity need a
>>> subject? If the number three is an abstract entity, what is its
>>> subject?*

>

>> *The marks that constitute the word "cow" are an entity, but if there
>> is no relationship between the marks and some distal
>> subject/object/whatever, then we're nowhere.*

>

> *That's a pessimistic view. Sorry to bring the bad news, but there is
> no relationship.*

I don't see how you can say there is no relationship, but don't even bother trying to explain.

OK, I passed on the hard question, what is the "subject" of the number three? Well, lots of smart people have expended a lot of hot air on that topic. Is there a three-ness, abstract or concrete, which is the subject of the symbol 3 as it is commonly used? I don't know. Is there a cow-ness, abstract or concrete? Can't really say. Something that I know I've not emphasized, is that there is no necessity for individual symbols to have fixed meanings such that their combination is directly generative. Individual bits tend to lack such meanings, as do individual letters, although both in aggregate tend to acquire meaning in larger granularities. Is the 3 in the number 32 the same as when it stands alone? I'm not sure such questions are valid. But, before a mark constitutes anything interesting, it must have a subject, I stand by that.

>> *On the other hand, your
>> question is fair, and it may be a result, and not a fair assumption,
>> that a (linguistic, symbolic, cognitive, sub-) entity needs a subject.*

>

> *A considerable amount of mathematics is done with symbols for which
> there is no subject. In fact, this is important, for it allows us to
> express general results. Later, we can interpret for particular
> subjects, but we can often prove the result without there being a*

>*subject.*

I want to dogmatically deny that. Now, let's see if I can. Some genius works out in the abstract that $2+2=4$. Has he done this without a subject, in such a way that a subject can later be recognized? I suggest not. I suggest what has been done is an exercise in the essentially physical manipulation of symbols, with a physically particular answer. This is sufficient for me to maintain my principles, though I can see some will consider it tendentious. Later, additional correspondences may be added to it. But I can do the same thing in writing about green dragons. Mathematics has no priority in any of this. Zip. Zero. Nada.

>>>*It seems to me that nominalism is an example of the cure for which
>>>there is no disease.*

>

>>*It seems to me that nominalism is what we do when we do computation
>>with modern programming and digital electronic computers.*

>

>*I can assure you that digital computers would work just as well if
>there were no nominalists around.*

Sure, that's the beauty of reality, they work just as well without any electrical engineers around, too, but they work by such electrical principles all the same.

>> *I'm not*

>>*sure computers cure any disease, but they are useful nonetheless and
>>in need of some explication to make them more useful yet.*

>

>*We can predict and control our computers to very high degrees of
>accuracy. The idea that we are lacking an explanation seems
>confused. If philosophy has difficulty accounting for computers,
>that only reflects on the inadequacies of philosophy.*

Show me a computational AI at work, and I'll grant your point.

>*Perhaps the concept of "computation" seems elusive, but the
>computers themselves should present no problems.*

I've used the metaphor before, but people made fire for years without really understanding heat and energy and oxidation and such, but if you want to build fancy, complex systems, you really do need such science. We're at the rubbing two sticks together stage still in computation, and I look to philosophy as the missing element – something that was **not** the case for combustion, except so far as "natural philosophy" had not yet separated out of the general philosophical background. In the area of computation, language, and cognition, I think the discipline will always be more philosophical than deductive. Tune in in fifty years and see if I'm right.

J.