

Re: Turing Machines and Physical Computation

Source: <http://sci.tech-archive.net/Archive/sci.math/2004-12/2642.html>

From: Neil W Rickert (rickert+nn_at_cs.niu.edu)

Date: 11/29/04

Date: Mon, 29 Nov 2004 04:34:57 +0000 (UTC)

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JXStern <JXSternChangeX2R@gte.net> writes:

>On Sun, 28 Nov 2004 18:50:21 +0000 (UTC), Neil W Rickert

><rickert+nn@cs.niu.edu> wrote:

>>*That's a poor example. Instead, consider the quadratic formula,*

>>
$$[-b \pm \sqrt{b^2 - 4ac}] / 2a$$

>>*Here the symbols "a", "b" and "c" have no subject, and the usefulness of the formula (i.e. its generality) depends on them having no subject.*

>*No subject, no use, no interest, and your "generality" is an illusion. If it hadn't already been proven particularly, nobody would pretend to the generality. I suggest what you see here is *repeatability*, not generality, and that is a very different thing, pretty nearly sui generis to computation.*

We clearly disagree here. That may have something to do with why we disagree about computation and about mathematics.

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

>>*That seems to be non-relevant. I agree that we are lacking an explanation of intelligence. And a working computational AI system might help fill that gap. But the lack of explanation is not in either computation or in computers.*

>*The putative difficulty in writing effective software is a more common and mundane version of the same thing, IMHO.*

That's actually a quite different problem.

Computation is the manipulation of representations. The difficulty

in writing effective software, is because we don't start with representations. Rather, we start with a real world problem of some kind. Thus we must first find a way to reduce the problem to one of manipulating representations. Until we have done that, it is not a computational problem.

– From an earlier posting:

>> *The wider phenomenon is that we
>>can have linguistic, quantitative, cognitive processes of distal
>>objects at all, and that is quite marvelous, but it seems a true
>>property of the universe, and I'm not sure you can say much more about
>>it than that.*

>*But surely this is what philosophy should be investigating and
>explaining. Instead, it is all taken for granted, and used as the
>basis for the creative fiction that is philosophy.*

You dismissed this. But it is where the problem lies. Finding useful ways of representing distal objects is hard work. It is the difficulty of solving this problem that makes it hard to write effective software.

>*It's an interesting point that, after thirty years of moaning about
>the difficulty and cost of writing software, you tend not to hear that
>complaint anymore. Perhaps now that it's all done in Bangalore,
>nobody in the states much cares.*

No, it is not that at all. It seems that the idea of software as the mechanical solving of problems (i.e. automation) has gone the way of the dodo. These days, software is all about writing GUI interfaces and other kinds of visual candy, so that we can keep people amused as they do the work that we are unable to automate.

And perhaps automation has become less valuable, now that we can outsource the labor-intensive work to other places.

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