Re: Poll: Are PCs Turing Machines?

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<spinoza1111@yahoo.com> wrote in message
news:1103022608.996483.99650@c13g2000cwb.googlegroups.com...
>
>> > Therefore, monster "problems", of the sort solved by TMs and not
>> > solvable by PCs, do not exist.
>>
>> So the only problems that "exist" are the ones that are solvable by
>> currently existing computers? The problem of factoring a 30 digit
> number,
>> for example, didn't exist until computers were capable of solving it?
> The
>
> Correct. If computer science is applied mathematics, then it is part of
> history. Its problem set is limited to problems that in principle can
> be solved. Of course, this set expands but owing to the daily struggles
> of computer scientists with material, concrete realities, to
> deliberately lapse into Marxist phrasing. They don't "exist" in
> Platonic la−la land prior to the date at which they are empirically
> solvable.
>

Mathematical Platonists say that mathematics existed before
even the earth existed and there were humans or computers.

Take probability theory. This is an abstraction like a Turing Machine,
which means it is non−physical. Saying it does not physically exist is
not the same as saying it does not exist as an idea. The idea arises
from the physical brain but does not have to correspond to anything in
physical reality, for example unicorns with magical (non−causal) horns.

People say unicorns and other non−existant physical ideas, exist in
the imagination. That is not an endorsement of Platonism which is
another notion. Your writing suggests that abtract non−physical
notions are necessarily claimed to have existence in Platonic la−la land.
Only Platonists believe this. Most people however, do not believe abstract
or imaginary ideas have anything to do Platonism or may not
have even heard of Platonism. There is no requirement that a product

of the imagination must some day have physical existence. That is called normal thinking not Platonism.

Claiming that a TM is abstract has nothing to do with Platonism, that is a strawman argument. Only Platonists believe that abstractions really exist in some Platonic realm. Regular people who talk about abstract notions reject such a claim of Platonism. Rejecting Platonism does not mean you can't talk about possible existence, whether or not such possible existence will actually be physically realized.

Problems that can "in principle" be solved or approximate the behavior of something non−physical when it occurs are found in probability theory. Probability is used to predict future events that have not yet happened. Those events may never happen. Probability theory talks about abstract events like flipping a coin a million times and determining the number of heads and tails. That may be physically possible. But the Central Limit Theorem can be applied to predicting the result of a billion, billion, billion times, some huge finite number of times that cannot be physically realized in the physical existence of the universe before heat death. Making some theoretical calculation which predicts an outcome in a physically impossible situation has nothing to do with Platonism. It would be a misunderstanding or misapplication of the Platonic philosophy. Because Platonists might think this situation belongs to the Platonic realm really has nothing to do with forcing this belief onto others.

PCs are physical and have all physical parts in a physical universe. TMs are abtract, non−physical ideas, which do not exist in the physical universe. The concept of a TM arose from a physical brain but that idea has no physical representation and is quite unlikely to ever have a possible physical representation. Because the imaginary TM tape has properties not found in the physical universe. And that is *not* a claim that the tape exists in a Platonic realm.

Talk about an infinite universe is talk about the physical universe and is irrelevant to the turing tape because it does not have physical existence. The TM tape has no requirement for a physically infinite universe. It has no physical requirements whatsoever. Besides, even if the universe expands forever, it does not mean that more matter is created. It is the current position of Physics that no more matter is created, that the present amount of matter becomes less dense. And it is matter, not space, which makes up and limits the substance available in the physical universe needed to construct physical memory for PCs, which performs a similar function to the magical TM tape.

It is quite easy to believe that PCs are physical and so are not TMs, while thinking Platonism is false. Platonism is not idea that the universe existed before humans evolved, constructed physical machines and entertained thoughts about imaginary events and conditions or other humanly generated thought inventions. Platonism is one possible view about universals:
"The oldest use of the term "realism" comes from Medieval interpretations

of Greek philosophy. Here "realism" is contrasted with "conceptualism" and "nominalism". This can be called "realism about universals." Universals are terms or properties that can be applied to many things, rather than denoting a single specific individual−−for example, red, beauty, five, or dog, as opposed to Socrates or Athens. Realism holds that these universals really exist, independently and somehow prior to the world; it is associated with Plato. Conceptualism holds that they exist, but only insofar as they are instantiated in specific things; they do not exist separately. Nominalism holds that universals do not "exist" at all; they are no more than words we use to describe specific objects, they do not name anything. This particular dispute over realism is largely moot in contemporary philosophy, and has been for centuries.

In another sense realism is contrasted with both idealism and materialism and considered synonymous with weak dualism. In still a third, and very contemporary sense realism is contrasted with anti−realism.

Both these disputes are often carried out relative to some specific area: one might, for example, be a realist about physical matter but an anti−realist about ethics.

Increasingly these last disputes, too, are rejected as misleading, and some philosophers prefer to call the kind of realism espoused there "metaphyiscal realism," and eschew the whole debate in favour of simple "naturalism" or "natural realism", which is not so much a theory as the position that these debates are ill−conceived if not incoherent, and that there is no more to deciding what is really real than simply taking our words at face value." http://en.wikipedia.org/wiki/Realism
−−

>They don't "exist" in
> Platonic la−la land prior to the date at which they are empirically
> solvable.

SH: This seems similar to Conceptualism or moderate realism later.* "Conceptualism holds that they exist, but only insofar as they are instantiated in specific things; they do not exist separately."

I think the universe existed prior to humans and did not need mathematics to continue operation or evolve humans. I think mathematics did not exist in the universe prior to human invention and that mathematics is a tool, like so many others humans have invented, to describe and predict reality gathered by human sensory perceptions of reality. That means humans can imagine abstract mechanisms for predicting reality which may or may not match reality. Mathematical predictions of reality have changed since Ptolemy, to Newton, to General Relativity, to Quantum theory. The human mind has evolved to register motion, changes in motion in linked events over a period of time: causality. But the notion of causality is itself a human evention, the universe certainly existed before humans evolved into it and it functioned without a name of causality being

applied to it. Causality did not create the universe. The universe
created humans with minds who invented words to make sense
of what they perceived. Platonism may seem like a religious belief,
but I don't think it purports to explain the existence or creation of
the universe. But of universals which they claim exist independently
of the human perception of universal patterns. But what humans
perceive is indistinguishable from an origin of the independent status
of universals from an origin of dependent status of universals which
comes from the source of human invention. From Wikipedia"

"The epistemological commitment of scientific realism is that acceptance of
a scientific theory is belief that what it says about unobservables is true
or approximately true. The semantic commitment of scientific realism is that
scientific theories are semantically literal, that is, that the language of
scientific theories is not interperetable into language about some other
domain without change in meaning. The normative commitment of scientific
realism is that scientific theories aim at truth about unobservables.

A further tenet of scientific realism is that scientific knowledge is
progressive in nature, that is, it builds on previous understanding."

SH: Platonism cannot be scientifically tested. But abstract theories
can be experimentally confirmed. The TM is not an abstract theory
about physical reality due to its use of a turing tape. It is not testable.
It is a conjectured behavior for an non−physical invented object. The turing
tape doesn't cover the same territory as the Church−Turing thesis.
Naturalism opposes the concept of Platonism.

Wikipeda again:
"Naturalism is any of several philosophical stances, typically those
descended from materialism and pragmatism, that reject the validity
of explanations or theories making use of entities inaccessible to natural
science. [SH: There would not be any inhabitants of the Platonic realm.]

As described by W. V. Quine, who is in large measure responsible for
naturalism's current pre−eminence among American philosophers, it is
the position that there is no higher tribunal for truth than natural
science itself. There is no better method than the scientific method
for judging the claims of science, and there is neither any need nor
any place for a "first philosophy," such as (abstract) metaphysics
or epistemology, that could stand behind and justify science or the
scientific method. Therefore philosophy should feel free to make use
of the findings of scientists in its own pursuit, while also feeling
free to offer criticism when those claims are ungrounded, confused,
or inconsistent: philosophy becomes "continuous with" science.
(Naturalism is not a dogmatic belief that science is entirely correct;
it is the position that science is the best explanation we have. We
have to start somewhere in talking about the world, and we don't have
better evidence for anything other than science; yet as we go along
we can still change it as we use it.)

Methodological naturalism (MN) or Scientific Naturalism is a
philosophical tenet that states that life exists in a single
natural universe, as supported by science. MN describes life
as a mechanically unfolding process; where everything is caused
and possesses an effect.

MN believes that each human being is an unfolding natural process,
and every aspect of that process is caused, and is a cause itself.
It states that what we are and do is connected to the rest of the
world because our bodies and minds are shaped by conditions that
precede us and surround us.

*Moderate realists, a variety of realists, hold that there is no
heaven in which universals live, but rather universals are located
in space and time wherever they are manifest. Now, recall that a
universal, like greenness, is supposed to be a single thing.
Nominalists find it weird that there could be a single thing that
exists in a bunch of places all at once. The realist maintains
that all the instances of greenness are held together by the
exemplification relation, but, again, this relation seems mysterious.

The resemblance nominalist will reply that 'cat' applies to both
cats in virtue of either the fact that Fluffy and Kitzler resemble
an exemplar cat closely enough to be classed together with it as
members of its kind, or that they differ from each other
(and other cats)quite less than they differ from other things, and
this warrants classing them together. Some resemblance nominalists
will concede that the resemblance relation is itself a universal,
but is the only universal you need. This betrays the spirit of
nominalism. Others argue that each resemblance relation is a
particular, and is a resemblance relation simply in virtue of its
resemblance to other resemblance relations. This generates an
infinite regress, but many agree that it is not vicious.

One way to be a nominalist without being an "ostrich nominalist" like
the predicate nominalists ("ostrich" because they seem to simply stick
their heads in the sand and pretend there isn't a problem−−the phrase
is D. M. Armstrong's) is to build a theory of resemblance nominalism
on a theory of tropes. A trope is a particular instance of a property,
like the specific greenness of this here shirt, or the singular coyness
of Gwyneth's smile. One might argue that there is a primitive, objective
resemblance relation that holds among like tropes. But that seems
arbitrary. Another route is to argue that all apparent tropes are
constructed out of more primitive tropes and that the most primitive
tropes are the entities of complete physics. Primitive trope resemblance
may thus be accounted for in terms of causal indiscernibility. Two
tropes are exactly resembling if switching them would make no difference to
the events in which they are taking part. Varying degrees of resemblance at
the macro level can be explained by varying degrees of
resemblance at the micro level, and micro−level resemblance is explained in
terms of something no less robustly physical than causal power.

Armstrong, perhaps the most prominent contemporary realist, argues that such a trope−based variant of nominalism has promise, but holds that it is unable to account for the laws of nature in the way his theory of universals can.

Ian Hacking has also argued that much what is called "social constructionism" of science in contemporary times is actually motivated by an unstated nominalist metaphysical view. For this reason, he claims, scientists and constructionists tend to "shout past each other."

SH: It seems to me spinoza makes some assumptions about what is entailed in some adversarial postings which are not implicit. The problem of universals being adequately explained by adopting moderate realism is a philosophical postion, not a matter of fact, and is not impervious to doubts about its plausibility. Not adopting moderate realism does not require jumping to the side of Platonism.

Why How is When,
Stephen