
From: [REDACTED] >
Sent: Wednesday, August 24, 2016 4:48 PM
To: Jeffrey Epstein
Subject: Re:

> On Aug 24, 2016, at 06:09, jeffrey E. <jeevacation@gmail.com> wrote:

>
> do you believe a bunch of chemicals has a goal, ?

It depends a bit on how we use the words; do you think that a bunch of chemicals can do mathematics or be money? I think it makes sense to say "yes".

A goal is part of a causal model that we use to describe an agent that =an commit to pursuing a world state. Outside of this model, the word =as no meaning. Within the model, it makes the behavior of some bunches =f chemicals somewhat predictable on a particular level.

I think most chemical systems do not have goals, in the sense that we =annot meaningfully ascribe to them that they have agency. For that, =hey need

- some kind of preference system,
- a way to determine and represent world states,
- a way to make decisions for world states based on the preferences,
- a way to act on decisions so that the preferred world state becomes =ore likely.

For instance, a corporation is an agent in this sense, and a cat is too. =erhaps [REDACTED] would say that cells can have goals, too.

A Roomba cleaning robot is a particularly good example: when it cleans =he room, it has no goal, because it has no model of the cleanliness of =he room, and no preference to make it cleaner. We can test for this: if =ts dirt container is full, it will happily make a clean room more =irty, because it just moves randomly around while rotating its brushes. =he cleaning is an emergent result.

On the other hand, when it runs low on battery, it will explicitly =earch for its power station and drive there to recharge, and after =hat, it will continue cleaning. It explicitly represents the charging =state, and when starved for power, it commits to a goal that makes it =irect its actions on entering that state.

[REDACTED], in his classical book "vehicles", looks at =ifferent kinds of cybernetic feedback systems, and at different kinds =f agency that can be implemented in them. My own thinking is mostly =haped by the ideas of social agency, by the Italian computer scientist [REDACTED], and by [REDACTED].

> isnt that in your words just one of the stories we tell =urselves.? why is it not merely chemicals

I would say that a goal is part of a "software specification". Nature =an get a bunch of chemicals to enact this specification. But it can =lso be done mechanically, electrically or socially.

> . like in a magnetic field forced to line up with other chemcillas =n the vicinity, . more liike magnets lining up.

Do you think there is a lowest level, and that it makes sense to =peculate what it is?

Fundamental physics explores the idea of the lowest causally closed =evel. I made an online survey during the FQXi conference, and got 49 =esponses from the participants. 18 believed that the universe is =undamentally just mathematics or information (8 of those think it is =ust information). 19 believe in a material universe (4 of those think =only space or spacetime exists). 15 respondents hold that a conscious =bserver or God is necessary (some of them overlap with the =aterialists).

For what its worth, the idea that only information is real does not seem =o be especially strange. What is your view/intuition?

You are right when you say that my view is strongly influenced by being = computer scientist. Once I made the leap that our observations of the =orld are fundamentally not different from what a computer game player =an observer on his screen, and that we can produce every conceivable =quence of observations via a computer program, I saw no way out again, =specially after I got to see observers/minds as computer programs, too. =everything we know about ourselves, we know through sequences of =bservations, too, and observations are sets of discernible differences == bits of information).

Cheers,

[REDACTED]

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