

Behavior understandable - at least up to a point

Unedited posts from archives of CSG-L (see INTROCSG.NET):

Date: Sun Jan 01, 1995 7:11 am PST
Subject: Re: PCT, up to a point

[From Bill Powers (950101.0700 MST)]

Here's 1995. Enjoy.

Lars Christian Smith (941231.1700 CET) --

(Asking for clarification of AN ESSAY ON THE OBVIOUS by Bill Powers, reprinted in _PCT Introduction and Resource Guide_). [RESOURCE.PCT]

ME:

>> I claim that human behavior is understandable as the operation of a highly systematic and orderly system - at least up to a point.

YOU:

> What is the point beyond which human behavior is not understandable as a perceptual control system? What aspects are not understandable as such? Why not?

I have no idea what consciousness/awareness/attention is (other than through personal experience). I don't know how memory works or how it fits in with behavioral organization, although I've proposed a few vague and so far untestable ideas. I have only a rudimentary formal idea of how higher levels of perception and control work (have a better idea of how mine work, but not yours).

Aside from ignorance due to lack of research or ideas, I think there are some basic limitations on our ability to demonstrate systematicity and order in behavior.

The main limiting factor is reorganization. Because reorganization as I see it requires an arbitrary non-algorithmic component, we can't predict the outcome of any reorganization process. We might be able to predict that whatever intrinsic error led to reorganization is highly likely to be corrected by the result of reorganization. But among the possible new organizations that would have this final effect, there is no way even in principle to predict which one of them will be found.

There is another fundamental limitation on predicting behavior, and that is the fact that visible behavior is largely a matter of opposing environmental disturbances. Even if I know for certain that you have a certain goal, intend to make your perceptions match it, and will employ a particular kind of action to do so, I can't predict your specific actions. The reason is that I can't predict what the environment is going to do. Even knowing that a given person will always open an umbrella to keep from being rained upon, we can't predict the weather even one day ahead in a specific location, so how could we possibly predict a day in advance whether that person is going to open an umbrella?

There is also the matter of chaos -- not the fancy butterfly-pattern stuff, but the simple fact that each process in the physical world begins exactly where the last one left off. In all but a few very simple circumstances, such as in celestial mechanics, our ability to extrapolate from the present to the future is severely limited by the hypersensitivity of open-loop processes to small variations in initial conditions. The non-living environment has no goals, so there is nothing to constrain the outcomes of multiple interacting

forces to any one specific condition. This means that even in principle our ability to predict future states of the environment is limited to the short term. The world is full of genuine bifurcations of causality, which put a fundamental limit on predictions.

Finally, human actions interact with other human actions in this variable environment. Even if each person controlled only one variable in one location, predicting human interactions would amount to solving (at present) five billion equations in five billion unknowns -- in a constant environment. The actual problem is far worse than that, of course. So the concept of literally "predicting and controlling human behavior" is just a pipe-dream of no practical importance.

So what is left? Understanding and short-term, contingent, prediction. If we know what a person's purposes are, right now, and that reorganization is not going on at too fast a pace, we can predict some of the outcomes of that person's actions. We may not be able to predict actions, but knowing purposes gives us a view into the future that is longer than what we could otherwise achieve: purposes determine outcomes if not actions. If we can predict disturbances a little way ahead, we can predict action too, given that the purposes of the action are constant for the time being. We can test our understanding by using artificial environments in which disturbances are carefully limited, only particular ones under our control being allowed. We can persuade people to maintain constant purposes for reasonable lengths of time, to test our grasp of the basic processes at work. All this can show us that behavior is not random, and that purposes are the chief determinant of human futures. We can learn to have respect for others as autonomous systems like us even if we can't -- or perhaps because we can't -- predict or control their actions.

Beyond that, who can say? We've only just begun to think about behavior this way. Who knows how the problem will look to researchers 100 years from now? Or to you or me, next year?

Best, Bill P.