What is revolutionary about PCT?

Post to CSGnet September, 2017

[Martin Taylor 2017.09.14.13.11]

PCT IS REVOLUTIONARY. Let's take that as a starting point. But what makes it so is less easy to understand.

ONE COULD LOOK AT THE EFFECTS that might be expected if it was widely accepted. Would anything change much? If a lot of things would change drastically, then that would be a reason for calling it revolutionary. But if just slipping it in "under the hood" as it were, in the way one can change software modules without changing their interface to the world, should it then be called "revolutionary"? I can't prove it, but I think the way laws are designed might change drastically, and for the better socially. My belief is that PCT is revolutionary in this sense.

ANOTHER APPROACH MIGHT BE TO CONSIDER whether acceptance of PCT would change ways of looking at problems in different domains that are usually considered unrelated. The "Behavioural Illusion" might flag this possibility. If effects are first examined as possibly being caused by people controlling certain perceptions, then approaches to solutions for problems created by those effects might be quite different from the approaches that treat people as pawns in a greater game. The "Behavioural illusion" is only one indicator of this possibility. Maybe PCT could offer an approach to solutions for problems that seem to have no solution. Then it would be revolutionary. I believe PCT is indeed revolutionary in this second sense, but again I can't prove it other than by pointing to a few examples, the best of which is probably the effectiveness of the Method of Levels (MOL) in psychotherapy, but that really is no proof.

A THIRD APPROACH (which merges into the fourth) is whether PCT uses a radically different but simpler approach to explaining data than comparable theories that claim to explain the same data. Comparing, say, Predictive Coding Theory or "Ethogram Theory" with PCT, both start with the data and try to explain it, deriving mechanism from the observations. Moreover, Predictive Coding Theory is not applicable to all living organisms, whereas PCT claims to be. PCT starts with a mechanism and predicts the data, using observations based on the effects of different influences on the object of study, and uses those observations only to fix parameter values that are already required by the mechanism. The difference is like that between an observational science such as astronomy, in which the objects of study cannot be influenced by the researcher, and an experimental science like physics, in which the researcher's main tool is to influence the objects of study. On this ground also, I think PCT is revolutionary.

A FOURTH APPROACH (and the one that seems most persuasive to me) is the Ockham's Razor approach, which looks to the theory itself rather than to its influence on the conceptual world in which it lives or the real world in which we all live. I believe this one can be argued more rigorously to demonstrate the revolutionary nature of PCT.

Occam's Razor (Okham, Ogham, ... Nobody worried much about spelling a few hundred years ago), is a philosophical principle that has long been used to discriminate among scientific theories. It has been thought "a nice idea", but it is one that can be put on a firm analytic footing. A working paper from 1972 (which prefigures Kolmogorov uncertainty) is at http://tinyurl.com/SharpenOckhamsRazor.

This analytic form of the Razor balances the range over which a theory claims to describe and predict data, the precision with which it describes or predicts the data it claims to do, and the complexity that is needed to explain the theory beyond the background knowledge of the person to whom it must be explained.

This last, which links the acceptance of a theory to the culture background of the person who does or does not accept it, is often the most important, and it is the basis for the familiar expression of the Razor—when two theories explain the same data, the simpler is to be preferred.

The word "simple" seems simple, as do its relatives. But they really are not. What seems simple to me may not be simple to you, or to a person brought up having to hunt for food. To the latter, the trail of a deer may be simple, whereas to you and me it consists of a complex pattern of bent grass, shifted sand grains, broken twigs, and the like. A theory that depends on harmonic spectral analysis would be simple for someone well versed in calculus, complex for a student beginning to understand differentiation, and incomprehensibly magical to the hunter for food. Is the idea that the perception of pitch is related to the placement of spectral peaks on a frequency scale simple or complex? That depends on who you are and what you have learned already. So Ogham's Razor is person-specific, and culturally specific to numbers of people with similar backgrounds.

By itself, the surface simplicity of a theory is not enough to make it a preferred theory. For example, the theory "That's the way God made it" fits well with the background knowledge of many people, and has done so down through the millennia. It is indeed very simple to almost everyone, and maybe it should be preferred on that basis. But complexities emerge even in such a "simple" theory, at least if the theory is to be accepted outside a well-delimited circle. For example, which God was it who made it that way, and what is the scope of his/her power? For people within the same circle, these are things they have already learned, and the theory is simple, but for others, the explanation of the correct God's properties and prowess may be complicated, and may directly contradict what the target person already "knows".

Even in its simple form as understood by members of the appropriate sect, "That's the way God made it" does not describe any data beyond what was actually observed, and predicts very few if any future observations with any accuracy. Over the millennia other theories, perhaps less wide-ranging and requiring education in order to make them simple, which do describe and predict data beyond what was directly observed, have come to be preferred by large numbers of people. For example, Newtonian or Einsteinian gravity serve better than does a theory that imputes the fall of an apple to "natural affinity" of the apple for the earth on the grounds that when the apple falls, the earth may like it well enough to generate a new tree. The affinity of a thrown ball to the earth must have a separate kind of rationale, such as that they are both round and have a natural affinity for each other.

So, what is a "revolution" in science? From the Occam's Razor point of view I would argue that a theory is revolutionary if it simultaneously has a wider range of claim than other theories that explain some of the same data, is more precise in predicting at least some of the data, and is at the same time simpler to describe to a wider range of people than popular theories.

I believe PCT is revolutionary in this sense, as it claims to explain not only laboratory experiments but also the observed actions of all living things, not only singly, but in groups of interacting organisms—the sociosphere, the ecosphere, the political sphere, and so on. It is easy to describe in terms that people generally understand ("You act to make the world more as you would like to see it") and easily elaborated from that simple statement to deal with specialized situations. Even the simple basic statement is more precise than "That's the way God made it", because once you know what someone wants the world to be like, you can say something about what the person is likely and unlikely to do if they actually do anything.

If a theory has much generality, it requires several parameters to explain the data observed in specific circumstances. If it is very specific, it requires relatively few. In some area, specialized theories may describe the data more precisely, but to do so, they add complexity to their descriptions. You don't have to read academic books to get the basic idea of hierarchical perceptual control, but you have to do a lot of study if you want to understand how the brain might solve huge systems of simultaneous equations on the fly when the person wants to pour and drink a cup of coffee (as is proposed by some versions of predictive coding theory). On all three criteria, Ogham's Razor suggests that PCT is a revolutionary theory that ought to be considered as a basis for matters that have to do with the behaviour of living organisms.

I have proposed four criteria that each by itself would be sufficient to claim something to be revolutionary. I believe PCT satisfies all four criteria.

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