Objective modeling vs direct experience

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

Date: Mon Mar 07, 1994 11:26 am PST
Subject: Knowing

[From Bill Powers (940307.0820)]   Bill Leach (940307.0021)

Glad you've broken the ice with BCP. When you've finished it, you'll find two
chapters that my editor cut out of it in LCS II: the one on emotion and the
one on the method of levels.

Bill Leach (940306.1903 EST) --

>   I sort of accept that a "control loop" can not "know" anything about the
     disturbance. I'm not so sure that I fully accept the idea that the
     entire control system can not have knowledge about the disturbance.

RE "knowing" (anything):

This is a difficult subject because it straddles two worlds: the world of
objective modeling in which we try to "reverse-engineer" the nervous system,
and the world of direct experience, where we experience the operation of the
same system from the viewpoint of an occupant of the brain.

In the PCT diagrams of control systems that you see in BCP and elsewhere, you
will never find anything labelled "awareness" or "consciousness." From the
modeling standpoint, all that is required for us to say that a perception
exists is that a perceptual signal be present in the appropriate pathway.
Perception of a cubical shape requires that signals representing the sensory
attributes of the cube (sensations) enter an input function capable of
generating a perceptual signal whose magnitude indicates the degree to which a
cube is perceived to be present. There is no requirement that the person as a
whole have any consciousness of experiencing a cube.

The reason for this odd-sounding concept is that if control depended on
conscious awareness of perceptual signals, then only those control systems
containing perceptual signals of which we are consciously aware could work.
Conversely, we would have to be conscious of all perceptual signals in all
control systems that are actually working at a give time. Neither premise fits
experience. When I am typing this stuff, I am aware of the words I choose
appearing on the screen and of a sort of scrabbling of fingers over the
keyboard, but I am not aware of the joint angle control systems, the velocity
control systems, or the force control systems that are converting my desire
that a given letter or word appear on the screen into the specific reference
signals being sent to the lower-level systems, and the resulting states of the
controlled perceptual signals. Yet if I wanted to, and shifted my focus of
awareness, I _could_ be conscious of at least a great part of those lower-
level perceptual signals. I assume that's true of everyone.

It's the hierarchical structure that causes the biggest problem. I can be
aware of control processes at a certain level, but the scope of awareness,
mine at any rate, is limited. If I'm "concentrating" on how to get a program
to print something out into a text file, my consciousness is almost totally
preoccupied with the logical and procedural goals and the difference between
what the program IS doing as opposed to what it SHOULD BE doing (the German
word for reference level is SOLLWERT -- should-be). But while I'm thus
preoccupied, the shifting higher-level errors are being continually translated
into more specific lower-level goals, and so down the hierarchy all the way to
the systems that are doing the typing for me, keeping me from falling out of
the chair, and so forth. Clearly, in order to control the perceptions I am
conscious of, there must be countless other perceptions at lower levels that
are also being controlled. In fact, even for the higher levels of perception
in consciousness to _exist_, the lower-level perceptions of which they are
functions must also exist. But I'm not simultaneously aware of those lower-
level perceptions, for the most part.

This problem exists in the other direction, too. While I am working out the problem of printing the data to a file, I know that my goal is to get the data printed to the file, but WHY I am trying to reach that goal is not in direct awareness. When I finally solve such a problem, I sometimes have a moment of disorientation: now just why was it that I wanted to print that data to a file? Then there's a sort of "Oh, yes!" feeling as I return my awareness to the higher-level process in which solving this particular problem was only a means to an end.

If the higher-level control system hadn't been working, there would have been nothing to supply the goal to the system where my awareness was. So clearly, the higher-level control system can go right on working when my awareness of it is absent. This means it must have had an intact input function, perceptual signal, error signal, and output function, all humming quietly away, working totally automatically. Again, perceptual signals exist and MUST exist without being in awareness. Only now we are talking about perceptual signals at levels _above_ the level of awareness.

So when we speak of what a control system "knows", we have to keep the question of consciousness separate. The knowledge in a control system consists entirely of its perceptual signal. We must also, however, remember that this is a multi-ordinal model with perhaps 11 levels in it and many systems at each level. The knowledge contained in one perceptual signal at one level is put together with knowledge in other control systems at the same level to create knowledge at a higher level in the form of higher-level perceptions. From the same body of lower-level perceptions there may be many different ways of extracting knowledge at a higher level, in many different control systems operating in parallel. A cube-signal, put together with other configuration signals, can lead to signals representing rate of spin, bouncing off other objects, spatial relationships with other objects, symbols representing the cube and its relationships, temporal functions, logical functions, principles, and system concepts -- all at the same time although at different levels.

With awareness out of the picture, we have a system that contains signals at many levels representing various aspects of a world at various levels of abstraction. It carries out all functions of a living human system, including thoughts, feelings, actions, goal- seeking, whatever. It's just a big analogue-digital computer, with no more awareness of its own internal processes than my 80486 has.

When you put awareness into this system, what you get (according to my hypothesis) is the effect of connecting a bunch of perceptual signals to some sort of receiver. This receiver needs no cognitive functions, no computing capacities, no capability for action: all it does is receive. When it does receive, we get a conscious world composed of some subset of all the perceptual signals in the hierarchy. The whole hierarchy continues to function as usual; the only difference is that we become aware of some part of its functioning. Then we feel that we are consciously _doing_ the things that the hierarchy would be doing anyway. When control systems in the hierarchy experience an error and produce actions, we sense the error-based output, through the imagination connection, as what we are doing to achieve the goal - - we the conscious observers, not just the automatic machinery. But it is the learned control systems that are actually doing the doing, the thinking, the cognizing -- even when the doing is something as intellectual as making a choice or a decision, or formulating a plan, or making a judgment. The observing system makes no judgments. It is simply aware.

The other side of awareness is volition: producing a change in a reference signal in the hierarchy for a reason unconnected to anything that is going on in the hierarchy. And I can make a case that awareness and volition are associated (vaguely) with the reorganizing system, so that awareness can serve to focus the process of reorganization. You'll be getting to that in BCP eventually.

All of this is a rather extreme position, saying that awareness or consciousness carries out NO functions in the hierarchy; that the hierarchy does every last thing that we call either physical or mental, and without awareness being required. Being stated so firmly, this hypothesis can easily be disproven, by finding effects on control processes that result from shifting awareness. I am quite sure that such effects can be found -- but

until they ARE found, and experimentally verified, the hypothesis as it is now stands.

Out of this hypothesis, the method of levels grew. This is a method of psychotherapy in which a person is encouraged and helped to move the locus of awareness up one level at a time, each shift bringing the focus of reorganization to bear on a new level of organization, and presenting to consciousness a world organized in a new way. When carried as far as possible, as Kirk Sattley and I did experimentally about 40 years ago, this procedure leaves a person in a state of what seems to be pure awareness, with many of the operations of the hierarchy being laid out to view but with no identification of awareness with them, no participation in them. One is then what David Goldstein and I have come to call the Observer. It was through working this method with a particular patient that David was able to help a woman with multiple personalities to begin reintegrating. The woman came to understand completely what was meant by "the Observer," and from that time on, any personality could be reached through the Observer.

For all I know, the Observer is another level in the hierarchy that I haven't been able to identify. Maybe there are levels beyond that (one mystical and somewhat nutty friend once said, "Oh, there are THOUSANDS of levels!"). That doesn't much concern me. Working out this whole scheme at the levels we sort of understand is enough of a project for one lifetime.

Knowledge and aware experience are different things. Knowledge is just one perception as a function of other perceptions. It covers the whole range, from sensations to system concepts, and it requires no awareness for it to exist. It's just how we become organized to perceive and act on the world. Or so it sez as of March, 1994.

Best,   Bill P.