

Chapter 16

Explaining other theories

How does PCT explain the phenomenon of reinforcement, by which a “response” is presumed to be “strengthened”? To answer that I will take a little excursion to use the analogy of the Ptolemaic universe.

Some thousands of years ago, astronomers noticed that all the stars moved across the sky in a fixed arrangement except for a very few. Those few would move along with the fixed stars for a while but then slow and move in the reverse direction for a while. Soon, however, they would reverse again and go along with the rest. Only a certain few stars did that. The ancient Greeks called those stars wanderers. The astronomer Ptolemy, living in the second century A.D., apparently believed, like most people at the time, that the sun, moon, and stars revolved around the earth. But then how could those wanderers be so erratic?

Ptolemy worked out a geometric model, with the earth at the center of circular orbits, that could explain how those planets could move regularly, all the time, but appear to move irregularly. He used three clever tricks to fit his model to what he observed. His best-known trick was to assume that the planets did not stay right on their circular orbits, but revolved around a point which, in turn, moved along the orbit. The small circle moving along the large circle of the orbit is called the epicycle. I’ll give you an analogy. Suppose a friend of yours ties a rock to a string and swings it in a horizontal circle above his head. Now suppose he walks in a circle around you, all the time whirling the rock (slowly) around his head. His circular path around you is his orbit. The circle of the rock around his head is the epicycle. As you watch your friend, your gaze turns steadily in the direction he is walking. But if you watch the *rock*, (the planet), you will be moving your head (or eyes) one way for a while and then the other way. Imagine that the rock is a small light and that you are watching it in a pitch-black

night. The light, like the planet, would move first one way and then the other, but would overall make steady progress in one direction—along its orbit. That was an ingenious model.

Later, Nicolaus Copernicus (1473–1543) came along with a model that assumed the sun at the center. That idea was an important advance for astronomers; it made most of the epicycles unnecessary. The idea was, however, a shocking idea to most people for many reasons, including religious ones. Galileo (1564–1642) was later to suffer interrogation and house arrest by the Roman church for advocating Copernicus’s view, but Copernicus himself was already on his deathbed when his book *De Revolutionibus Orbium Coelestium* was published. Then a contemporary of Galileo, Johannes Kepler (1571–1630), figured out how to do away with any vestige of the epicycles by putting the sun at one of the two focuses of an ellipse.

Let us be fanciful here and imagine a conversation between a Ptolemaic astronomer and a Keplerian astronomer:

Ptolemaic astronomer:

Well, now, how does this new theory of yours explain why planets travel in epicycles?

Keplerian astronomer:

It doesn’t explain why they do that.

P: Well, I guess your theory doesn’t amount to much if it can’t deal with an important problem like that.

K: Our theory says epicycles don’t exist; they are illusions.

P: Illusions! What I can see with my own eyes is an illusion? When I can look up there night after night, and plot the backward motion of a planet with my own eyes, as can anyone else, you call that an illusion?

K: We think it looks like that not just because of the motion of the planet, but because of the motions of both planet and earth.

P: Motion of the earth? Motion of the earth! Did I hear right? What nonsense! If I were you, I'd be careful where I say things like that!

Similarly, when PCT people are asked to explain how reinforcement comes about, they say they don't explain it, because it doesn't come about; it is an illusion. It looks that way more because of what the experimenter does than because of what the rat does.

EXPLAINING TRADITIONAL CONCEPTS

Proponents of PCT are often asked by professors of psychology how PCT explains one or another concept in traditional theories—aggression, conditioned stimulus, conflict, ego, groupthink, hypnosis, identity, insanity, intelligence, language, learning, motivation, personality, reinforcement, and so on. Many of the traditional concepts look very different from the viewpoint of PCT—motivation, for example. Some of the traditional concepts seem to PCTers to be names for sheer fancies and illusions—stimulus and response, for example. Because the world looks so different under the assumptions of PCT than under the assumptions of linear and sequential causation, I have not tried to organize this book the way traditional texts in psychology are organized. Instead, I simply started from what I thought was the bottom and wrote up and out. I have had the advantage, of course, that I have not had to explain dozens of disconnected theories—only one.

We should not demand that a new theory explain how old ideas fit into it. Often, an old idea is irrelevant. How does a whiffletree fit into an automobile? It doesn't fit into it; an automobile has no use for one. How does a topsail fit onto an airplane? How does a miasma fit into the germ theory of disease? It is not the case that a good theory should explain every idea that was cherished by older theories; sometimes the phenomena didn't actually exist, but were simply postulated (and believed) because the old theory seemed to call for them. In the theory of impetus, for example, thrown objects were given an "impetus" that carried them along but gradually faded. When the impetus was exhausted, the object fell straight down. That was believed for a long time, and the word is

still a part of our everyday vocabulary. Impetus, however, did not fit into Newton's theories of motion and gravitation. Newton's theories had no explanation for impetus, because impetus did not exist in his theories. Newton boldly ignored any presumed necessity for a cause of continued motion and simply postulated that motion continued until interrupted.

"Nature abhors a vacuum"—that was the way people a few hundred years ago explained the fact that water or air rushed into empty places. How does a theory of gravitation explain nature's abhorrence of a vacuum? It does not explain it, because that abhorrence does not exist in Newton's theory of gravitation. The earth and atmosphere gravitate toward each other, but there is a lot of vacuum (or near-vacuum) out there between the planets.

Lavoisier's theory of burning did not explain how phlogiston works. Einstein's relativity does not explain the workings of the "ether"—the medium in which light waves were once presumed to form.

PCT does not explain how reinforcement or conditioning works. Objects in the environment are of course used in acts taken to control perception, but the objects themselves do not cause acts—they are neither incentives nor stimuli in the sense of sufficient causes. PCT does not explain reinforcement, because PCT does not assume that "stimuli" have the power to move people. On the contrary, PCT postulates that people have the power to move objects. See the section on asymmetry in Chapter 3.

PCT will not tell us which traits will show up most often in factor analyses of answers to questionnaire items. That is like asking which items on a restaurant menu will be chosen most often. That depends on the items offered and the culture from which the diners have drawn their tastes. That remark may shock some readers; I will say more about the topic in Chapter 26.

Acts that look like "learning" to a traditional psychologist look very different to a PCT psychologist; most of them look simply like repeated use of a means of controlling perception. (The repetition, of course, depends on the function of memory.) Another kind of learning occurs when the internal organization of standards undergoes revision; sometimes that reorganization is accompanied by strong emotion. See Chapter 20.

In PCT, motivation is not something that someone else does to you. Food, money, sexual copulation, or an "A" grade in school will seem "motivating" only