The "It" That is Steady in Steady States

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Tactics of Scientific Research reflects the strength of its author as a teacher. For those who have listened to Murray's talks and lectures, the pages literally speak in his voice. The presentation is clear, calm, and logical—the cadence measured, the tone soothing—all sources of the long and useful life of this text.

Because the work is so systematic, there is little to criticize about Sidman's argument on its own terms, and our criticism is not of this sort. It arises, instead, out of a disagreement with the assumptions underlying the work.

We wish to focus on one example: the implicit definition of behavior. This issue is not a trivial one, nor is it beyond the scope of the volume. How one conceptualizes behavior shapes what one says about such topics as steady state behavior, stability criteria, and the like.

Sidman, like many behavior analysts, is not clear about his fundamental analytic units. He often seems to treat behavior as an object, alone and cut off from the organism, its history, and the sources of stimulation that are psychologically present for the organism. An example is his discussion of steady states. A steady state is "one in which the behavior in question does not change its characteristics over a period of time" (Sidman, 1960, p. 234). What is being referred to by the phrase "the behavior" in this sentence? When does behavior not change its characteristics over time?

In measurement terms, what is meant is that the rate of a particular kind of effect on the environment (e.g., the rate with which a key is depressed by the organism) does not vary greatly over time. This kind of stability undoubtedly occurs, but it does not *define* behavior. Key pecking, considered as an isolated event, might be said to be "steady" because of regularities in deflection of the key, or the resultant movement of a pen across

a moving sheet of paper. But when behavior is understood as a historically and contextually situated interaction, there are no "steady states." The organism-environment interaction is necessarily evolving, regardless of the rate of a particular measured aspect.

The behavior analytic tradition is divided on this subject. On the one hand there are mechanistically-inclined behavior analysts, accustomed to thinking of stimuli and responses as ontologically distinct pieces, related by mechanical forces and powers. It is not difficult to find contemporary behavior analysts speaking of stimuli as changes in energy impinging on the nervous system, and behavior as muscle movements and glandular secretions (e.g., Michael, 1990). Conversely, more contextualistically-inclined behavior analysts view stimuli and behavior as an interactive event (Hayes, Hayes, & Reese, 1988). Contextualists are concerned with action in and with a context—both historical and situational. This interaction can be broken up, even mechanically, for pragmatic purposes, but in their view the resulting parts do not have ontological status.

A mechanical view of behavior seems implicit in *Tactics*. For example, Sidman struggles with the implications of events that produce "irreversible changes that make it impossible to recover an earlier state of the behavior" (p. 241), and concludes in any case that there are "almost no data available which describe irreversible behavioral processes" (p. 252). But if "behavior" refers to the interaction of a whole organism in and with its environment, behavior can never be "recovered" or "reversed" regardless of the similarities of rate. *Tactics* tempts one to believe that behavior showing the same rate as was observed earlier is the same. This would be true only if behavior is interpreted as an object, defined solely

on the basis of such measures. We would do better to think of recovery and reversibility as a convenient fiction for specific analytic purposes.

It is not that we must avoid talk about "steady states." On the contrary, under some circumstances there are good reasons to do so. However, we must not confuse expressions that *might, on occasion*, usefully focus attention on particular empirically-useful aspects of an evolving interaction between an organism and its environment, with statements about the nature of that interaction. We should also remember that thinking of behavior as "steady" *might, on occasion*, cause serious difficulties for the experimental analysis of organism-environment interactions.

There are several examples of such difficulties. For example, it was once common for behavior analysts to report the results of studies using animals with unknown histories. As later experiments failed to replicate using animals with different histories, this practice has become less common. Had behavior not been conceptualized as an object, this misstep would never have been taken. Many other examples could be given. For all that

Tactics contributed to behavior analysis, it detracted by promoting the idea that behavior is a discrete thing—a thing that can be defined independently of the organism's history and its current psychologically-effective environment.

From a contextualistic perspective, "steady states" reflect not a state of behavior but a state of ignorance—ignorance on the part of the scientist. Behavior is never steady, but it may appear so in one of its measured aspects. With this in mind we would either look elsewhere for the differences, or remember that we are acting on a fiction for pragmatic purposes.

REFERENCES

- Hayes, S. C., Hayes, L. J., & Reese, H. W. (1988). Finding the philosophical core: A review of Stephen C. Pepper's *World hypotheses: A study in evidence*. *Journal of the Experimental Analysis of Behavior*, 50, 97–111.
- Michael, J. (1990, March). *Special topics in behavior analysis: Stimulus change, learned motivation, memory, and others*. Workshop presented at the meeting of the Northern California Association for Behavior Analysis, San Francisco.
- Sidman, M. (1960). *Tactics of scientific research: Evaluating experimental data in psychology*. New York: Basic Books.