

REVIEW AND COMMENT ON FRALEY

NATURAL SCIENCE HAS A HOME

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First, I should summarize Fraley's position. I see him arguing that the current position of behavior analysis grows out of the beliefs of certain pioneers in the field. Those beliefs have brought behavior analysis to the point of disappearing into the bowels of traditional psychology; whereas it should be a rising star in the heavens of the natural sciences, as its exciting debut had promised. The fault lies with some of the pioneers (e.g., Skinner) who advised behavior analysts to stick with traditional psychology departments as their guest, even if that created two opposed subject matters (as opposed in orientation as science is to creationism, if I read Fraley correctly). As a result, behavior analysts now barely get equal time with traditional psychology in teaching a science of behavior. The major historical justifications for that guest status were access to resources, and the premise that with those resources, the work would be done that could change the host from within-the host would be rationally compelled to change by the objective evidence of the superiority of the new natural science. Behavior-analytic efficacy would compel traditional psychology to reform its subject matter. Those two beliefs were probably construed at the time as an experiment about to be done; if so, now it is clear that the experiment has failed. Indeed, these beliefs have been nearly fatal to behavior analysis: The hosts have appropriated its efficiency, have called it other names, and are now selling its achievements as their own. That is very bad for behavior analysis, because those achievements, together with their underlying, previously quite clear logic, are now muddled with the host's inherently dysfunctional logic and language. Thus, we see now that when the behavior analysts tried to buy into traditional psychology, they actually sold out. Now is the moment for them to cut their losses and leave. After all, it is not a biological relation that will be broken-it is not a matter of family.

To help that happen, even a handful of behavior analysts might reaffirm the independence of the discipline, perhaps in part by renaming it "behaviorology"-as several had proposed a few years ago. If that diminishes its resources, so be it. (Is it a case in which a sour apple, bitten now, may in fact free the seeds that become independent trees, which create the necessary and well-deserved academic homes for all future fruit within the discipline?)

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In part, Fraley's position is that the host had better be abandoned, because it suffers from an endemic problem: religiosity-some form of mysticism. In that light, Fraley must see behavior analysis as lucky, in that it can leave without biological injury or family loss. The family roots of behavior analysis, in fact, always were in the natural sciences (apparently, Fraley cannot see the host, traditional psychology, as a natural science). Because the true subject matter of behavior analysis is symbolized as "environment/behavior," it is a matter of interactive functional relations between the two terms (reminiscent of the older Kantorian position called interbehaviorism). In the future, research had better analyze those relations for behaviors, which scientists are meant to explain.

Now let us turn to Fraley's arguments.

Are Natural Scientists, Religious or Nonreligious, Guarantors of Homes for Science?

My reaction to Fraley's arguments, particularly those on the personal, spiritual belief systems of psychologists, cannot exclude the historic perspective on belief systems of scientists in general: Scholars have commented that knowledge in the natural sciences, and acutely that at the turn of this century, ushered in a form of secularism, and that this secularism produced nihilism for ethics and for religion. That nihilism produced anxiety, even among those natural scientists who had contributed to the body of knowledge (cf. Kueng, 1992/1991, pp. 590-591, and Johnson, 1987, pp. 418-421, for reviews). Worse than anxiety, nihilism produced a Kafkaesque world view marked by loss of hope. This loss of hope facilitated the advent of totalitarian systems like Communism and Nazism with their endemic anti-Semitism and anti-Humanism (Kueng, 1992/1991, pp. 590-591). While such an interpretation of history can be admired for its scholarship, it cannot be demonstrated scientifically. (Scholars of history do not fail to remind us of the horrors produced by religious agents.) History reports that many natural scientists, notable for dramatic advances in science, did adhere to beliefs beyond science (e.g., Darwin, Einstein, Kepler, Newton), and that more than a few scientists hoped that their science would prove their meta-scientific, political, or racial beliefs (cf. Gould, 1977; Morss, 1990). A well-known example was Einstein in his search for a unifying theory on the creation of the universe (cf. Johnson, 1987, pp. 418-421). Similarly, scientists and intellectuals of the Nazi and Communist eras looked for scientific verification and support for totalitarianism (cf. Arendt, 1994; Fast, 1957).

It follows that determination of personal belief systems of psychologists, or of scientists in general, may not be a reliable variable for producing a natural-science home for behavior analysts. And it may not be a reliable variable because of the kinds of questions science can only ask.

We have a body of knowledge called natural science, including the science of behavior, because we have attempted to describe the workings of a natural universe, not because we have attempted to answer nonscientific "Why" questions. Dawkins (1995) remarks that Science, by its very nature, cannot answer "Why" questions. He cautions that, thereby, there must not exist other disciplines that can just because a majority of humans share a deep longing for answers to nonscientific questions (pp.

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96-97). It follows that one cannot expect science to replace cultural values contained in Torahs, Bibles, church congregations, etc., nor can science mandate the absence or presence of belief systems which embody those values.

A Natural Science of Behavior Can Have at Least Resourceful Mobile Homes

I doubt that new buildings, new names, and the isolation of behavior analysts gets to the problems the author would like to solve. If we have problems, why not train ourselves and our trainees with effective sets of self-instruction? Best are those self-instructions which generalize and endure in a variety of homes, particularly those homes leanest in fellow-scientists. Then science is at home wherever one goes with a set of self-instructions. Resourceful canons of self-instructions may be effective in recruiting research monies. Current or future hosts of any orientation may welcome resourceful behavior-analytic guests.

A short, random selection of self-instructions might go as follows (but individual scientists may construct their own scenarios for checking whether their home tolerates scientific behavior):

- Report as science only what has been measured with the tools of science;
 - Convince the scientific community that the tools of science have been used according to rules described to the audience (cf. Sidman, 1960);
 - Keep measuring and reporting events, whether they uphold or discredit cherished beliefs;
 - Let science dictate *how* to measure, not *what* to measure, and only what can be accommodated within the scientist's ethical belief system;
 - Report in ways that preclude common misleading simplification, generalization, or popularization of scientific findings: For example, do not extrapolate the Heisenberg Uncertainty Principle on observation of *small-scale* events to *large-scale* observations, or to nonobservation (cf. Feynman, 1995/1963); know that Darwin (1859) discussed "survival of the fittest" for *biological* evolution (e.g., pp. 51-68), not for cultural events—even though Darwin used metaphors purposefully to simplify scientific language (e.g., p. 52);
 - Borrow metaphor from one science to illustrate another science, but know that the loan does not thereby acquire the *mechanism* of the illustration;
 - Evaluate with colleagues and students nonacademic literatures which come in scientific wrapping: For example, do graphics support the assertion that in American business culture bankruptcy is a lucrative escape from accountability for reckless business? (cf. Barlett & Steele, 1992, pp. 66-87);
 - Know that the subject matter requires measurement of functional relations between events, not measurement of absolutes.
 - And so on ...
- Now I turn to my current academic home.

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The Department of Human Development: A Home for a Natural Science of Behavior

Baer (1993) described the seeds, variation, and selection from which the Department of Human Development and Family Life (HDFL) at the University of Kansas evolved. He portrayed a wide array of programs: For example, three specialized Master's degree programs, and a Ph.D. degree program in Developmental and Child Psychology, which offer training in early childhood education; in school-community applications; in politics-driven community applications; in personalized systems of instruction for introductory course teaching technique; in biomedical research; in cognitive child development; in cognitive-behavioral child clinical practice, including collaboration and joint appointments with the Department of Psychology.

Wright (1997), a cognitive developmental psychologist for twenty-eight years in HDFL, summarized some of the work typically produced by behavior analysts in HDFL for developmental, educational, clinical, social, or community psychology, and for professionals in counseling, education, management, corrections, special education, preventive behavioral medicine, and related fields as follows:

The people who do this work the way they were trained to do it at Kansas, and those who train others to do it at Kansas, represent some of the most imaginative, rigorous, careful, precise, and effective human problem solvers there are anywhere. . . . Those who are paradigmatically predisposed to dismiss applied behavior analysis as a small, redundant, and self-absorbed corner of the world of social engineering should open their minds. . . (pp. xi-xii).

But Wright also remarks that the measure of success he admires in behavior analysis nonetheless does not compel him to convert to behavior analysis.

Wright (1997) says that science is at home, and that behavior analysis is at home in a department as diverse as Baer (1993) had sketched it. It is a good home for me too, because it tolerates the canon of self-instructions by which I practice science. (My training occurred in the best of all possible worlds for a science of behavior—with an Interdisciplinary Master's of Science from what was then the Center for Behavior Analysis at the University of North Texas [now the Department of Behavior Analysis offering a Master's in Behavior Analysis], followed by a Ph.D. in Developmental and Child Psychology from the Department of Human Development at the University of Kansas.)

Conclusion for an Academic Home

To support the arguments offered in the manuscript reviewed above, behavior analysts need a scientific measure for evaluating what type of home will produce effective natural scientists studying the science of behavior. I doubt that leaving psychology departments, renaming behavior analysis, or mandating personal belief systems for scientists, will help such a measure. Perhaps we get closer to such a measure by studying the behavior of scientists—when and where they do science, and whether their self-instructed standards match objective measures or, if not, can be taught to. This is most convincing, of course, when generalized for survival in

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isolated niches of scientific communities. We can then demonstrate that the behavior of a scientist can be affected by the experimental provenance of standards for doing science, and that scientists can carry and practice this repertoire of standards as mobile homes, always ready for public evaluation. Then science is at home, wherever scientists stay or go.

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