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ON TERMS

On Behavioral Analysis[1]

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The entertaining and generally healthy discussion of the epistemic peccability of "applied behavior analysis" being conducted in these pages (e.g., Michael, 1980; Pierce & Epling, 1980; Woods, 1980) and elsewhere (e.g., Dietz, 1978) indicates, by omission, that a careful re-examination of the term "analysis" has become overdue. The use of this term and its several variants (analyze, analyst, etc.) in phrases that also include the word "behavior" has become so imprecise that little or no resemblance to that which was originally tacted (Skinner, 1953) remains evident. Rather than dwell on a disputable list of examples, let us consider carefully the proper use of the word "analysis" in conjunction with behavior. Thereafter, the reader should have no trouble locating examples in abundance.

Dictionaries offer several meanings of the word "analysis" that collectively connote "separation into component *parts* or *elements*" (italics added). If we accept in a definition of the word "behavior" reference to ". . . the interaction of the organism with its environment . . .," it becomes clear that "the analysis of behavior" is a separation, into components, of the influences on this defining interaction. The focus of analysis in any single instance can be on (a) the response(s) observed, (b) the environmental variables correlated with their occurrence, or (c) both. The latter case embodies the most sophisticated form of analysis—the isolation of functional relations between measurable response characteristics and controlling factors in the environment. Only when all variability surrounding such a relation has been accounted for is the analysis complete, and then only at that given level. Further dissection or elaboration of either variable in a functional relation inevitably reveals fresh variability, and analysis proceeds anew. Fortunately for those who are simultaneously committed to this enterprise and mistrustful of the fate of the Social Security System, the analysis of behavior can never be complete. It can, however, be effectively pursued by application of appropriate scientific tactics (Johnston & Pennypacker, 1980; Sidman, 1960; Skinner, 1956); persons wishing to join the effort are therefore encouraged to do more than merely co-opt the label.

Whether the term "experimental" or "applied" should be appended to the description of a particular product of behavior analysis is of little consequence compared to the mischief created by using the word "analysis" to describe a demonstration of a relation that is totally bereft of any attempt at analysis. The problem may not be limited to misapplication of "cure-help contingencies" (c.f., Pierce & Epling, 1980) but may, I suggest, be the result of a serious misunderstanding of the process required to bring into being an effective curing or helping procedure, regardless of the underlying domain of scientific inquiry. For example, effective medical procedures usually result from clinical identification and isolation (through analysis) of a peculiar set of reactions. The strategy then is to attempt to reproduce the phenomenon in the laboratory where controlled experimental analysis of its determinants and constituent processes can be accomplished. During this process, variables that modify

[1]I am indebted to my colleague, J. M. Johnston, for urging that I write on this topic. But for his gentle insistence, my contribution could easily have dealt with something banal like measurement. Requests for reprints should be sent to the author, Department of Psychology, University of Florida, Gainesville, Florida 32611.

or reverse the phenomenon of interest are often discovered and isolated, and the process of synthesizing a cure can begin. Thereafter, clinical evaluation of the resulting procedure or compound is conducted and a product or method becomes available for use. Repeated demonstration of its clinical effectiveness is rarely, if ever, mistaken for analysis.

There are alarmingly few parallel accomplishments in our discipline, largely, I believe, because the initial analysis at the clinical level rarely takes place. There is certainly no shortage of "socially significant" behavioral problems to which the methods of behavior analysis could profitably be applied, but the all-important first step of clinical analysis is lacking. Instead, we seem content to demonstrate, with the aid of a simple reversal or multiple baseline design, that the phenomenon of interest is susceptible to alteration by the application of some totally unanalyzed treatment package or procedure. If the resulting relation resembles a functional relation described in a basic text on behavior principles, we attach the appropriate descriptive term (reinforcement, extinction, generalization, etc.), delude ourselves and the public into believing that something of explanatory substance has been wrought, and claim another victory for behavior analysis. The embarrassing part of all this is that good behavior analysis (particularly on the independent variable side) is being done routinely by people in other disciplines, for instance the psychologists and engineers in the military/industrial community who design hardware for complex man-machine "systems."

Successful analysis of the sort I am advocating is a long-term, often cumulative, process that is merely launched, not completed, by a crude demonstration of controllability in a natural setting. By today's standards, Lindsley's signal undertaking of an experimental analysis of the behavior of psychotic humans (1956) would have been judged complete with the demonstration that plunger-pulling could be hand-shaped and the resulting behavior brought under some degree of control by suitable scheduling of reinforcers. Far from being a complete analysis, Lindsley's efforts now make possible, nearly 30 years later, exploration of the effects of a new class of potential determinants: minute traces of biochemicals that can be at least partially removed and isolated through hemodialysis (Wagemaker & Cade, 1977; Partin & Johnston, Note 1). Thus the analytic search continues, aided by an early preliminary analysis that left an invaluable body of methodological information as well as precise descriptions of behavioral variability that could *not* be accounted for by the techniques then available.

No doubt other examples of successful attempts to begin analyses of socially significant behavior exist within our discipline. Certainly the advent of automated instruction created the conditions under which behavior of educational significance could be analyzed but, notwithstanding the legions of converts to the cause of behavior analysis in education, progress in this area has been disappointing. The same can generally be said of behavioral medicine (Fuqua, 1980) although the infestation of the medical arena by self-proclaimed behavior analysts is perhaps too recent to be expected to have provided an analysis of at least one medically relevant behavior. In any case, the *analysis* of behavior, with all that the term implies, grows increasingly rare in proportion to the number of people who identify themselves with the principles and who may soon be certified by the Association for Behavior Analysis as competent in the practice. Having so ordained ourselves, it is time for the armchair analysis to cease and the real work of behavior analysis to begin.

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