Book Note

Analyzing the Behavior Stream: Bakeman and Gottman's *Observing Interaction: An Introduction to Sequential Analysis*

Dennis J. Delprato
Eastern Michigan University

Behavior analysis has not adopted to any great degree the method of sequential analysis, yet this methodology, a subfield of behavioral systems methodology (Ray & Delprato, in press), has much to offer behavior analysis. Two leaders in sequential analysis teamed up to prepare a well-written primer that basic and applied behavior analysts should find useful, illuminating, and compatible with the essentials of behavior analytic methodology (and theory).

There are numerous points of correspondence between sequential analysis and behavior analysis. One is that both stress accurate descriptions of organism-environment interactions. Another is that the focus of sequential analysis on event sequences relates to behavior analysis's emphasis on contingencies. In brief, the basic sequences of sequential analysis closely correspond to those of $S^D \rightarrow R$ and of $R \rightarrow S^R$. One difference is that sequential analysis requires no *a priori* commitment concerning the theoretical status of the components in the antecedent-response-consequence sequence. Indeed, one great contribution that sequential analysis can make to behavior analysis is the empirical identification of "naturally occurring" (or inadvertent) positive reinforcement, negative reinforcement, extinction, punishment, and other classes of operant interactions. An early example of this is Truax's (1966) classic analysis of Rogers' therapy sessions in terms of therapist-patient-therapist interaction sequences. Truax's striking findings were

twofold. First, Rogers' reactions to his client were conditional upon the patient's responses (e.g., Rogers' displays of empathy were significantly correlated with patient responses that client-centered therapists consider to be indicative of positive therapeutic progress). Of course, orthodox client-centered therapy holds that the therapist's responses are to be independent of the patient's responses. Second, over the course of therapy, Rogers' selective responding to the patient was associated with increases in response classes he inadvertently targeted (i.e., empirical confirmation of positive reinforcement interaction).

Bakeman and Gottman's specific interest in social interactions leads them to ignore yet another important contribution sequential analysis can make to behavior analysis. Specifically, sequential analytic methodology is applicable to response sequences and, hence, to the identification and study of sequential response patterns. Numerous studies in the behavior analysis literature suggest that the functional response unit often is best taken as a sequence of response occurrences (Delprato, 1986).

Schoenfeld (1972), a behavior analyst of long standing, discussed the need for methodologies such as sequential analysis. Schoenfeld is one of the few behavior analysts to attempt an integration of behavior analysis and field (e.g., Kantor & Smith, 1975) perspectives. Such thinking led Schoenfeld to make some distinctive suggestions that are best addressed with sequential and related methodologies, for instance: (a) more consideration should be given to the continuity of behavior, (b) the response is better treated as extended spatially and

Published by Cambridge University Press (pp. xiv+221). \$20.95. Address correspondence to Dennis J. Delprato, Department of Psychology, Eastern Michigan University, Ypsilanti, MI 48197.

temporally instead of as a punctate event, and (c) the need for multiple-event measurement. Behavior analysts have with some justification complained that the integrated-field perspective has not fostered particular methodological strategies. Sequential analysis is a distinctive methodology that falls within the framework of field thinking (see Delprato, 1986; Ray & Delprato, in press). Basically, Bakeman and Gottman offer ways of describing what Schoenfeld refers to as the *behavior stream*.

As presented in this volume, sequential analysis is closely related to, but is not identical with, time-series analysis and the individual organism research design. Sequential analysis and certain applications of time-series analysis may be resisted by behavior analysts who maintain that one of the advantages of the individual organism design is its lack of need for statistical hypothesis testing techniques. Such individuals could cite with disapproval the use of *z* scores as scores in further analyses, for example. However, if one takes into consideration that resistance to inferential statistics in the experimental analysis of behavior has been founded, in part, over a concern that no extraspatial constructs be admitted into the science of behavior via the backdoor of statistical manipulations of data, one will note that contemporary sequential analysts such as Bakeman and Gottman pass this test with flying colors—they offer fine-grained *descriptions*. The other main rationale for statistics-free behavior analysis is the “strong effects” argument. We are told that if we have identified truly important controlling variables, then we will not have to detect signal in noise to squeeze out weak effects. The response of sequential analysis to this point is too involved to take up here. Suffice it to note that physical scientists have not been content to restrict themselves to eyeball effects. Instead, they have found indispensable various meth-

odological innovations involving instrumentation and statistical analysis.

In brief, sequential analysis is one way of detecting patterns in behavioral events. Simon (quoted in Klir, 1985) pointed out that, “Histories of science written in terms of processes that discover patterns in nature would seem closer to the mark than histories that emphasize the search for data to test hypotheses created out of whole cloth” (p. 102). Clearly, Simon’s remark applies to the histories of sciences that are further along than is behavioral science. For to date, even the most advanced approach to psychological behavior, behavior analysis, has only begun to contact the centrality of patterns in behavior (Delprato, 1986; Henton & Iversen, 1978). The routine use of sequential analysis or comparable methodologies in analyses of behavior would assist in keeping behavior analysis in the forefront of attempts to approach behavior scientifically. Bakeman and Gottman’s primer is recommended as an excellent introduction to sequential analysis.

REFERENCES

- Delprato, D. J. (1986). Response patterns. In H. W. Reese & L. J. Parrott (Eds.), *Behavior science: Philosophical, methodological, and empirical advances* (pp. 61–113). Hillsdale, NJ: Erlbaum.
- Henton, W. W., & Iversen, I. H. (1978). *Classical conditioning and operant conditioning: A response pattern analysis*. New York: Springer-Verlag.
- Kantor, J. R., & Smith, N. W. (1975). *The science of psychology: An interbehavioral survey*. Chicago: Principia.
- Klir, G. J. (1985). *The architecture of systems problem solving*. New York: Plenum.
- Ray, R. D., & Delprato, D. J. (in press). Behavioral systems methodology: Investigating continuity and organization in developmental interactions. In S. H. Cohen & H. W. Reese (Eds.), *Life-span developmental psychology: Methodological innovations*. Hillsdale, NJ: Erlbaum.
- Schoenfeld, W. N. (1972). Problems of modern behavior theory. *Conditional Reflex*, 7, 33–65.
- Truax, C. B. (1966). Reinforcement and nonreinforcement in Rogerian psychotherapy. *Journal of Abnormal Psychology*, 71, 1–9.