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DESCRIPTIVE ANALYSIS: QUANTIFICATION AND EXAMINATION OF BEHAVIOR–ENVIRONMENT INTERACTIONS

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It has been argued that the study of behavior is much like the study of other natural-science phenomena. Like physical principles and laws of physics, there are behavioral principles and related laws. Understanding behavioral principles allows an applied behavior analyst to better understand social and environmental influences on behavior and to solve problems related to aberrant behavior. Most of us are familiar with the law of gravity in physics: Under certain conditions (e.g., in a vacuum tube in a laboratory), any two items (e.g., a feather and a wrench) dropped simultaneously from a given height will both reach the ground at the same time. Similarly, behavior analysts understand that the principle of reinforcement is in effect when a stimulus follows a response and, as a result, that response is strengthened in terms of rate or some other dimension (e.g., duration). This principle has been demonstrated innumerable times in experimental preparations with humans and nonhuman animals in laboratories and natural settings. Less well understood, however, is how to observe and quantify the effects of reinforcement in behavior–environment interactions as they naturally unfold in nonexperimentally manipulated conditions. In the field of applied physics, scientists take the laws of gravity and then adapt them to account for variables that, at times, exert influence outside the highly controlled laboratory environment. For example, we do not live in a vacuum; therefore, objects fall around us at varying speeds. Thus, there is a formula in physics that takes into account the effects of air resistance. To better understand the influence of particular variables on behavior and to systematically and effectively address severe behavior problems, behavior analysts have isolated and manipulated environmental variables in experimental analyses of behavior. Further, functional analysis of behavior, described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) to specify the operant reinforcers for aberrant behavior, has evolved for use in a variety of settings in treating a variety of target behaviors with a variety of populations. These analyses all involve the isolation and manipulation of variables for the purposes of controlling the independent variables and predicting their effects. However, if laws and principles of behavior are like physical principles and laws of physics, then it seems that we should be able to observe and quantify their effects in natural,

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nonexperimental conditions. The emerging practice of conducting quantitative descriptive analyses is an example of applied behavior analysts' attempts to account for and understand the effects of social and environmental influences on behavior as behavior–environment exchanges unfold naturally in day-to-day interactions, and how those interactions influence patterns of behavior (Martens, DiGennaro, Reed, Szczech, & Rosenthal, 2008).

This special section on descriptive analysis consists of three different kinds of papers. The first paper by McComas et al. presents technical discussions of descriptive analysis methods with illustrative data sets. The next set of papers detail various approaches to the analysis and interpretation of descriptive data and the implications of each approach (Camp, Iwata, Hammond, & Bloom; Pence, Roscoe, Bourret, & Ahern; Samaha et al.). The final two papers seek to answer specific applied questions regarding environmental influences on behavior, using descriptive methods (Addison & Lerman; Hughes). It is our hope that these papers will (a) improve understanding of different approaches to the conduct of descriptive analyses and their implications, (b) increase capacity to conduct descriptive analyses, and (c) stimulate readers to consider new possibilities for systematically examining the influence of social and environmental influences on behavior.

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