## ESTES ON HIGHER ORDER CLASSES OF BEHAVIOR

The view which now seems to be best supported by a wide range of evidence is, in brief, that mechanisms of reward and punishment are basically the same in animal and human learning, and in human learning at all levels of development, but that owing to wide variations in response organization, the phenotypic manifestations may be very different. . . .

In more mature human beings, much instrumental behavior and, more especially, a great part of verbal behavior is organized into higher-order routines and is, in many instances, better understood in terms of the operation of rules, principles, strategies and the like than in terms of successions of responses to particular stimuli. . . . In these situations it is the selection of strategies rather than the selection of particular reactions to stimuli which is modified by past experience with rewarding or punishing consequences.

If one who is attempting to describe and predict the behavior of an adult human learner fails to take account of these behavioral organizations, and attempts to construct an account in terms only of individual stimulus–response units, the principles of operation of rewards and punishments may appear to be quite different from those revealed in simpler experiments with animals or immature human learners. Actually, it may be that the principles of operation of these factors are the same in all cases and that the difference lies in the nature of the behavioral units whose probabilities are being modified as a result of the experience with various types of outcomes. (p. 23)

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*From:* Estes, W. K. (1971). Reward in human learning: Theoretical issues and strategic choice points. In R. Glaser (Ed.), *The nature of reinforcement* (pp. 16–36). New York: Academic Press.

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