ratios the number of choices of the major stimulus by the Guidance group was significantly less than for the Noncorrection group.

The Noncorrection group learned the reversal from 60:40 to 40:60 more rapidly than the Guidance group. The groups do not, however, differ significantly in percentage of responses to the major stimulus over the last 100 trials on this ratio. Both the Guidance and Noncorrection cats achieved satisfactory maximizing behavior on the final 30:70 problem.

Discussion

The results of this investigation indicate that cats, when tested on spatial probability with the noncorrection or guidance methods, learn to select the more frequently reinforced stimulus on almost every trial, and that Ss trained with noncorrection learn to maximize much more quickly than Ss trained with guidance. These findings on cats are generally consonant with the data for rats and monkeys. Rats (Bitterman, Wodinsky, & Candland, 1958; Roberts, 1966) and monkeys (Wilson, 1960; Wilson & Rollin, 1959) usually maximize on spatial probability learning tasks when tested with guidance or correction. In addition, it has been shown that monkeys learn to maximize in many fewer trials when tested with noncorrection (Wilson & Rollin, 1959) than with guidance or correction (Wilson, 1960).

It should, however, be pointed out that there is a wide range of variation among the mammalian species in the rate that they learn to maximize on spatial

problems when tested with guidance. The present sample of cats required 3700 trials. Rats apparently maximize on 70:30 spatial problems in about 100 trials (Bitterman, Wodinsky, & Candland, 1958; Roberts, 1966). Rhesus monkeys (Wilson, 1960), trained on a 75:25 spatial problem with guidance, attained a level of 90 percent responses to the major stimulus only after 384 trials. The range, and somewhat paradoxical distribution, of species differences in performance on spatial probability tasks suggests the possibility that qualitatively similar behavior, i.e., maximizing, may not reflect completely homologous processes in different mammalian species.

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Note

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Reply to Goldstein by Ronald Baenninger, Temple University

Goldstein (1967) has said that I attribute the extinction of visually reinforced responses in Siamese fighting fish to habituation. My argument, however, was more subtle, and can be clarified in the following way.

Habituation is defined by Goldstein (1967) as the waning of a response as ". . . a result of repeated presentation of a constant stimulus." The problem is that Goldstein is not clear about which constant stimulus he is talking about. In the visual reinforcement paradigm there are two constant stimuli during acquisition; a ring through which S is supposed to swim, and a mirror which elicits aggressive displaying by S. Extinction refers to a waning of swimming through the ring when the mirror is no longer presented; habituation refers to a waning of aggressive displays to the mirror.

Hinde (1966) reports finding habituation of the aggressive display. My results (Baenninger, 1966) demonstrated that the tendency to approach display-eliciting stimuli may also wane.

I propose that these two types of waning are not independent. If waning of the display response to the mirror occurs, then it seems quite likely that the response of swimming through the ring in extinction

trials may also wane more rapidly than if the mirror response had not habituated to some extent. I believe that the situation in Goldstein's experiment is analogous to extinguishing a satiated animal, or at least one who is partially satiated. A number of experiments (Yamaguchi, 1951; Koch & Daniel, 1945) have demonstrated that rats which are satiated, or partially satiated, just prior to extinction trials do show minimal resistance to extinction when compared to Ss who learned under similar conditions but are deprived in extinction. The unusual acquisition curve, and the precipitous extinction rate found by Goldstein (1967) in his experimental group, may even be explained in this fashion.

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