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Rats in Bliss: A Minimum-Deviation Model of Ratio Schedule Performance

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Poster Presentation 15

RATS IN BLISS: A MINIMUM-DEVIATION MODEL OF RATIO SCHEDULE PERFORMANCE

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The minimum-deviation theory predicts that an organism will seek to minimize the relative behavioral distance between an unconstrained baseline condition and the constrained condition caused by reinforcement schedules (Staddon, 1979). According to the minimum-deviation model proposed by Allison (1983), behavior under scheduled constraint will come as close as possible to an unconstrained "bliss point" or behavioral ideal. The present experiment examined applications of these models to fixed ratio (FR) schedules. In a previous study conducted in our lab, Witte (1994) examined the use of a minimum-deviation bliss point model for response prediction on a simple interval schedule of reinforcement. The model failed to predict the rate of responding; rats pressed a bar consistently more often than predicted by a minimum-deviation model. Although variable interval and variable ratio schedules of reinforcement have not been directly compared within the performance models, the minimum distance-models have proven successful for predicting responding on simple ratio schedules (Allison, 1983). The present study sought to substantiate the findings of previous experiments. Fixed ratio schedules such as those used in earlier research by Allison (1983) were used in conjunction with the apparatus and parameters employed by Witte (1994). Six rats were first exposed to a paired baseline procedure to establish their individual bliss points. Each rat was then exposed to a series of three variable ratio schedules: VR 10, VR 20 and VR 40. The results have implications for minimum-distance models of learning and performance.