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The Effects of Circadian Entrainment on Operant Conditioning

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THE EFFECTS OF CIRCADIAN ENTRAINMENT ON OPERANT CONDITIONING

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The matching law has been a prevalent theory in behavior analysis for the past 30 years. According to the matching law, responding in an operant conditioning chamber should be a monotonic function of reinforcement rate. However, several studies have predicted bitonic functions. One reason for this discrepancy may be due to circadian entrainment. There is evidence that rats are sensitive to circadian rhythms (body rhythms such as the need for sleep and food are effected by the time of day and the amount of light available) and that rats are capable of entraining to two feeding times per day. The present experiment attempted to discover what role circadian rhythms might have in shaping the variable interval response function. Rats were exposed to either day-time or night-time sessions under four different reinforcement schedules. Although significant differences were found between reinforcement schedules, there were no significant effects of session time. This may be due to the sensitivity of circadian rhythms in an experimental setting. Further research will examine more closely the role of rhythms in behavior analysis.