$p < .05$). For all 3 days, the percent of animals that chose black following white exposure was lower than the percent of animals that chose black with no preexposure. Thus white exposure leads to an increased preference for white rather than to a decreased preference. If it is assumed that the rats tend to avoid white initially because of its fear-provoking characteristics, then exposure allows for the dissipation of the fear and thus an increased tendency to choose white.

Lester's (1968) reanalysis and experiments indicate some of the difficulties in studying choice behavior in a one-trial situation. For the two-trial case, formulas exist for correcting expectancies in terms of position or stimulus preferences, but for the single-trial experiment, equivalent formulas do not exist. Clearly position preferences or brightness preferences may affect the outcome of a preexposure study. Consider the data reported by Lester (1968) in which 40 of 57 animals on a nonexposed day chose black. If this choice frequency is indicative of a persisting organismic tendency, then simple randomization may not be an adequate control. If black-preferring animals are assigned to the black-exposure group, then any preexposure effect would be less likely to be exhibited, since the relatively brief exposure period would have to overcome an organismic tendency. One possible solution to this problem is to use each animal as its own control and expose every animal to all experimental treatments.

A methodological difficulty prevents comparison of the Lester (1968) study and the Pate & Anders (1967) study. We noted the possibility that stimulation intervening between the exposure and the choice could be important, and a major goal of our study was the elimination or control of extraneous stimulation during the interval between exposure and choice. This control was accomplished by using the exposure box as the startbox of the T maze. Lester (1968) stated that the only difference between his Study 2 and our experiment was that he transferred his rats from the exposure box to the maze while we only opened a door—this may well be a critical difference rather than a trivial one. In concluding that preexposure in a different locale has no effect, Lester cites another of my studies (Pate, 1967) and indicates that I failed to replicate my own results. In fact, the study cited (Pate, 1967) was an attempt to extend my earlier findings rather than an attempt to replicate the Pate & Anders (1967) study. In that study (Pate, 1967), it was shown that even when preexposure has no effect on subsequent choices, latency may be affected. In conclusion, it remains an empirical question as to whether or not preexposure in one locale affects later choice behavior in some other locale.

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Reply to Pate

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Several comments are appropriate with regard to Pate's (1970) comments on my study (Lester, 1968).

Pate makes a distinction between several questions: Does preexposure result in alternation, is choice behavior related to preexposure brightness, and is the rate of alternation related to preexposure brightness?

The first and third questions cannot be answered accurately if position and brightness preferences are not taken into account. These preferences affect the chance-expected amount of alternation in the experiment. Pate & Anders (1967) used a chance-expected amount of alternation of 50%, since they were not able, using their experimental design, to estimate position and brightness preferences.[1]

Since these two questions cannot be answered accurately, I chose to investigate the second of the three questions.

Pate's use of the data from Day 15 of the first study reported in my paper to compute a brightness preference was not utilized by me for the very reason that he gives. We have no evidence that the brightness preference of rats is stable during an experiment. It would seem likely that it may change as a result of their experiences with the stimuli during the experiment. Thus, Pate's computations based on the data from Day 15 of my study seem methodologically unsound.

It is true that my study does not correct for brightness preferences. However, that does not matter, for I am asking a question that does not require me to do so.

With regard to my reporting of Pate and Anders's data, there was a typographical error in my paper.

According to Guilford (1965), a correction for continuity is made in the chi-square test because data in 2 by 2 contingency tables is discrete, whereas the chi-square distribution gives values for a continuous scale. Thus, it seems to me that the correction for continuity is always appropriate.

In conclusion, it appears to me preferable to ask a question that can be answered accurately than one that cannot, given the limitations of experimental design. Further, Pate gives no reason why I should not conclude from my studies that preexposure failed to affect subsequent stimulus choice. My conclusion must stand.

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NOTE

1. The effect of position preferences in two-trial spontaneous alternation is to reduce the chance expectation of alternation to below 50%. Thus, the use of 50% as the chance-expected amount of alternation is to be conservative. The effect of brightness preferences in the study of preexposure effects may be similar. A944C