Causal Necessity and Alternative Strength Differentially Influence Predictions and Causal Judgments

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Introduction

Several studies have demonstrated causal discounting: subjects judge a moderately effective cause (the target) to be less effective when learned about in the presence of a strong alterative cause as opposed to a weak alternative (Goedert & Spellman, 2005). However, in these studies the presence of the moderately effective target cause was necessary to produce the outcome in the weak, but not the strong, alternative condition. Thus, differences in ratings of the target may have reflected sensitivity to the necessity of the target for the outcome, rather than discounting per se.

Additionally, discounting has yet to be assessed in subjects' predictive judgments. As others have found dissociations between causal judgments and predictions (Matute, Vegas, & Marez, 2002; Perales et al., 2005; Tangen & Allan, 2004), subjects' predictions may or may not be sensitive to the strength of an alternative cause.

The aim of this study was to determine whether subjects discount a moderately effective target cause in both their causal judgments and predictions regardless of the necessity of the target.

Method

Fifty-nine subjects participated in either the strong alternative condition, or one of two weak alternative conditions, one in which the target was not necessary to bring about the outcome and another in which it was. Subjects received contingency information over 72 trials in which they saw some combination of a red and blue liquid (the target and alternative cause) applied to a plant, predicted whether the plant would bloom (the outcome), and received feedback. After 36 and 72 trials, subjects independently rated the effectiveness of each liquid on a scale from -100 to +100.

Results & Discussion

As depicted in Figure 1, causal judgments of the moderately effective target were reduced in the presence of a strong alternative, but did not vary with the necessity of the target, $F(2, 86) = 9.64$, $p < .01$. Unlike the causal judgments, subjects predictions (Figure 2) varied with the necessity of the target but not the strength of the alternative, $F(2, 85) = 6.34$, $p < .01$.

These results reveal a dissociation between causal judgments and predictions. In causal judgments, subjects discounted and did not show sensitivity to the necessity of the judged cause. In predictions, subjects did not discount, but did show sensitivity to the necessity of the judged cause.
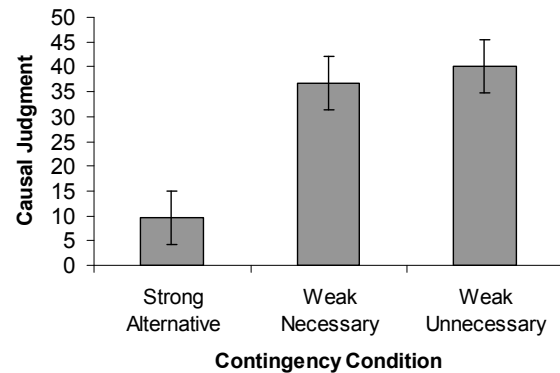

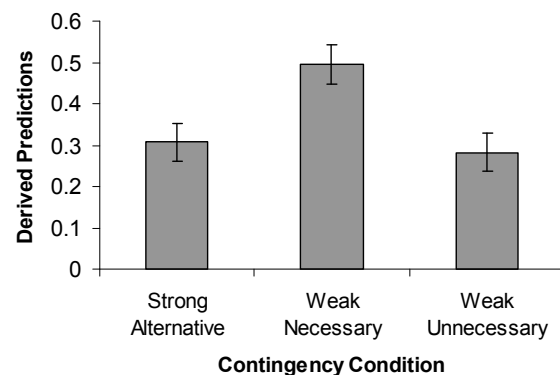Figure 1: Causal ratings of the moderately effective target.

Figure 2: Predictions for the moderately effective target

References

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