An Explanation of Decoy Effects without Assuming Numerical Attributes

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Abstract

Similarity and preference theories face similar effects but their methodologies vary enormously. In this paper, we present an explanation of decoy effects using semantic (non-numerical) stimuli. People had to choose from a set of news the closest to a reference one. We discuss the consequences of the assumptions made by the JDM and similarity communities in explaining context effects.

Some researchers have defended that preference judgments and similarity judgments involve common processes (Dhar & Glazer, 1996; Medin, Goldstone, & Markman, 1995). The similarity literature is full of examples on how people vary the dimensions that they use with a wide array of context manipulations. Surprisingly, the literature on preference and context effects (also called decoy effects) has always given participants the dimensions that they have to consider. Typically, participants have to select between goods such as cars, televisions, etc, defined using two numerical dimensions. The selection this methodology simplifies the design but may be obscuring the most interesting parts of the phenomena of context effects in human decision making. At the same time, most articles on context effects in decision making (e.g., Dhar & Glazer, 1996; Huber, Payne, & Puto, 1982; Huber & Puto, 1983) conclude with a reference to the difficulty to generalize these findings to real world situations.

Theories about the psychological processes implied in decoy effects can be classified into three families: (1) Changes in the weights of the dimensions (e.g., Tversky & Simonson, 1993). In their "extremeness aversion" model, Tversky and Simonson proposed that the decoy "stretches" the dimension where it increases the variance (see also Dhar & Glazer, 1996). (2) Range-frequency theory (e.g., Huber et al., 1982) explanations argue that the decoy affects the range and frequency distributions of the attributes, changing their appeal. (3) Dominance-valuing, (justifiability) models (e.g., Simonson, 1989) proposed that attraction effects may be mediated by the fact that people note that one choice clearly dominates at least one of the alternatives, providing a simple reason for selecting the dominating alternative.

Those theories assume that participants consider only the dimensions that the experimenter gives and no others. If we assume that the dimensions people use change with every set of stimuli, then all these explanations are difficult (if not impossible) to apply. For example, when deciding between illnesses, people may use 'how contagious', and 'how lethal' in one trial, but switch to "which part of the body is affected" and "age and prognosis" in another trial. This may even happen in within subject designs, where the same participant changes her framework of evaluation. Evidence from the similarity literature seems to suggest this to be the case (e.g., Medin, Goldstone, & Gentner, 1993).

In this study we propose that people may work by calculating the similarity of each alternative to a constructed reference point. Since we do not want to assume a static set of dimensions, we propose that people default to semantics as a common representational language.

In this study we use of pieces of news (semantic stimuli) because (1) they are inherently defined by words, not numerical dimensions, and (2) they are ubiquitous. Participants were presented with a target piece of news, and were requested to choose between three (control: two) other news which one was the most similar to a target one. The three alternatives were two equidistant news to the target (named A, B) and a dominated decoy for one of them (D). We gave people a different reference point in 40 trials.

We could reproduce the similarity effect (Tversky, 1972) with semantic materials. That is, people's preferences moved away from the item that had a decoy next to it. The effect depends on the judged similarity (exp. 2a and 2b).

		control			experimental								
	type of decoy	**A**	**B**	***n***	**A**	**B**	**D**	***n***	**change in A**	**change in B**	**change in A/B**	**Chi Sqrt**	**p-value**
exp. 1	medium (.8)	55	45	540	35	39	26	539	-20	-6	-0.325	6.22	<0.01
	medium (.74)	55	45	540	55	29	16	540	0	-16	0.6743	8.57	<0.01
exp. 2a	close (91)	62	38	240	36	42	22	320	-26	4	-0.774	12.41	<0.01
	far (49)	62	38	240	52	33	15	320	-10	-5	-0.056	0.01	0.90
exp. 2b	close (91)	62	38	240	38	43	19	460	-24	5	-0.748	12.65	<.001
	far (49)	62	38	240	55	30	15	460	-7	-8	0.2018	0.34	0.56