Category Induction and Nonmonotonicity: Application to Branded Products and Their Competitors

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EXTENDED ABSTRACT - In this research we examine the use of categories in reasoning, or more specifically, how individuals use information about one set of categories to make inferences about (or generalize to) another category. In particular we focus on the nonmonotonicity phenomenon (Osherson et al. 1990), examining how information about a competitor's product can weaken inferences about a brand's products under different conditions. We examine this category-based induction phenomenon in a pair of studies that investigated some of the factors, including the similarity of the competitor's product and the type of attribute information, that might mediate the effect.

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In this research we examine the use of categories in reasoning, or more specifically, how individuals use information about one set of categories to make inferences about (or generalize to) another category. In particular we focus on the nonmonotonicity phenomenon (Osherson et al. 1990), examining how information about a competitor’s product can weaken inferences about a brand’s products under different conditions. We examine this category-based induction phenomenon in a pair of studies that investigated some of the factors, including the similarity of the competitor’s product and the type of attribute information, that might mediate the effect.

Few studies have directly sought to examine the role of category relationships in inference making about brand categories, even though an important function of categories in information processing is to support these inferences (Ross and Murphy 1999). If consumers believe that two products belong to the same category, they may perceive them as sharing category attributes (Barsalou 1992). If a consumer believes that Nike cross trainers are durable, she may infer that another Nike product, or perhaps all Nike products, are durable. Osherson et al. (1990) developed an influential similarity-based model of category induction that we use as the conceptual basis for an investigation of consumer inference making.

Two studies examined the nonmonotonicity phenomenon in the context of brand categories. Presentation of the information as arguments followed the technique commonly used in research examining category-based induction (e.g., Choi et al. 1997; Osherson et al. 1990):

Argument A: Nike cross trainers are durable (premise)
Therefore, all Nike products are durable (conclusion)

Argument B: Nike cross trainers are durable (premise #1)
Reebok cross trainers are durable (premise #2)
Therefore, all Nike products are durable (conclusion)

Respondents were asked to rate the strength of each argument and then to select which one was strongest in a forced choice question. The nonmonotonicity effect was demonstrated when the single-premise argument (A) was rated as stronger than the two-premise argument (B).

The Osherson et al. (1990) model suggests that this inference from one branded product to others can be weakened by introducing seemingly irrelevant information. If the consumer knows that not only Nike, but also Reebok, cross-trainers are durable, she may be less likely to generalize this characteristic to the overall Nike brand category than without this competitor information. In other words this information may weaken inferences that all Nike products are durable. In a sense, the addition of information about Reebok sneakers (being durable) should not be relevant to whether the consumer infers that all Nike products are durable. So why should irrelevant information have an impact on inferences about branded products?

One explanation derives from theories, like the Osherson model, that analyze how people use category membership to determine how far they can generalize an attribute from one object to another (cf. Barsalou 1992; Osherson et al. 1990). Building on previous research, we examine how similarity judgments between branded products and categories affect consumers’ willingness to generalize about product attributes. According to Osherson’s model, individuals are thought to generate an “inclusive category” that includes all of the brands, products, and categories being considered and which serves as an information processing, or inference-making, context. When competitor information is introduced along with the focal brand, this inclusive category/context broadens to include the competitor information. This broadening can create changes in perceptions about the similarities between the brands, products, and categories being considered. We look at how differences in these similarity perceptions impact the inference process.

We expect that adding a premise about a dissimilar competitor/product, as compared to a more similar competitor, will cause individuals to generate a broader, more variable inclusive category. As a result, the similarity relationships that drive consumers’ inferences will be lessened, increasing the likelihood of the nonmonotonicity effect. The addition of the dissimilar competitor should have a significant impact on individuals’ willingness to generalize the attribute. We also address a criticism of the Osherson model by directly investigating how the nature of the attribute (meaningless/blank vs. meaningful/non-salient vs. meaningful/salient) plays a role in this form of reasoning. We suggest that when individuals reason about meaningful product attributes (vs. meaningless, hypothetical attributes), they are more likely to rely on existing category knowledge and to use heuristic, similarity-based processes increasing the incidence of the nonmonotonicity effect. Blank attributes are more likely to elicit more formal, analytic strategies that rely on non-similarity-based modes of making judgments decreasing the incidence of the effect.

Our data reveals that the nonmonotonicity effect does exist with consumer stimuli. Consumers reduced their willingness to generalize about a brand attribute from a specific branded product (Nike cross trainers) to the general category (all Nike products) as a result of the simple addition of information about a competitor’s product that possesses the same attribute. Our data provided support for the Osherson et al. (1990) similarity-based coverage hypothesis. The introduction of the competitor information changed the category that provides a context for the information and the resulting similarity judgments that support the attribute inferences. Our data suggest that the nonmonotonicity effect is moderated by the two factors we considered. First, the nature of the attributes appears to play a significant role in similarity-based reasoning. Meaningful, and especially salient, attributes increased the incidence of the effect. Second, the addition of information about a dissimilar competitor increases the likelihood of the effect relative to information about a similar competitor.

References


