Familiarity and Categorical Inference

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Many if not most categories have internal structure in that more "central" category members evoke optimal responses across a number of measures, including "goodness-of-example" ratings, priming, category verification times, production frequencies, and rates of learning. A number of studies (Rips, 1975; Osherson, Smith, Wilkie, López, & Shafir, 1990; Sloman, 1993) have presented evidence that people rely on internal structure when making inferences about members of a category. Atypical category members are judged more likely to have the properties of typical members, rather then vice versa. Similar members are judged more likely to share a property then are dissimilar ones.

Based on this evidence, models of categorical inference have been proposed that assume 1) category structure is due the number of properties shared by members, and 2) categorical inference operates across these properties (e.g., Osherson, et al., 1990; Sloman, 1993). However, not all measures of category structure appear to be about shared properties. For example, verification times and production frequencies are more closely related to the availability and familiarity of members rather than what properties they have in common. Further, measures based on these different types of category structure are not perfectly correlated. Some members are more typical than they are familiar. Other have the reverse relationship. Thus, familiarity may be another source of category structure for inference to operate over - one based more on the frequency of occurrence rather than the number of shared properties.

Four experiments were conducted that examined the role of familiarity in categorical inference. In all experiments, participants were shown one-premise syllogisms about various category items, and asked to evaluate the likelihood that the syllogisms were true. Items were selected from a number of natural and artifact categories such that some items varied in familiarity within different levels of typicality, and others had the reverse relation. In addition, syllogisms were about "blank" properties to minimize participants' reliance on background knowledge and maximize their reliance on category structure (see Osherson, et al., 1990). In experiments 1 & 2, an asymmetric effect of familiarity was found that was opposite the usual effect of typicality: Participants were less likely to make inferences from familiar rather than unfamiliar items (experiment 1), and more likely to make inferences to familiar rather than unfamiliar items (experiment 2). In a third experiment, the effect of familiarity was diminished when participants were asked to explain why they thought some syllogisms were better than others. Further, almost every reason given for preferring one syllogism over another was one based on some similarity between items, even when the similarity was acknowledged to be negligible. In the final experiment, the availability of items was increased through repeated exposure. Effects paralleled that of familiarity: Participants preferences for syllogisms increased and decreased with the availability of the conclusion and premise items respectively. The pattern of results across the experiments suggest that categorical inference may be affected differently by analytic versus nonanalytic task demands (e.g., Whittlesea & Price, 1999). When allowed to evaluate syllogisms without analytic demands (i.e., without having to give explicit justifications) people may be influenced (at least partly) by the availability of the items. For example, the fluency of processing that accompanies both more available and more familiar items may be a general phenomenon that accompanies a number of different cognitive processes. In this case, participants may misattribute the feelings of fluency as arising from some other process relevant to the problem at hand, e.g., an estimate of the prior likelihood that the items in question share a property, etc. However, when asked to justify their inferences people have to at least report if not rely on strategies that are more easily identified. In this case, people may discount 'free-floating' feelings of fluency and instead look for describable properties and relations between items that they can use to justify a response.

References

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