# Thinking About Music: Novice and Expert Inductive Reasoning

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## Abstract

Recent research (e.g. López, Atran, Coley, Medin & Smith, 1997; Proffitt, Coley & Medin, 2000; Shafto & Coley, in press) has revealed striking expert-novice differences in category-based induction in the domain of folk biology. In this paper we examine the generality of those findings by investigating expert-novice differences in category-based induction in the domain of music. Experiment 1 revealed that experts and novices showed extremely high agreement in terms of how they sorted the names of 24 musical composers into groups. Experiment 2 employed a standard strength-of-argument rating task to assess the degree to which measures of taxonomic distance derived from Experiment 1 predicted category-based inferences. Results were precisely as previously reported for folk biology; novices demonstrated effects of both premise-conclusion *similarity* and premise diversity, where experts showed *similarity* but not *diversity.* Experiment 3 replicated Experiment 2 except that expert and novices both rated argument strength under speeded conditions. Under cognitive load, premise-conclusion *similarity* persisted for both experts and novices. In contrast, under cognitive load novice premise *diversity* disappeared, whereas for experts diversity was evident only under cognitive load. These results suggest that patterns of reasoning previously reported for folk biological induction may be more generally applicable. They also suggest important processing differences between experts and novices

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## References

Lopez, A., Atran, S., Coley, J.D., Mein, D. & Smith, E.E. (1997) The tree of life: Universal and cultural features of folkbiological taxonomies and inductions. *Cognitive Psychology, 32,* 251-295.

Osherson, D.N., Smith, E.E., Wilkie, O., Lopez, A. & Shafir, E. (1990). Category-based induction. *Psychology Review, 97(2),* 185-200.

Proffitt, J.B., Coley, J.D. & Medin, D.L. (2000). Expertise and category-based induction. *Journal of Experimental Psychology: Learning, Memory & Cognition, 26(4),* 811-828.

Shafto, P. & Coley, J.D. (In press). Development of categorization and reasoning in the natural world: Novice to experts, naïve similarity to ecological knowledge. *Journal of Experimental Psychology: Learning, Memory & Cognition.*