

On the falsifiability of prototype and exemplar models.

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Abstract: In the Popperian view on model testing, models are only amenable to empirical test if they are falsifiable. Despite the widespread philosophical acceptance of Popperian tests, they are extremely rare in the cognitive sciences. Using the prior predictive method (PPM) recently proposed by Vanpaemel (submitted, see also Roberts and Pashler, 2000), the falsifiability of two prominent models of category learning (the prototype and the exemplar models) is evaluated across a wide array of previously used experimental designs (i.e., category structure and sample size). Apart from these previously used experimental designs, new designs are proposed in which both the exemplar and prototype models are falsifiable, and hence testable. The results of these analyses are useful for experimenters interested in contrasting the prototype and exemplar models, informing them which experimental designs provide meaningful tests of both models, and which don't.

Roberts, S., & Pashler, H. (2000). How persuasive is a good fit? A comment on theory testing. *Psychological Review*, 107, 358-367.

Vanpaemel (submitted). Theory testing by the Prior Predictive Method.