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"Visual Perspective Taking in Corvids – A Computational Model"

Many corvids – members of the crow family – hide food underground, saving it for later. They recover their caches by memory, but will also pilfer those of others, if they know where to find them. Cachers employ many different techniques to prevent this from occurring, such as preferring to hide food behind barriers, and recaching in new locations if they can't help being observed. But which *mechanisms* underlie these cache protection behaviors? Could they be an example of visual perspective taking, or is a simpler explanation sufficient?

In our work, we are tackling this question using an approach new to the field: Computational cognitive modeling. We implement a set of assumptions about corvid cognition as a working computer program, and then expose it to a virtual version of a real experiment. In this way, we can very precisely test the behavioral consequences of different cognitive assumptions.

Previously, we have used this technique to provide new insights into corvid memory and learning; in this talk, we extend the same model to account for the results of an experiment by Emery, Dally & Clayton (2004), where scrub jays are faced with the sight of their caches being pilfered by another bird. We show that, for this particular case, our computational model offers a different interpretation of the data than what is put forth in the original paper, suggesting the value of our approach for questions in this domain.