

Review of: "Mental Recognition of Objects via Ramsey Sentences"

Joan Danielle Ongchoco¹

¹ Yale University

Potential competing interests: No potential competing interests to declare.

To the extent that one of the key functions of perception is to come up with *descriptions* of the world around us (as in Irving Rock's account), the article poses an interesting question of how these descriptions are generated in the first place. The proposal that perception uses a "Ramsey sentence-like" procedure is also promising, and such a proposal could provide a really helpful framework for thinking about the "language of thought" that's gotten a recent resurgence (Quilty-Dunn et al., 2022).

This said, some points for improvement:

1. In the Introduction, I'm not convinced by the problem that the author is laying out. When they go into existing accounts in the literature (e.g. the emergent properties account, the what vs. where account, the quick recognition account, etc.), it's unclear what's missing with these accounts that would warrant a turn to the Ramsey sentences. And as a result, what do Ramsey sentences buy us? Do they integrate existing accounts, or do they fill in missing links? (The author presents a contradiction in the second section of the article ["Defining dogs w/ Ramsey Sentences"], but again, it's not clear to me why this contradiction isn't already resolvable with the current literature, say, via the hierarchical organization of the visual system that goes from features to objects.)
2. I would be careful about the move from brain to mind and mind to brain. Ramsey sentences seem to me more a theory at the level of computation (of Marr's three levels of analysis), which is different from a theory at the level of the hardware (i.e. the brain). For instance, in the last paragraph of the Introduction, the author should talk about how the "mind" (not the brain) might use Ramsey language-like procedures, and then how such procedures might be implemented on the hardware level of the brain.
3. In the section "Can Ramsey Sentences be performed by the Human Brain?", there's a conceptual collapse between perception and cognition. The section begins with how we make sense of sensation/perception, but then the actual examples are more "cognition" like. Especially in the example involving "the dog which satisfies the following conditions: it is an animal, it has four legs, etc. etc.", this starts to sound closer to existing work on prototype vs. exemplar theories in coming up with the concept of "dog".
4. Being clear on the distinction between perception and cognition matters for what neural architecture is involved. What exactly is the claim here then? Are we talking about how Ramsey sentences are implemented in *perception* (so the

visual system hierarchy), or *cognition* (so a more associative network)? Across the article, I get hints of both.

5. In the rest of the third section, I'm not sure how the neuroscience actually plays out. In particular, the burden of proof must be to show that something propositional, symbolic, and *discrete* can arise from the more *continuous* parallel processing that we find neurally. As this section currently stands, it's unclear how this actually works. There is some mention about logical quantifiers being represented, but the logical link is not clear.

6. In the final Conclusions section, the distinction between continuous vs. discrete / associative vs. symbolic becomes important again when thinking about long-term memories and engrams, with memory being more on the cognition side, than the perception side. And engrams being more symbolic and discrete, while semantic memory being more associative. I largely agree that there could be important implications for memory, but I'm not sure I follow what exactly the Ramsey sentences would support / challenge. If the novelty of Ramsey sentences is that they are more propositional, then they should make a case for more "engram-like" memories? Or is the claim that Ramsey sentences somehow combine associative processes with symbolic structure? Regardless of what the commitment is, it's just important to be clear about this. This clarity will be helpful for the final paragraph on the limitations of Ramsey sentences (e.g. symbolic structures could be a get-around for the computational resource demand problem?).

Interesting read!