



---

## Perspective Piece 2

# Seeing Through <seeing through>: An Analysis of Kano et al. (2019)

Ty Henley and Daniel J. Povinelli\*

<sup>1</sup>Department of Biology, University of Louisiana

\*Corresponding author (Email: povinelli@louisiana.edu)

**Citation** – Henley, T. & Povinelli, D.J. (2020). Seeing through <seeing through>: An Analysis of Kano et al. (2019). *Animal Behavior and Cognition*, 7(4), 658-660. <https://doi.org/10.26451/abc.07.04.11.2020>

---

Kano et al. (2019) claimed to have devised a test that “provide[s] evidence that great apes can use their own past experience of visual access to attribute perception and, potentially, resultant beliefs to others” (p. 20908). Their conclusion rests upon providing a convincing argument that when apes are given first-person experience with (what is from our folk psychological perspective) a <see-through> curtain, they then attribute this subjective experience of <seeing-through-it> to others. A number of theoretical debates about this general strategy have occurred in the literature, many of which have concluded that this argument fails (see Heyes, 1998; Lurz, 2011; Povinelli & Vonk, 2004; see debate in Gallagher & Povinelli, 2012). Here, we provide a refutation of this new claim, specifically using the Seven-Step Program outlined in Povinelli (2020).

There were a number of steps to the study, as well as two groups of apes. But the bottom line was whether the apes understood that the actor could see where objects were placed (“hidden”) while he was behind the screen. The dependent measures involved the apes' anticipatory glances to one of two locations. Although contrasts with a second group, who initially experienced the curtain as <not see-through> are important, here we analyze only the group of apes that experienced the <see-through> partition. If responding to the relevant first-order relations is sufficient to explain the results of this group, the second group can be explained *mutatis mutandis*.

Here is our best reconstruction of Kano et al.'s (2019) argument about their apes' reasoning, with necessary (but unstated) premises shown **in bold**.

- P1     When objects pass behind white curtain there is no geometric occlusion between those objects and things in front of it.
- C1     **White curtain does not create geometric occlusion.<sup>1</sup>**

---

<sup>1</sup> The proper treatment of “does not create geometric occlusion” requires some work. From the agent’s point of view there is an unobstructed line between the agent and the object regardless of what side of the curtain the object is situated. True, it is slightly fuzzier if it is “behind” the curtain, but to assume at this point in the argument that this “fuzziness” is understood by the apes as having anything to do with <see-ability> is to assume that they understand the concept of <see-through>, which builds into the premises the very conclusion for which Kano et al. (2019) were seeking independent support. Examining this issue is instructive because it reveals how deeply steeped we are in our personal folk psychology as we design experiments like this. There is a latent notion that the ape understands something like, “The object placed behind the curtain looks a little different than when it is in front because the

- C2 White curtain is <see-through>.  
 P2 White curtain has moved to over there now.  
 P3 Actor is behind white curtain.  
 P4 <I> cannot <see> the actor behind the white curtain right now.  
**P5 White curtain does not allow geometric occlusion between the actor and what is happening along a geometric line between the actor and things on the other side of the curtain.**  
 C3 Actor can <see> what is happening on other side of the curtain, therefore Actor can <see> where the object was placed.  
 C4 (a) Actor will move toward the last location where the object was placed  
 (b) because he <saw> where the object was placed.

Following the Seven-Step program, if we excise C2, P4, C3, and C4(b) from the argument (i.e., all references to higher-order representations), it becomes clear that the first-order representations (which the purported higher-order representations depend upon) are necessary and sufficient to produce the correct anticipatory dependent measure on the part of the observing ape. Thus, there is no need for the higher-order states to account for the results. (The same reasoning applies to the second group of chimpanzees that experienced the opaque curtain; one need only make the relevant substitutions.)

We believe one is fooled by this task only because, at a distance, the white curtain does not appear to have the same <see-throughedness> that it had up close. But that is to already sneak a folk psychological description into one's premises. In other words, the ape need not think about that fact at all. What is worse, to assume the ape does think about this fact, *is to import the very thing into the premises that one was attempting to test for*, generating vicious circularity.

We suppose it would also be tempting to think that because the actor was not visible to the ape when they stepped behind the curtain, we should conclude the ape “forgot” that objects in front of and behind the white sheet are not geometrically occluded from the agent. But if this were the case, by their own (unstated) reasoning, the ape would have no reason to believe the actor could <see-through> the sheet. That is, on any account, when the ape can no longer directly observe the properties of the white sheet, we must assume she retains the knowledge that objects behind the barrier are not geometrically occluded. That is, P5 is an essential (but unstated) premise in the authors' own reasoning. But once it is granted, the higher-order representation of <seeing> is unnecessary to explain the results.

If one is still not convinced that first-order representations are necessary and sufficient to robustly produce the dependent measures obtained by Kano et al. (2019), consider a (similar) experiment: An empty frame (with no curtain) is shown to the apes. Objects are passed behind the frame, allowing the apes to form perceptual representations that track the fact that regardless of whether objects are held in front of or behind the frame, they are not geometrically occluded from the agent. The frame is then turned “edge-on” so that the “empty” part of the frame becomes unobservable to the ape. The actor arrives and stands on the right side of the frame facing it, although the ape can only see this “edge-on.” On the other side of the frame is a banana. Would the ape need to represent <seeing> to know that the actor is still not geometrically occluded from the banana? No.

## References

- Gallagher, S., & Povinelli, D. J. (2012). Enactive and behavioral abstraction accounts of social understanding in chimpanzees, infants, and adults. *Review of Philosophy and Psychology*, 3, 145-169.  
 Heyes, C. M. (1998). Theory of mind in nonhuman primates. *Behavioral and Brain Sciences*, 21(1), 101-114.  
 Lurz, R. W. (2011). *Mindreading animals: The debate over what animals know about other minds*. MIT Press.

---

curtain is <see-through>”. Admittedly, researchers do not believe they are doing this. But as we have shown elsewhere (Povinelli & Henley, 2020), the fact that their arguments are typically grounded in eperotesis indicates otherwise (i.e., *Well how else could the chimp do what it did later on unless they had understood it in this manner?*).

- Kano, F., Krupenye, C., Hirata, S., Tomonaga, M., & Call, J. (2019). Great apes use self-experience to anticipate an agent's action in a false-belief test. *Proceedings of the National Academy of Sciences*, *116*(42), 20904-20909.
- Povinelli, D. J. (2020). Can comparative psychology crack its toughest nut? *Animal Behavior and Cognition*, *7* (4), 589-653.
- Povinelli, D. J. & Vonk, J. (2004). We don't need a microscope to explore the chimpanzee's mind. *Mind & Language*, *19*, 1-28.