

## Pigeons and the problem of other minds

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Lubinski & Thompson's (L&T's) target article demonstrates that pigeons can discriminate stimulations of some recently discovered sensory transducers. However, despite the authors' claims, it does not demonstrate that pigeons can communicate their "private mental states."

Recent discoveries of sensory receptors deep in the CNS (like the opioid and GABA receptors) are interesting, but the term "interoceptive" is unfortunate. L&T define the term loosely as meaning "under the skin," but this won't do. Tactile receptors are also under the skin, but nobody would suggest that this calls into question whether we can discriminate tactile stimuli. What is exciting about this research cannot merely be that pigeons have discriminated stimuli transduced by receptors under the skin.

A better definition of interoceptive might be that interoceptive transducers are those that are sensitive only to stimuli from inside the body. But there is nothing distinctive about this, either. Transducer-specific stimuli can be introduced into the body from outside in a number of ways, for example, by injecting drugs. Given sensory receptors of any kind and the ability to stimulate them, we should expect that subjects will be capable of discriminating them, no matter how "deep" they are in the body.

The target article does an admirable job of demonstrating that pigeons can discriminate drug stimuli. However, this does not justify the claim that pigeons can communicate their mental states any more than the fact that pigeons can discriminate visual stimuli does. L&T's argument that discriminating drug stimuli amounts to communicating mental states is based on a simple error: they identify mental states with the stimulation of "interoceptive" transducers, that is, with those recently discovered transducers deep in the CNS. But mental states cannot merely be the stimulation of interoceptive transducers any more than they could be equivalent to the stimulation of exteroceptive transducers like the photoreceptors of the retina.

In principle, the argument for this is simple: having a doglike pattern of irradiation on one's retina is not the same thing as thinking about a dog, because one might be attending to something else, or hallucinating, or blind. Likewise, having a characteristic pattern of stimulation at a particular interoceptive transducer cannot be the same thing as "feeling wired" or "feeling drunk," though the two may often coincide.

To make this clearer, it will be useful to be careful about the differences between stimuli, stimulations, and mental states. Stimulations and mental states are characteristically private: there is no such thing as a public stimulation or a public mental state, just as there is no such thing as a married bachelor. Stimuli, on the other hand, can be public or private, but the difference is theoretically insignificant.

It should not take any argument to show that all stimulations and all mental states are private. A stimulation is an event that happens at a particular sensory receptor in a particular organism. Such an event is only publicly accessible insofar as we understand the mechanics of the sensory receptor. If mental states exist at all, they are properties of individual organisms which are only objectively accessible through the mediation of third-person interpretations, for example, behavioral or neurophysiological data.

Stimuli, on the other hand, can be public or private. A private stimulus is one that is available to only one subject at a time. By contrast, a public stimulus is available to more than one subject at a time. Whether a particular stimulus is public or private depends only on how many subjects receive it: the distinction has nothing to do with the modality of the stimulus, the location of the sensory receptors, or the mental state of any organism.

Some stimulus modalities are more amenable to public cueing than others. Visual stimuli, for example, are available to any subject with a line-of-sight to a stimulus. Likewise, auditory stimuli are available to any subject within hearing distance. On the other hand, drug stimuli are more amenable to private cueing. We think of intoxication as a private event, but we can use drugs as public stimuli: suppose we fill the experimental chambers with opium smoke.

With the public/private distinction out of the way, we can see what we would really like to know – whether any subject can communicate its mental state to another. We knew already that subjects can communicate differential stimulations (which are always private whether or not the stimulus that produces them is public). That pigeons can communicate about recently discovered kinds of stimulations only shows us that they can discriminate more kinds of stimulations. Just because the receptors at which these stimulations occur are in the CNS does not make the stimulations mental states.

Another way of seeing this is to consider that the same problem exists for "public" events as exists for "private" events: we always have to infer the mental states of others, regardless of what the stimulus is and whether it is accessible to us. Even when a dog is publicly accessible (visible to both parties), one can never know that another is actually thinking of that dog. The only indications we have are based on just the kinds of things L&T attribute only to inferences to "private" mental states: public behavior and contextual factors. Just because I see a dog and you are in the same room doesn't automatically mean that you see the dog. I may, however, come to believe that you see the dog if you exhibit certain characteristic behaviors, such as looking at it, smiling, calling it, puckering your lips, or petting it. In just the same way, a pigeon's pressing one key rather than another when under the influence of a drug is a collateral behavior, not a direct report of a mental state.

The matter of how we could ever know the mental state of another is the age-old "problem of other minds." Asking another thing what it is thinking may give you another piece of behavior, but it will never give you direct access to its mental state.