

Dynamic empathy: A new formulation for the simulation theory of mind reading

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Abstract

The controversy between the theory-theory (TT) and simulation-theory (ST) has evolved so that it is often hard to tell exactly what the difference is between a simulation and a theory. I believe that this distinction was originally inspired, and can be freshly reconceived, as the distinction between verbal abstractions and concrete pictures. I argue that the multi-dimensional spaces described by connectionist neuroscience are best understood as pictures of a special sort. These multi-dimensional pictures do not have the limitations of ordinary three-dimensional pictures, and are capable of performing many of the cognitive functions that were traditionally thought to be the exclusive domain of abstract linguistic concepts. Consequently, there is a real possibility that a pure simulation theory could actually explain some sophisticated kinds of social cognition, without having to rely on a hybrid that combines simulations and theories. Paradoxically, such a pure simulation theory would not actually use simulations in the strictest sense of that word, because something can be a simulation only if it is verbally labeled as a copy of something else. Rather this kind of social cognition would establish vector transformations between perception and behavior without requiring any verbal labels at all. This would mean that the emotions caused by perceptions of other people would not be simulations of other people's emotions, but rather the same emotion transferred by a kind of emotional contagion.

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There are currently two popular theories for explaining “mind reading” i.e. our ability to become aware of what other people are feeling and thinking, and to predict (and/or respond skillfully to) behavior on the basis of that awareness. The first, known as the theory-theory (TT), claims that we have a theory of mind, which we use to make sense out of both our own and other people's behavior. The second, known as the simulation theory (ST), has taken on two importantly different meanings.

(1) The first meaning is “equated with... imaginatively ‘putting oneself in the other's place’” (Gordon, 2004). Because the words ‘imaginative’ and ‘imagine’ are differ-

ent forms of the word “image”, this definition seems to imply something like “creating an image in the mind”, and could include all five sensory modalities, not just audio-visual. There are arguably problems with thinking of this diverse range of qualities in the pictorial terms implied by the word “image”. However, this is very much in line with the traditional British Empiricist view. The Empiricists usually used visual examples like triangles and patches of red as their prototypes for “ideas”, and then used that word to refer to all sorts of sensations and feelings, including more qualitatively complex feelings such as thirst, hunger, disgust, fear, etc.

(2) Gordon also points out that ST refers to simulations of mental states where the pictorial connotations of “image” are much more problematic. These interpretations

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rely on the association of the word “simulation” with pretense or hypothetical “acting out”.

One’s own behavior control system is employed as a manipulable model of other such systems. . . . The system is first taken off-line, so that the output is not actual behavior but only predictions or anticipations of behavior (Gordon, 2004).

According to this view, any aspect of our mental life can be turned into a simulation by taking it off-line—not just images and feelings, but abstract thoughts such as beliefs, desires, and decisions. Abstract thoughts of this sort include what are called the propositional attitudes, because they are focused towards a claim expressible in a proposition. (I believe/desire/ have decided that Paris is the capital of France, the war in Iraq must end, etc.) Because theories are ordinarily thought of as being sets of propositions, many people argue that there is no important difference between “simulating” these kinds of verbalizable thoughts and thinking them yourself, and thus the Simulation Theory collapses into the Theory Theory. (This requires the plausible assumption that thinking about something requires having a theory about it.)

It would take at least another whole paper to paraphrase and respond to the detailed and ingenious replies made by ST theorists to this objection (see especially Goldman, 2006, pp. 30–40). Most of them involve accepting what Goldman calls a hybrid theory, which describes mind reading as requiring both theories and simulations. The debate then continues as each side either defends or attacks claims that all alleged simulations in such a hybrid system can actually be reduced to theories, which in turn requires arguing over exactly what a theory is. The problem has become so complex that some have argued that we ought to drop the term “simulation” altogether (Stich & Nichols, 1992).

I personally find the criticisms made by TT theorists to be reasonably convincing, and agree with Stich and Nichols that the current defense of ST has made it hard to tell the difference between a theory and a simulation. I do believe, however, that the Simulation Theory got something importantly right, which would be lost if we retreated to a pure Theory Theory. The goal of this paper is to preserve these essential insights with a redefined Simulation Theory, which returns to an idea inspired by the first of Gordon’s descriptions of simulation, i.e. as a kind of “movie” consisting of perceptual sensations. I think the hybrid TT/ST theory does explain much (perhaps most) of what can be called mind reading. But I also believe that there is a kind of mind reading which is in a certain sense purely “perceptual” and unaided by any verbal theoretical elements. I understand why Gordon, Goldman and the other defenders of the Simulation Theory have not taken this route. There are excellent reasons, with a distinguished lineage, for rejecting pure ST. In the following section, I am going to trace that lineage. I will then argue that something like a pure ST is possible, if we greatly expand our concepts

of “simulation” and “perception” by using conceptual resources from connectionist neuroscience. However, once these concepts are taken out of the brain and put into the world, there is no longer a compelling reason to always refer to our awareness of other minds as being a simulation. In certain circumstances, it arguably makes more sense to say that I share the same emotion with another person, rather than make a simulation of their emotion in my own private mind.

1. The Kantian objection to the simulation theory

In many ways, the argument between the Theory-Theory and the Pure Simulation Theory is the same argument that Kant and Hume had about the true nature of ideas. Hume and the other British empiricists thought that an idea was a particular ‘image’ in one of the sensory modalities, such as a red triangle or the taste of chocolate. These images were also capable of being shaped in a variety of ways by the faculty of imagination once they were received by the mind. Hume apparently believed that imagination was all that was needed to give these particular images the powers rationalists attributed to generalized abstractions.

Kant, however, argued that no image could ever do the work of a concept. The concept of triangle applies to triangles of mutually exclusive shapes and sizes, and therefore such an image of a “Universal Triangle” would be self-contradictory. The later Wittgenstein raised a similar objection to his earlier picture theory of language by pointing out that a picture of a man walking down a hill could just as easily be a picture of a man walking up a hill backwards. It is only our interpretation of the picture that makes it one or the other, just as it is our interpretation that decides that an image of a red triangle is an example of a triangle, rather than an example of a red thing. Jerry Fodor labeled this Humean position *the resemblance theory* and raised this objection to it.

The difficulty with the resemblance theory is that any portrait showing John to be tall must also show him to be many other things: clothed or naked, lying standing or sitting, having a head or not having a head, and so on. A portrait of a tall man who is sitting resembles a man’s being seated, as much as it resembles a man being tall. On the resemblance theory, it is not clear what distinguishes thoughts about John’s height from thoughts about his posture (Fodor, 1981, pp. 127–128).

The resemblance theory is the genus of which the pure simulation theory is a species, and the latter is thus vulnerable to all of these objections. Kant claimed that the only way to deal with this problem was to see an idea not as an image, but as a verbalizable theoretical rule. To have a concept of a triangle or dog is to have some sort of criteria or set of definitions that identifies all the different triangles or dogs. Even though a picture of a particular dog may be similar to all other dogs, It is also similar to countless

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