
TIMOTHY A. BURNS

Loyola Marymount University
timothy.burns@lmu.edu

EMPATHY, SIMULATION, AND NEUROSCIENCE: A PHENOMENOLOGICAL CASE AGAINST SIMULATION-THEORY¹

abstract

In recent years, some simulation theorists have claimed that the discovery of mirror neurons provides empirical support for the position that mind reading is, at some basic level, simulation. The purpose of this essay is to question that claim. I begin by providing brief context for the current mind reading debate and then developing an influential simulationist account of mind reading. I then draw on the works of Edmund Husserl and Edith Stein to develop an alternative, phenomenological account. In conclusion, I offer multiple objections against simulation theory and argue that the empirical evidence mirror neurons offer us does not necessarily support the view that empathy is simulation.

keywords

empathy, phenomenology, simulation-theory, mirror neurons, intersubjectivity, social-cognition

1. Introduction Phenomenology is marked, from its inception, by its engagement with the scientific thinking of its day. For example, Husserl's *Logical Investigations* contain meticulous criticisms of both psychologism and naturalism (2001). Indeed, it could be argued that his attempt to refute the naturalism that he diagnosed as prevalent in European science shaped the rest of his career from *Ideas I* to the *Crisis of the European Sciences*. Given the rich history that phenomenology has of engaging with the various sciences, it will be no wonder if this continued engagement shapes its future. In this paper, I will discuss one such current debate, namely the debate that revolves around the form of social cognition termed empathy/mind reading (I will use these terms interchangeably), and the significance of the relatively recent discovery of mirror neurons for this debate.

Most of the arguments concerning mind reading in the philosophical literature fall into one of three camps: simulation theory (ST), theory theory (TT), or direct perception, which, following Dan Zahavi (2011), I will call the phenomenological proposal (PP). Many simulationists claim the discovery of mirror neurons provides empirical support for the position that mind reading is, at some basic level, simulation. The purpose of this essay is to question that claim. I will begin by providing some brief context of the current mind reading debate. I will then draw on the works of Edmund Husserl and Edith Stein to develop PP. In conclusion, drawing upon and expanding the work of Husserl, Stein, and Scheler as well as recent phenomenological work in this area, I will argue that the empirical evidence mirror neurons offer us does not necessarily support the view that empathy is simulation.

2. Mind Reading In philosophy of mind, “mind reading” is neither a parlor trick nor does it belong in the domain of dubious, self-proclaimed psychics. Simply put, it is the act of attributing mental states to other individuals. That human beings are able to read other’s minds is an impressive ability, one of which we may be the sole possessors. Yes, many animals have mental states. However, as Alvin Goldman points out, it is one thing to *have* a mental state, and it is an entirely different thing to *represent* someone else as having a mental state (2006, p. 3).² In

1 The author wishes to thank the editors of this special issue for their patience and diligence and the anonymous reviewers for their many insightful comments and critiques.

2 There is a debate over the ability, or lack thereof, of animals to read minds. This topic is not within the scope of the current project. For an interesting recent account see Lurz (2011).

recent years there has been much literature produced on the question of how it is that we are able to accomplish this remarkable feat. On what basis do we attribute mental states, or minds more generally, to other beings? Answers to this question have tended to fall into two camps: TT and ST.

Those who subscribe to TT propose that we possess a certain folk-psychological theory about how minds – our own included – work. A folk psychological theory may be as simple as this. I have beliefs and desires about the world that motivate me to act in certain ways, so when I see persons behave in particular ways it is probably because of their beliefs and desires. Understanding another person is a matter of applying the theory in a way that will allow us to predict her future behavior and make her actions intelligible (see Dennett, 2011, pp. 87-106). When and how we come to possess such theories is a matter of some discussion (cf. Gopnik & Wellman, 1992), as is the issue of in what, exactly, the theory consists (see Baron-Cohen, 1995, esp. pp. 31-58).

On the other hand, those who subscribe to ST hold that, when we understand the mental lives of others, we do so by putting ourselves “in their mental shoes”. Goldman defines ST in broad strokes when he writes, “[ST] says that ordinary people fix their targets’ mental states by trying to replicate or emulate them” (2006, p. 4). In other words, understanding others is a matter of imitating them. Simulation theorists refer to different forms of simulation. For instance, there is explicit simulation, which is conceptually and linguistically mediated. There is also implicit simulation, which is meant to be non-conceptual, non-linguistic, and automatic. These theorists locate implicit forms of simulation at the subpersonal level. One of my criticisms of ST will be the use of ‘simulation’ to refer to both of these levels of description. However, I will return to this point in the conclusion. For the moment, ST is of particular interest because it is within ST camps that the word ‘empathy’ has recently resurfaced as a way to describe our mind reading abilities. Goldman has claimed that “mindreading is an extended form of empathy (where this term’s emotive and caring connotations is bracketed)” (2006, p. 4). Karsten Stueber has gone so far as to identify simulation theorists as “today’s equivalent of empathy theorists” (2006, p. ix). Given this current trend to identify the ST position on mind reading with empathy, the first goal of this essay is to explicate Goldman’s influential simulation based account of empathy.

Simulation theorists hold that we understand others’ mental states by trying to place ourselves in their “mental shoes”. Gallese and Goldman write, “ST depicts mind-reading as incorporating an attempt to replicate, mimic, or impersonate the mental life of the target agent” (1998, p. 497). When I imitate the other’s mental life, the goal is to achieve symmetry between my mental life and hers. Once I have simulated the other’s mental state, I attribute it to her by projecting the mental state I have achieved into the other. So, in a decision prediction example of mind reading, Goldman writes, “According to ST the mind reader takes her own m-decision – a decision that occurs in the simulation mode, to be sure – and ascribes that type of state to the target” (2006, p. 40). A typical example would run as follows. I return my students their essays at the end of class. When I hand Eve her essay, she sighs, her shoulders slump, and she hangs her head. As she continues to stand there, her face reddens and her jaw clenches. She then stomps out of the room. In order to understand Eve’s mental state I simulate her actions inwardly. The result is a mental state of disappointment and then anger. I then project these feelings into Eve. Having completed the “final stage” of my mind reading act, I now understand that Eve was disappointed and then angry.

It behooves us to notice that trying to put ourselves in the other’s mental shoes, per Goldman, requires us to create “pretend states intended to match those of the target”, which we then impute to the person we are observing (2005, p. 80). The imputation can be as simple as a

3. Simulation Theory

two-step process: creation and imputation. Or it can involve a longer process in which I feed the pretend states into a psychological mechanism of my own – for instance a decision making mechanism – and allow this mechanism to work on the pretend states before attributing the results to the other (Goldman, 2005, p. 81). Either way, Goldman writes, “the distinctive idea of ST is that mind reading is subserved by pretense and attempted replication” (2005, p. 81). Simulation theorists have heralded the discovery of mirror neurons as evidence in support of their theory. Mirror neurons are so called because it has been observed that the exact same neurons fire during “motor act” observation and performance (Gallese & Goldman, 1998, p. 495). Gallese and Goldman summarize the discovery, “Every time we are looking at someone performing an action, the same motor circuits that are recruited when we ourselves perform the action are concurrently activated” (1998, p. 495). In the study, motor acts that activated mirror neuron activity included grasping a tool so as to take possession of it with either the hand or the mouth and manipulating an object with a “precision grip”, a grip between the thumb and the index finger of the same hand (Gallese & Goldman, 1998, p. 493-494). Recent research has also shown that a listener’s motor system is activated while perceiving gestures that speakers make (Ping, Goldin-Meadow, & Beilock, 2014). This is especially significant in simulation based theories of mind reading that rely on mirror neurons activity as empirical backing for their claims because it allows the agent of the observed actions to be candidates for the attribution of mental states such as belief, desire, and purpose of action. The argument is that if the same neural circuits are active in both the perception and performance of goal driven action, then it seems justifiable to attribute a mental state – e.g., desiring the realization of said goal – to the other person who is performing the action, and furthermore, when we do attribute a mental state to the observed agent, it is on the basis of having simulated her mental state (Gallese & Goldman, 1998, p. 494).³

4. The Phenomenological Proposal

At first blush, the neuro-scientific evidence that mirror neurons provide appears to be decisively in favor of a ST account of empathy. However, phenomenology proposes a different theory of empathy, one that is compatible with the scientific facts and nonetheless rejects ST. I will now offer a brief overview of the phenomenological theory of empathy.

In explaining PP, I will focus on the accounts of Edmund Husserl and Edith Stein with emphasis on their continuity rather than their subtle differences. Husserl and Stein insist that empathy is a unique form of experience. Husserl refers to empathy as a “special form of empirical experience (*empirischen Erfahrung*)” (2006, p. 82). Likewise, Stein defines empathy as “the experience (*Erfahrung*) of foreign consciousness in general” and wishes to divorce the term from any previous historical interpretation attached to it (1989, p. 11). Their analyses describe the object of empathic experiences and the mode of givenness of both the empathic experiencing and the empathized content. They agree in their insistence that careful analysis of the intentional structure of empathy will delineate it from closely related but diverse experiences. This will be important in the objections against ST that are to follow.

The object of the empathic experience (*Erfahrung*) is consciousness that belongs to an I that is not the empathizer’s own. One ought to notice that their analyses do not seek to answer

³ Since the publication of Gallese and Goldman (1998), Vittorio Gallese has developed his own account of social cognition, viz., Embodied Simulation (ES), that is distinct from Goldman’s version of ST. See Gallese (2016) and Gallese and Sinigaglia (2011) for insights into the differences between ST and ES. See also Gallese and Cuccio (2015). Gallese (2001) seeks to revise and expand upon the concept of empathy, and speaks favorably of phenomenological accounts of empathy and intersubjectivity – notably of Stein and Merleau-Ponty. Furthermore, according to Overgaard and Zahavi (2012), Gallese considers ES to be a development of PP. Thus, the reader should note that the target of my argument is Goldman’s ST, not ES.

the question, “Does one experience other subjects?”. Their starting position is the experience of others. In other words, amongst the experiences that a conscious subject has, one finds experiences of other subjects, their experiences, and their conscious lives; the concept of empathy is meant to describe the intentional structures of these experiences. The ontological question is bracketed. A phenomenological theory of empathy is not a “proof” of the existence of other minds, and it does not purport to be.

Both Husserl and Stein seek the essence of empathy by comparing it to other experiences. In doing so, they draw a distinction between originary/primordial and non-originary/non-primordial experience. All experience, insofar as it is one’s own, is originary. This may mean something as simple as that the experience is had from, or in, the first person perspective. However, that an experience is originary also says something about the way in which its object is present. For Husserl, external perception is the case, *par excellence*, of originary experience. It is the direct having of the perceptual object. In it, one has a really given access to the physical thing (Husserl, 1983, p. 5).

Non-originary experiences, on the other hand, are ones in which the object is not “itself there” in the same way. The object of non-originary experience is still present to consciousness; however, it is present in a different manner. Husserl tends to designate a quartet of experiences as ones that exemplify non-originary experience: memory, expectation, fantasy, and empathy. Take memory as an example. The object of memory is not present in the same manner as the object of external perception. The object of the memory is there, but not in an originary manner; it is there as remembered, *as having been previously*. It may be remembered as *having been* originally present; for example, one may remember seeing a particularly beautiful sunset. The sunset was “itself there” in the prior experience, but its presence in memory is different in form from its presence in the perceptual experience.

Empathy possesses a unique intentional structure; it is originary experience with non-originary content, the object of which is the experience or consciousness of a foreign subject. Let us consider one of Stein’s examples: “A friend tells me that he has lost his brother and I become aware of his pain” (1989, p. 6). The object of the empathic experience is the friend’s pain. The content of the outer perception, considered as purely physical data, comprises the friend’s face, his voice, and the position and posture of his body. The pain does not show up the way that these other things do. Nonetheless, the friend’s pain is there for me. I do experience it. There is a primordial experiencing. However, I experience the pain *as his*. The content of the empathized experience is given in a non-originary mode – as belonging to another subject.

As a non-originary experience, Husserl classifies empathy as belonging to the broader category of apperception (2006, p. 83; 1989, p. 177). Apperception is the name given to something that is perceived with or alongside another perception; it thus encompasses the concepts of empty intention and horizon, which Husserl was beginning to develop around this time. All apperception is founded on originary perception. The case *par excellence* of apperception is that found in the visual perception of a physical object. In the experience of a physical thing, only the side of the object facing me is actually present to consciousness. It belongs to the essence of a physical thing, according to *Ideas I*, to only be able to only possibly be given in these “one sided adumbrations” (Husserl, 1983, p. 9). I nonetheless apperceive the averted sides of the object.

There is, however, an important distinction between the apperception involved in perception of a physical object and empathy as a form of apperception. The apperceived sides of an object may, in principle, come to originary givenness through a harmonious course of experience. This is impossible for the apperceived mental states of another subject. This is an eidetic law of consciousness. There is “no channel linking the empathized stream to the stream in which

the empathizing itself belongs” (Husserl, 2006, p. 85). The essential difference between empty horizons that accompany the perception of physical objects and the apperception of another’s consciousness is their mode of fulfillment. As regards the averted sides of a physical object, it is possible to bring them to intuitive presentation whereas that which is given through an empty horizon in empathy must, because of the nature of the object being appresented, remain empty. In other terms, the phenomenological claim is that what counts as perception of a human being is essentially different than what counts as perception of a physical object. There are an infinite number of perspectives one may take on a physical thing and thus an infinite number of empty intentions implied in the perception of a physical object. These may, because of the type of thing that it is, be brought to original givenness. What it means to perceive *the kind of thing* that a human is involves *both* the perception of body and the apperception of an inner life. The perception of a human is “an ‘incomplete’ one, being constantly *open*, since of this human being there and, especially of his interiority this perception expresses only a few things” (Husserl, 2006, p. 150). Perception of another is an open-ended project, one that is never fully accomplished. It remains in its essential peculiarity a conjunction of the founding presentation of the other’s body and her appresented interiority.

5. Criticisms of Simulation Theory

With that brief understanding of the phenomenological account of empathy in hand, I now wish to draw your attention to one aspect of ST that will serve as the basis for my objections. The simulation account of mind reading involves my arriving at a mental state *of my own* and then attributing an identical mental state to the target subject. This cannot be denied. For instance, Gallese and Goldman write, “In the simulation scenario there is a distinctive matching or ‘correspondence’ between the mental activity of the simulator and the target” (1998, p. 497). Later in the same article, they identify mirror neuron activity as creating “in the observer a state that matches that of the target” (Gallese & Goldman, 1998, p. 498). In other words, according to ST, when I understand your mental state, I have one that matches it (see also de Vignemont & Singer, 2006, pp. 435-441).

Phenomenologists reject the idea that empathy requires that the empathizing subject must have a mental state that matches that of the target subject. It seems odd to require this. Consider again the example of the student receiving the grade on her essay. According to ST, in order for me to grasp her mental state – to understand that she is disappointed and then angry – I must simulate her states. However, when I see the student’s reaction to her grade, I am neither disappointed nor angry. I simply experience her as disappointed and angry. Neither will it help to say that I have these mental states in the mode of simulation, as Goldman suggests (2006, p. 40). Such a suggestion does not align with the “things themselves”. The simulation story is not true to the experience of the face to face encounter. In such a scenario, I simply perceive the student’s mental states without the need to simulate either her bodily movements or her inner state. Consider another example. Suppose that my downstairs neighbor bangs on my door and, when I open it, he yells at me, complaining that the music is too loud and he cannot sleep. I see that he is angry. In order for me to grasp this, ST requires that I also be angry. However, I need not become angry in order to perceive my neighbor’s anger. I may be understanding, apologetic, unconcerned, or angry depending on the situation, our history, and the level of concern that I have for others’ feelings. The point is that, if I do react out of anger, it is just that, a reaction. There is no reason to assert that I must experience *as-if* anger in order to perceive another’s anger.

Max Scheler identifies a further reason to reject ST. A simulation plus projection model fails to distinguish between empathy – as the experience of another’s inner life – and other forms of social cognition, especially emotional contagion (*Gefühlsansteckung*) and sympathy (*Mitgefühl*) (Scheler, 1979, pp. 14-18). The simulation of another’s mental state may very well be an

example of emotional contagion. For example, if I am at an opera sung in Italian and cannot understand the plot, the emotions of the crowd may sweep over me and I may have joyful or sorrowful experiences *as-if* they were my own. However, emotional contagion by way of such simulation is generally distinguished from empathy because of its anonymous character. In emotional contagion, I do not know from whom I receive the emotional states, and in a real sense, I receive them from no one in particular but rather from the crowd itself.

Consider now the difference between empathy and sympathy. Sympathy is thought to involve an understanding of the other's mental state and a sharing of it. Suppose that my friend comes to me sobbing and tells me that his mother has passed away. I am first aware of his sadness in the pained expression on his face and the heaving of his chest. If I also happen to grieve over the loss of his mother, this is an emotional response above and beyond knowing or understanding that he is grieving. As Scheler writes, "[M]y having an experience similar to someone else's has nothing whatever to do with understanding him" (1979, p. 11). His grieving and my commiserating with him are separate facts and must be explained separately. "Fellow-feeling proper, actual 'participation', presents itself in the very phenomenon as a *re-action* to the state and value of the other's feelings" (Scheler, 1979, p. 14). Sympathy with another's grief, or joy, implies first an empathic understanding of the emotion and, second, a similar or pro-social feeling. However, a simulation based account of empathy fails to distinguish between these two because it requires that the empathizer share, in some form, emotional states with the target subject insofar as the states are simulated in the empathizer and then projected into the other. Furthermore, it seems that requiring simulation of the other in order to understand his mental life runs the risk of begging the question. Scheler notes, "imitation, even as a mere 'tendency', already presupposes some kind of acquaintance with the other's experience and therefore cannot explain what it is here supposed to do" (1979, p. 10). Let us return to the example of the grieving friend. I can only have an emotional state similar to his if *I already know* what his emotional state is. I cannot simulate his grief unless I already know that he is grieving. Such an acquaintance with his inner state is provided by empathy, in the phenomenological sense. It cannot be based on simulation unless I am already familiar with the target subject's mental state; and then, the simulation theorist is caught in a circle.

The final objection against ST is that it does not provide us with knowledge of other's mental states. Simulation, as Zahavi and Overgaard write, "seems *de facto* to imprison me within my own mind and to prevent me from ever encountering *others*" (2012, p. 9). Simulation plus projection only ever *actually* arrives at self-understanding, not an understanding of others. I experience mental states of my own; I then project them into the other, making the assumption that this must be, or probably is, what she is experiencing. Thus, as Stein points out in criticizing a similar theory from Theodor Lipps, even as a genetic account of empathy, a simulation plus projection theory fails to explain what it sets out to explain (1989, pp. 22-24).

But, what about mirror neurons? Does the neuro-scientific evidence not point to evidence of simulation in brain activity at a basic level? The evidence seems to suggest that my neural circuits imitate goal-directed action when I perceive it. I claimed above that the phenomenological account was consistent with the scientific data, and this is the point I now wish to address. Referring to the evidence of mirror neuron activity, Stueber, despite being a simulation theorist himself, observes that "it must be noted that the evidence does not provide conclusive support for [any] theoretical paradigm" (2006, p. 117). He goes on to note ways in which proponents of TT may interpret mirror neuron activity in support of their own theory. It is crucial not to over-interpret empirical data.

The mere discovery of mirror neurons does not prove that our awareness of others' mental states is based on simulation. I find it less than conclusive for this reason. Simulating,

6. Conclusion

emulating, or imitating another is a *personal level* activity. It is something that persons do or they do not.⁴ It seems strange to refer to both my personal level activity of imitating someone's actions – as I may do when I am recounting to my son the tale of how a clown danced at the circus – and my unconscious brain activity with the same word, 'simulation', and expect that it should mean the same thing in both cases. And yet, this appears to be exactly how Goldman interprets the neuroscientific data. He writes, "Mental simulations might occur automatically, without intent, and then get used to form beliefs about mind-reading questions" (Goldman, 2006, p. 40). And, "[R]ecent cognitive science and cognitive neuroscience disclose striking instances of mental simulation that are largely automatic and unconscious" (Goldman, 2006, p. 49). In so doing, Goldman collapses two different levels of description that are relevant to our account of empathy – the personal and the subpersonal – by using 'simulation' to describe the processes at work in both. The fact that the same neural networks are active in action perception and in action performance is unsurprising at some level. Why should it not be the case that perception of goal oriented action involves neural stimulation of the same neural pathways as performance of goal oriented action? The mere presence of mirror neuron activity is not *prima facie* evidence in favor of ST. The phenomenological account of empathy can be true even in light of the neuro-scientific evidence that mirror neurons provides, and given the problems with ST, should be preferred.

REFERENCES

- Baron-Cohen, S. (1995). *Mindblindness: An essay on autism and theory of mind*. Cambridge, MA: MIT Press.
- Denett, D. (1971). Intentional systems. *The Journal of Philosophy*, 68 (4), 87-106.
- de Vignemont, F. & Singer, T. (2006). The empathic brain: How, when, and why?. *Trends in Cognitive Science*, 10 (10), 435-441.
- Gallese, V. (2016). Finding the body in the brain: From simulation theory to embodied simulation. In B.P. McLaughlin & H. Kornblith (Eds.), *Goldman and his critics* (1st ed.). West Sussex, UK: John Wiley & Sons, 297-314.
- Gallese, V. (2001). The 'shared manifold' hypothesis: From mirror neurons to empathy. *Journal of Consciousness Studies*, 8 (5-7), 33-50.
- Gallese, V. & Cuccio, V. (2015). The paradigmatic body-Embodied simulation, Intersubjectivity, the bodily self, and language. In T. Metzinger & J.M. Windt (Eds.), *Open MIND*. Frankfurt am Main: MIND Group. DOI: 10.15502/9783958570269.
- Gallese, V. & Goldman, A. (1998). Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Science*, 2 (12), 493-501.
- Gallese, V. & Sinigaglia, C. (2011). What is so special about embodied simulation?. *Trends in Cognitive Science*, 15(11), 512-519.
- Goldman, A. (2006). *Simulating minds: The philosophy, psychology, and neuroscience of mindreading*. Oxford: Oxford University Press.
- Goldman, A. (2005). Imitation, mind reading, and simulation. In Chater, N. & Hurley, S.L. (Eds.), *Perspectives on imitation: From neuroscience to social science*. Cambridge, MA: MIT Press, 79-91.
- Gopnik, A. & Wellman, H. (1992). Why a child's theory of mind really 'is' a theory. *Mind and Language*, 7 (1-2), 145-171.
- Husserl, E. (2006). *The basic problems of phenomenology: From the lectures, winter semester (1910-11)* (Engl. Transl. by I. Farin & J. G. Hart). Dordrecht: Springer.

⁴ In a footnote to "Empathy Without Isomorphism" Overgaard and Zahavi make a similar observation regarding empathy and I am indebted to them for this insight. See note 12 in the above cited article.

- Husserl, E. (2001). *Logical investigations* (D. Moran, Ed.) (Engl. Transl. by J.N. Findlay). London & New York: Routledge (Original work published 1900-1901).
- Husserl, E. (1989). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: Second book* (Engl. Transl. by R. Rojcewicz & A. Schuwer). Edmund Husserl: Collected Works, 3. Dordrecht & London: Kluwer Academic Publishers.
- Husserl, E. (1983). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: First book* (Engl. Transl. by F. Kersten). Edmund Husserl: Collected Works, 2. Dordrecht & London: Kluwer Academic Publishers.
- Lurz, R. (2011). *Mindreading animals: The debate over what animals know about other minds*. Cambridge, MA: MIT Press.
- Overgaard, S. & Zahavi, D. (2012). Empathy without isomorphism: A phenomenological account. In J. Decety (Ed.), *Empathy: From bench to bedside*. Cambridge, MA: MIT Press, 3-20.
- Ping, R., Goldin-Meadow, S., & Beilock, S.L. (2014). Understanding gesture: Is the listener's motor system involved? *Journal of Experimental Psychology: General*, 143(1), 195-204.
- Scheler, M. (1979). *The nature of sympathy* (Engl. Transl. by P. Heath). London: Routledge & Kegan (Original work published 1923).
- Stein, E. (1989). *On the problem of empathy* (Engl. Transl. by W. Stein) (3rd rev. ed.). Washington, DC: ICS Publications.
- Stueber, K.R. (2006). *Rediscovering empathy: Agency, folk psychology, and the human sciences*. Cambridge, MA: MIT Press.
- Zahavi, D. 2011. Empathy and Direct Social Perception: A Phenomenological Proposal. *Review of Philosophy and Psychology*, 2, 541-558.