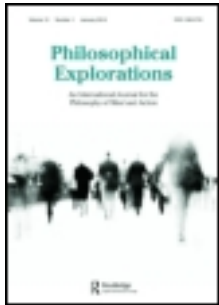


This article was downloaded by: [Radboud Universiteit Nijmegen]

On: 13 December 2012, At: 04:24

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Philosophical Explorations: An International Journal for the Philosophy of Mind and Action

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rpex20>

### Rethinking folk-psychology: alternatives to theories of mind

Marc Slors<sup>a</sup> & Cynthia Macdonald<sup>b</sup>

<sup>a</sup> Department of Philosophy, Radboud University, Nijmegen, The Netherlands

<sup>b</sup> School of Politics, International Studies and Philosophy, Queen's University Belfast, Belfast, UK

Version of record first published: 02 Dec 2008.

To cite this article: Marc Slors & Cynthia Macdonald (2008): Rethinking folk-psychology: alternatives to theories of mind, *Philosophical Explorations: An International Journal for the Philosophy of Mind and Action*, 11:3, 153-161

To link to this article: <http://dx.doi.org/10.1080/13869790802245661>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## INTRODUCTION

# Rethinking folk-psychology: alternatives to theories of mind

Marc Slors<sup>a\*</sup> and Cynthia Macdonald<sup>b</sup>

<sup>a</sup>*Department of Philosophy, Radboud University, Nijmegen, The Netherlands;* <sup>b</sup>*School of Politics, International Studies and Philosophy, Queen's University Belfast, Belfast, UK*

For at least the past 30 years it has been generally supposed that our so-called 'mindreading' or 'mentalizing' abilities are a *conditio sine qua non* for social interaction. Our capacity to interpret the behaviour of others and ourselves in terms of beliefs and desires is assumed to give rise to a 'folk-psychological' understanding of one another. And without this kind of understanding of each other's behaviour, human social interaction is deemed impossible. How do we understand and anticipate each other's actions if not by gaining access to each other's minds, i.e. by knowing what the other believes, wants, thinks and feels?

What our mindreading or mentalizing abilities in fact consist in has been a matter of fierce dispute. But the dispute exists against the background of a consensus over the fact that folk-psychology, mindreading or mentalizing is the backbone of the social world. Today, however, this consensus is showing hairline cracks. Although still being something near to consensus, the idea that social interaction hinges mainly on folk-psychological mindreading is no longer universally accepted. When it comes to explaining social interaction, the variety of competing theories purporting to account for folk-psychology and mindreading are no longer the only options available. In order to highlight this expansion of the landscape of options, and consequently in order to see in which ways the traditional accounts are being challenged, we first need to sketch the development of the so-called 'theories of mind debate'.

### A brief overview of the theories of mind debate

As with most debates, it is hard to pin down the onset of the theories of mind debate.<sup>1</sup> Let us begin with a seminal paper, not in philosophy, but in primatology: Premack and Woodruff's work on the question 'Does the Chimpanzee Have a Theory of Mind?' (Premack and Woodruff 1978) in which it is argued that experimental evidence of chimpanzees' understanding of human behaviour can be interpreted as showing that chimps are able to detect intentions. This paper shaped the debate, on the one hand, by highlighting two crucial presuppositions and, on the other, by engendering a discussion on the question of when an animal or person can be said to have a theory of mind. These presuppositions and discussion help to introduce the two main players in the debate, the theory-theory and the simulation theory.

---

\*Corresponding author. Email: slors@phil.ru.nl

The first presupposition behind Premack and Woodruff's paper is that to detect intentionality in the behaviour of others is to have some knowledge of the other's mind. The second presupposition is that in order to acquire such knowledge one needs to have some sort of theory. We will address the first presupposition in the next section – it being the main topic of this Special Issue – but let us here say something about the second.

By the end of the 1970s the idea that gaining access to the minds of others requires a theory was only natural. It was generally accepted that behaviourism had failed and a new cognitivist paradigm had emerged. Cognitive psychologists began to posit internal mental episodes as causes of overt behaviour. Understanding of such episodes was supposed to require representations of them. The term 'theory' was applied to representational structures of sufficient complexity. In addition, the interpretation of behaviour was thought to consist, following Sellars (1956), in the application of a 'folk-psychology' (FP). And FP was taken by many to be a theory consisting of generalizations about the causal connections between sensory inputs, internal states of the person and motor outputs. Thus, by the time Premack and Woodruff asked whether chimps could have knowledge of the minds of others, this question was naturally phrased as the question of whether chimps have a theory of mind (ToM).

Apart from highlighting these presuppositions, Premack and Woodruff's paper is important because it elicited a discussion of methodology: How, that is, 'under what conditions', exactly, can an animal, or for that matter a human being, be said to have a notion of another mind? The discussion over this question focused on the notion of 'belief'. As Harman and Dennett pointed out, having a notion of someone else believing something that one oneself believes to be false is indicative of having a notion of a mind other than one's own. The procedure that was suggested in the course of the discussion, to be followed in primatology in order to determine the attribution of false beliefs, soon evolved into what is now known as the false belief test in developmental psychology.<sup>2</sup> To pass the false belief test was taken as a hallmark of having acquired a basic mastery of FP; it was taken as having a ToM. Thus, when Wimmer and Perner established in 1983 that children around the age of four years are generally capable of passing the test, it was said that by their fourth year children have acquired ToM abilities.

Taken together, the ideas (1) that discerning intentionality in the behaviour of others involves accessing their minds, (2) that this requires FP understood as a theory and (3) that passing the false belief task is a hallmark of having acquired basic mastery of FP, are the main features of the first player in the theories of mind debate, the classical *theory theory* (TT) of social cognition.

TT comes in different varieties. First of all it makes a considerable difference whether the folk-psychological theory that is the core of TT is taken to be something that is implicit in our everyday *talk* of mental states or whether it is a theory of human psychology represented in the *mind/brain*. The first option is to be found, for example, in analytical functionalism (Lewis 1972) or some versions of interpretationism (Dennett 1987);<sup>3</sup> the second is made famous by computational functionalists such as Jerry Fodor (1975). Within the second camp, there has been (and still is) a lot of debate over the question whether our ToM is innate, as is argued by Fodor, but also for example Carruthers (1996) and Leslie (1992, 1994), or whether it is acquired during our development, a claim made famous by Alison Gopnik (Gopnik 1996; Gopnik and Wellman 1992; Gopnik, Melzoff, and Kuhl 1999). Also, even when one opts for an internalist, cognitivist account of our ToM, it is by no means uncontroversial that this implies the existence of a separate ToM *module* in our cognitive systems (a ToMM) for which Stich and Nichols (1992) and Leslie (1992, 1994) have argued.

For more than a decade, between the mid-1970s and mid-1980s, the debate over the nature of social cognition took the form of a debate between the different varieties of TT. From 1986

onwards a whole new dimension was added to the debate: TT as a whole was challenged by a rival theory called 'simulation theory' (ST), introduced, independently of each other, by Robert Gordon (1986) and Jane Heal (1986) (who used the term 'replication' instead of Gordon's term 'simulation') who were joined, three years later, by Alvin Goldman and Paul Harris (Goldman 1989; Harris 1989). Rather than using a theory, according to ST, we use our own minds as models of the minds of others in order to gain knowledge of the minds of others. By imaginatively placing ourselves in the shoes of others (Goldman) or by identifying with them (Gordon), we can let our own minds or, depending on your leanings, 'decision making modules', run their course *off line* and ascribe the outcome to the other. According to this view, we don't need to have insights in how minds in general work – we don't need a *theory* of the mind – to be able to use this routine in understanding and predicting the behaviour of others. The simulation routine – in whichever version – is *process-driven*, not *knowledge-driven*.

As with TT, ST comes in different varieties. There are two main dividing lines between the different versions. On the one hand, there is the issue whether simulation proceeds at the personal level, or whether it should be conceived of as consisting (also) in the form of sub-personal cognitive procedures. Gordon and Heal are defenders of the former position, while Goldman defends the latter. On the other hand, there is the issue whether simulation, at least at the personal level, presupposes introspection. Do we need to introspect 'pretend decisions' or other off-line products of simulation before we attribute them to others? Goldman and perhaps Harris think we do, whereas Gordon, especially in his later radical simulationism (Gordon 1995, 1996), denies this.

Apart from variations in ST, there are two main advantages this approach has over TT. First of all, insofar as simulation is explicitly not thought to involve implicit theorizing<sup>4</sup> (Davies and Stone 2001), ST is parsimonious, cognitively speaking, in comparison to TT, since simulation does not require the amount of cognitive activity that the use of theory does. When, in order to predict or understand the behaviour of others, we do not need to invoke a whole network of causal generalizations but can rely instead on our own motivational make-up without having to know how that works, this will diminish the amount of mental computation quite considerably. From an evolutionary point of view, this makes ST more attractive than TT.

Secondly, TT is very much focused on propositional attitudes with semantic content whereas ST allows us to understand, interpret and predict behaviour on the basis of perceived emotions, facial expressions, motor intentions etc. Gordon (1996) calls this 'hot cognition' while Goldman (2006) speaks of 'low-level mindreading'. It is highly plausible that we do, in daily life, very often make use of hot cognition or low-level mindreading, yet these forms of cognition are very hard to account for in TT terms.

The possibility of taking emotions, ineffable facial expressions and motor intentions on board has led to a – controversial – alliance between ST, on the one hand, and cognitive neuroscience, on the other. The intuitive similarity between the claims made by ST and the workings of mirror neurons discovered in the early 1990s led Gallese, one of the discoverers, and Goldman to join forces and argue that neural mirroring systems may embody precursors or primitive versions of simulation routines (Gallese and Goldman 1998). This suggestion, initially leading to enthusiasm among both philosophers and cognitive neuroscientists, has met more recently with considerable scepticism too (e.g. Jacob and Jeannerod 2005; Jacob 2008; Gallagher 2007).

Goldman also seems to have relaxed his original claims (2006, 136–40). Mirror neuron activity, or motor resonance in general, is now explicitly thought to be merely a possible *part* of low-level mindreading. Despite this, however, motor resonance, imitation (Melzoff and Moore 1977; Melzoff 1995) and other resonance phenomena (e.g. emotional contagion, see Hatfield,

Cacioppo, and Rapson 1994) are still taken by cognitive neuroscience to be crucially important cues to the study of social cognition. Indeed, the connection between social cognition and resonance phenomena, knowledge of which is rapidly increasing due to extensive scientific research, dominates the new and popular branch of science called social-cognitive neuroscience.

The question whether mirroring should be understood as simulation – or in general whether neural activity associated with social cognition is evidence of simulation or use of a ToM – is nowadays sometimes left untouched in this branch of science. In such cases social cognition and social interaction are explained in neural terms, in terms of resonance and ‘shared representations’, or in terms of imitation without an explicit appeal to theory or simulation (or a mix of the two), that is without an appeal to one of the traditional options in the ToM debate. Philosophers may interpret the results of this area of research in terms of ST or TT, and at times there is good reason to do so (e.g. Goldman and Sripada 2005), but more and more the question arises whether these labels truly illuminate the data.

At the same time we see a similar trend in philosophy, currently still small but undeniably gaining momentum, a trend that is the topic of this Special Issue.

### Social interaction without theories of mind?

ST rejected the second premise behind Premack and Woodruff’s original article, the claim that to have knowledge of other minds is to have a theory of mind. But it did not (or at least not explicitly – see below) call into question the first assumption: that to detect intentionality or reasons behind the actions of others we need to access the minds that cause those actions. It is precisely this first assumption that is explicitly being rejected, in various ways, today. The claim is that ST, by accepting the first assumption, is still part of or congenial to the ToM approach to social cognition and social interaction, despite its rejection of TT. ST, once being the *avant garde* in the debate, is accused of not being radical enough, of having become part of the (cognitivist) establishment.

The most important complaint against ToM approaches, including ST, is that they assume an unrealistic observer model of social cognition for the purpose of social interaction. When FP is used primarily to predict and understand the behaviour of others (an idea that was attacked earlier; see Morton 1996), while FP is what makes the social world tick, it is as if we take a completely detached third-personal stance to each other in social interaction. The point is that we don’t. Understanding others is not, as Hutto (2008, 12) puts it, essentially ‘a spectator sport’. In real life we do not observe and predict each other, we interact with each other and adopt an engaged, second-person perspective to do so most of the time. Traditional ToM approaches are committed to a third-personal approach to the other person and are therefore accused of providing at most a contrived reconstruction of what social interaction really is like. The problem here is not merely that we are supposed to wield a *theory* of mind for social interaction, as TT claims. If we downplay the term ‘theory’ and use it in the sense of ‘means of gaining access’ so as to include ST in the ToM approach, the problem is that we are supposed to wield a theory of *mind*. For the *mind*, at least as it is depicted in the ToM debate, is that which produces behaviour but is itself invisible. The access to the minds of others is supposed to be indirect, possibly even inferential. And for this reason, ToM approaches cannot but depict social cognition as a ‘spectator sport’ in which we attempt to retrieve the motivations of others by careful observation in conjunction with either theorizing or simulating.

This picture of social cognition is precisely the target of the first paper of this issue, ‘Inference or Interaction: Social Cognition Without Precursors’ by Shaun Gallagher. Gallagher rejects the idea that the kind of access to other minds we need for social interaction is of an indirect or inferential

kind. He criticizes the idea of an observational stance in social interaction, and hence denies that our normal day-to-day social interaction is underpinned by the use of a ToM. As an alternative, he introduces 'interaction theory' (IT; see also Gallagher 2004, 2005, chap. 9). IT hinges on Colwyn Trevarthen's notions of primary and secondary intersubjectivity. Very roughly, primary intersubjectivity is the capacity to see emotions and basic intentions in facial expressions, voice intonations, gestures and bodily postures, while secondary intersubjectivity is the capacity for joint attention. The main claim of IT is that primary and secondary intersubjectivity are normally sufficient to explain social interaction.

Primary intersubjectivity might at first glance appear to be exactly the kind of low-level mind-reading that has come into fashion once the connection between ST and mirror neurons was made. Gallagher, however, considers these forms of so-called 'implicit ST' as still being part of the ToM paradigm because they do appear to presuppose the model of a mind hidden behind overt behaviour. If through mechanisms of motor resonance I embody a (faint) copy of your motor intention, I would still need some sort of inference, however automatic and natural, to ascribe this intention to you. Motor-resonance processes are all too real, Gallagher admits, and their relevance to social cognition is beyond dispute. But instead of interpreting them in terms of implicit ST, we should consider them contributions to mechanisms underlying direct perception of other people's intentions along the lines of Varela's and Noë's *enactive* perception.

According to Gallagher, then, using FP, i.e. ascribing beliefs, desires and, especially, reasons for action is not the way we usually go about social interaction. But he does leave room for FP (unlike e.g. Ratcliffe 2007): when our normal expectations of each other, grounded in patterns of interaction based on primary and secondary intersubjectivity, are frustrated, we need occasionally to have recourse to a more detached way of understanding each other. Here it may seem as if there is still some room for ST or TT. But there is an alternative. This alternative – which together with Gallagher's view completes a possible account of social interaction without ToMs – is introduced and defended in the second paper of this issue, Dan Hutto's 'The Narrative Practice Hypothesis: Clarifications and Implications'.

The Narrative Practice Hypothesis (NPH; see Hutto 2004, 2007, 2008) is a theory of the nature of FP that is a third alternative to TT and ST. While Gallagher's criticism of ToM is that in a sense it does too much – we can understand most of our social interaction in more basic and epistemologically direct ways – the claim of Hutto's NPH can be interpreted as saying that when it comes to FP or providing reasons for actions, ToMs do too little. ToMs, according to many, allow us to ascribe beliefs and desires to each other, but reasons for action, according to the NPH, are richer than mere conjunctions of these. To provide a reason for action is to explain these actions in terms of folk-psychological *narratives*. Hutto agrees with Gallagher that much of our interaction does not require any mentalizing or mind-reading at all. But when there is need to make sense of reasons for action, this draws on our capacity to produce and digest folk-psychological narratives; a capacity that is socio-culturally engendered. Although we do speculate about other minds, the core capacity that enables this is based neither on theory nor on simulation. In fact, according to Hutto, we should not suppose that third-personal speculation about other minds is a very reliable way to get at another's reason for action. Importantly, FP competence involves much more than being able to ascribe beliefs and desires to others; it is not what people have when they pass the false belief test. FP competence is something we acquire by being exposed to folk-psychological narratives that abound in our surrounding culture, for instance in conversations, bedtime stories and fairy tales.



The NPH is a complex theory and impossible to introduce briefly. This issue contains a Critical Notice by Leon de Bruin of Hutto's recent MIT book on the NPH that will give a more detailed account of the theory and its place in the overall landscape of options. In his paper, Hutto starts by clarifying the explanandum of the NPH. He goes on to provide a new argument against TT based on the NPH. He then shows that simulation may play some role in the NPH but that FP understanding of each other can never be reduced to simulation and finishes with an assessment of the NPH's standing in view of the existing empirical evidence.

Tad Zawidzki's paper 'The Function of Folk Psychology: Mind Reading or Mind Shaping?', the third paper in this issue, makes a claim that is compatible with – and congenial to – the NPH: FP facilitates human social interaction by providing regulative ideals that function to mould behaviour *rather* than by providing access to hidden mental motivations that allow us to predict the behaviour of others. The first part of Zawidzki's paper is an attack on the idea that FP's main function is to predict the actions of others. The main point is that any folk-theory or practice that yields accurate predictions – and which has survived in the course of human history for that reason – is too unwieldy to be of much use in day-to-day life. TT is rejected on these grounds, building on arguments initiated by Morton (1996). ST is rejected because, roughly, it presupposes an unargued-for and implausible similarity between simulator and simulated other.

In the second part of his paper, Zawidzki describes FP as what he calls a 'mindshaping' practice. FP, according to him, is a socially instituted normative practice designed to drastically reduce the range of possible behaviour in given circumstances through socialization. Rather than being a means to predict human behaviour then, FP is what *makes* human behaviour predictable. This idea is defended by citing scientific studies that appear to support a view of FP as mindshaping, not just as a child-rearing practice, but also as something that pervades adult human interaction. The mindshaping thesis has a number of attractive features, Zawidzki argues. It is compatible with the second-personal view on human interaction defended by, among others, Gallagher and Hutto, for instance. Also, it explains the normative dimension of FP since FP as a mindshaping practice involves the sanctioning of behaviour that deviates from normal FP expectations (not necessarily in a moralistic fashion). Finally, by depicting FP as a prescriptive rather than predictive device, it avoids problems with psychological holism and intractable *ceteris paribus* clauses that plague e.g. a Fodorian view on ToMs.

While the first three papers paint a picture of social interaction without theories of mind, the three papers following these defend some of the traditional options – in rather different ways.

Greg Currie's 'Some Ways to Understand People' combines a defence of ST and ToM approaches in general with a series of attacks on various claims made by Gallagher and Hutto. He starts with a brief defence of what Gallagher calls 'the universality thesis', roughly the idea that FP pervades everyday life. Then he goes on to defend an ST outlook on this everyday practice by countering a two-pronged critique of simulation: low-level, resonance-based simulation is supposed, by Gallagher and Hutto, to be sub-personal and therefore (*sic*; see Goldman) not simulation properly so-called while all high-level FP simulation is supposed to be inferential. Currie argues, on the one hand, that there can be low-level simulation on the personal level even if unconscious, and if we are not inclined to accept this we must accept that simulation can be sub-personal. On the other hand, he denies that personal-level simulation must involve inference. The next charge against ToM to be considered is the claim that understanding of the behaviour of others occurs earlier in development than children's ability to pass verbal false-belief tests. The reply to this charge is to point to the currently heavily discussed non-verbal versions of the false-belief task that appear to demonstrate the ability to understand others – in ToM terms – much earlier than traditional verbal versions acknowledged. After arguing that many kinds of

human interaction are not socially situated, as Currie takes Gallagher and Hutto to claim, he finishes with a remark on the NPH. Narratives may admittedly play a role in social understanding, but we need to explain how we come to understand belief-desire psychology from them. Having argued that narratives often involve an *implicit* belief-desire psychology, Currie claims that ST provides such an explanation: we come to understand it by imaginatively putting ourselves in place of the narrative's protagonist.

There is an interesting contrast between Currie's defence of ST and Robert Gordon's. In a brief reply to Gallagher, entitled 'Beyond Mindreading', Gordon argues that at least his (radical) version of ST is entirely compatible with everything Gallagher claims. Gordon shows that ST need not be committed to the idea that social interaction and social cognition involves an inferential, indirect access to the minds of others, a view for which he uses the term 'mindreading'. Using his earlier example of an adaptation of a scene from Shakespeare's *A Midsummer Night's Dream* (Gordon 1995), Gordon shows how ST, making use of resonance phenomena (or what he earlier called 'hot cognition'), is in no way committed to mindreading. Radical simulation, then, is very close to what Gallagher labelled IT.

A response on behalf of *both* ST and TT can be found in a paper by Mitchell Herschbach entitled 'Folk Psychological and Phenomenological Accounts of Social Perception'. Herschbach provides an elaborate version of a suggestion also made by Currie: that criticism of ToM along phenomenological lines such as not only provided by Gallagher but also by Dan Zahavi is compatible with sub-personal versions of ST and TT. First, Zahavi's attack on TT is scrutinized and found wanting, then the same procedure is applied to Gallagher's attack on ST. Interestingly, Herschbach does recognize the importance of phenomenological evidence and critique for personal-level accounts of social cognition. This, it seems, makes his overall position one which occupies a middle ground in between Currie's and Gordon's. At the end of this volume, Zahavi and Gallagher respond to Herschbach in a brief paper entitled 'The (In)visibility of Others'.

The final paper shows how the controversy over whether there can be social cognition without ToMs has wider consequences and can be applied to further issues in traditional analytical philosophy. In his paper 'Person Perception', Axel Seemann starts by noticing that P.F. Strawson's influential view on the concept of 'a person' as a primitive notion (i.e. as *not* being composites of material and psychological properties), a view that is congenial to the phenomenological take of Gallagher and Zahavi, presupposes a view of 'person perception'. Strawson, however, did not provide such an account. Seemann argues that neither TT nor ST are sufficiently equipped to provide such an account and proceeds with providing a third alternative. This alternative takes its cue from Peter Hobson's intersubjectivism, a view that bears some similarity to many 'shared representations' views (Gallese 2001; Pacherie and Jeannerod 2004). But such views have difficulties accounting for the phenomenological differences between self- and other attribution. Using theories by Hobson and Campbell and developing his own notion of 'simple feelings', Seemann proposes a view on person perception that is in many (but not all) respects congenial to phenomenological views on social interaction.

Views on the nature of social cognition without ToMs are relatively new. Since they are gaining momentum, the debate on whether social cognition can do without ToMs is likely to increase. We hope this issue provides a useful contribution.

## Notes

1. In some sense the debate over theories of mind is a descendant of the problem of other minds. But it is important to stress that the theories of mind debate is not, unlike the other minds debate, concerned



with a *sceptical* problem. It deals with our access to the contents of other minds and how this relates to the access we have to our own minds, not with the question whether and how we can be certain of the existence of other minds.

2. Here's a version of the experiment: children see a scene in which a character, Maxi, puts chocolate in a drawer and goes away. While Maxi is away, his mother takes the chocolate from the drawer, puts it somewhere else and goes out. Then Maxi comes back, and the experimenter asks: 'Where will Maxi look for the chocolate?'. For a long time, following the experiments by Wimmer and Perner in 1983 it was generally held that children before their fourth year tend to predict that Maxi will look where his mother put the chocolate, falsely assuming that Maxi believes what they themselves believe, while after the age of four they correctly attribute the false belief to Maxi that the chocolate is in the drawer. Lately non-verbal versions of the test have been devised that allegedly show children much younger than four to pass the test (e.g. Onishi and Baillargeon 2005; Southgate, Senju, and Csibra 2007).
3. Some writers prefer to classify interpretationism as a separate approach to social cognition, apart from TT and ST. See e.g. Goldman 2006, chap. 3.
4. Many philosophers in the debate think that simulation might involve implicit theorizing. Indeed, the majority of philosophers in the field feel that a final account of our theories of mind abilities must consist of some mix of TT and ST. We shall leave this aside here, as indeed we shall leave most of the debate itself aside. Our aim here is to introduce TT and ST as the two landmarks that up until recently determined the landscape of options.

## References

- Carruthers, P. 1996. Simulation and self-knowledge: A defence of theory-theory. In *Theories of theories of mind*, ed. P. Carruthers and P.K. Smith, 22–38. Cambridge: Cambridge University Press.
- Davies, M., and T. Stone. 2001. Mental simulation, tacit theory, and the threat of collapse. *Philosophical Topics* 29, nos. 1–2: 127–73.
- Dennett, D.C. 1987. *The intentional stance*. Cambridge, MA: MIT Press.
- Fodor, J. 1975. *The language of thought*. New York: Thomas Y. Crowell.
- Gallagher, S. 2004. Understanding interpersonal problems in autism, Interaction theory as an alternative to theory of mind. *Philosophy, Psychiatry, and Psychology* 11, no. 3: 199–217.
- . 2005. *How the body shapes the mind*. New York: Oxford University Press.
- . 2007. Simulation trouble. *Social Neuroscience* 2: 353–65.
- Gallese, V. 2001. The 'shared manifold' hypothesis: From mirror neurons to empathy. *Journal of Consciousness Studies* 8: 33–50.
- Gallese, V., and A.I. Goldman. 1998. Mirror neurons and the simulation theory of mind reading. *Trends in Cognitive Sciences* 2: 493–501.
- Goldman, A.I. 1989. Interpretation psychologized. *Mind and Language* 4: 161–85.
- . 2006. *Simulating minds: The philosophy, psychology and neuroscience of mindreading*. New York: Oxford University Press.
- Goldman, A.I., and C.S. Sripada. 2005. Simulationist models of face-based emotion recognition. *Cognition* 94: 193–213.
- Gopnik, A. 1996. Theories and modules; creation myths, developmental realities, and Neurath's boat. In *Theories of theories of mind*, ed. P. Carruthers and P.K. Smith, 169–83. Cambridge: Cambridge University Press.
- Gopnik, A., and H.M. Wellman. 1992. Why the child's theory of mind really is a theory. *Mind and Language* 7: 145–71.
- Gopnik, A., A.N. Melzoff, and P.K. Kuhl. 1999. *The scientist in the crib: Minds, brains and how children learn*. New York: William Morrow and Company.

- Gordon, R.M. 1986. Folk psychology as simulation. *Mind and Language* 1: 158–71.
- . 1995. Simulation without introspection or inference from me to you. In *Mental simulation: Evaluations and applications*, ed. T. Stone and M. Davies, 53–67. Oxford: Blackwell.
- . 1996. Radical simulationism. In *Theories of theories of mind*, ed. P. Carruthers and P.K. Smith. Cambridge: Cambridge University Press.
- Harris, P. 1989. *Children and emotion: The development of psychological understanding*. Oxford: Blackwell.
- Hatfield, E., J.T. Cacioppo, and R.L. Rapson. 1994. *Emotional contagion*. Cambridge: Cambridge University Press.
- Heal, J. 1986. Replication and functionalism. In *Language, mind, and logic*. ed. J. Butterfield, 135–50. Cambridge: Cambridge University Press.,
- Hutto, D.D. 2004. The limits of spectatorial folk psychology. *Mind and Language* 19: 548–73.
- . 2007. The Narrative Practice Hypothesis: Origins and applications of folk psychology. In *Narrative and understanding persons*, ed. D.D. Hutto, 43–68. Royal Institute of Philosophy Supplement, no. 60. Cambridge: Cambridge University Press.
- . 2008. *Folk psychological narratives: The sociocultural basis of understanding reasons*. Cambridge, MA: MIT Press.
- Jacob, P. 2008. What do mirror neurons contribute to human social cognition?. *Mind and Language* 23: 190–223.
- Jacob, P., and M. Jeannerod. 2005. The motor theory of social cognition: A critique. *Trends in Cognitive Science* 9: 21–5.
- Leslie, A. 1992. Autism and the ‘theory of mind’ module. *Current Directions in Psychological Science* 1: 18–21.
- . 1994. Pretending and believing: Issues in the theory of ToMM. *Cognition* 50: 211–38.
- Lewis, D. 1972. Psychophysical and theoretical identifications. *Australasian Journal of Philosophy* 50: 249–58.
- Melzoff, A.N. 1995. Understanding the intentions of others: Re-enactment of intended acts by 18-month-old children. *Developmental Psychology* 31: 838–50.
- Melzoff, A.N., and M.K. Moore. 1977. Imitation of facial and manual gestures by human neonates. *Science* 198: 75–8.
- Morton, A. 1996. Folk psychology is not a predictive device. *Mind* 105: 119–37.
- Onishi, K.H., and R. Baillargeon. 2005. Do 15-month old infants understand false beliefs?. *Science* 308: 255–8.
- Pacherie, E., and M. Jeannerod. 2004. Agency, simulation, and self-identification. *Mind and Language* 19: 113–46.
- Premack, D., and G. Woodruff. 1978. Does the chimpanzee have a theory of mind?. *The Behavioral and Brain Sciences* 1: 515–26.
- Ratcliffe, M. 2007. *Rethinking commonsense psychology: A critique of folk-psychology, theory of mind, and simulation*. Basingstoke, UK: Palgrave Macmillan.
- Sellars, W. 1956. Empiricism and the philosophy of mind. *Minnesota Studies in the Philosophy of Science* 1: 253–329.
- Southgate, V., A. Senju, and G. Csibra. 2007. Action anticipation through attribution of false belief by 2-year-olds. *Psychological Science* 18: 587–92.
- Stich, S.P., and S. Nichols. 1992. Folk-psychology: Simulation or tacit theory? *Mind and Language* 7: 35–71.
- Wimmer, H., and J. Perner. 1983. Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children’s understanding of deception. *Cognition* 13: 45–57.