

Perception and the problem of access to other minds

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In opposition to mainstream theory of mind approaches, some contemporary perceptual accounts of social cognition do not consider the central question of social cognition to be the problem of access to other minds. These perceptual accounts draw heavily on phenomenological philosophy and propose that others' mental states are "directly" given in the perception of the others' expressive behavior. Furthermore, these accounts contend that phenomenological insights into the nature of social perception lead to the dissolution of the access problem. We argue, on the contrary, that the access problem is a genuine problem that must be addressed by any account of social cognition, perceptual or non-perceptual, because we cannot cast the access problem as a false problem without violating certain fundamental intuitions about other minds. We elaborate the fundamental intuitions as three constraints on any theory of social perception: the Immediacy constraint; the Transcendence constraint; and the Accessibility constraint. We conclude with an outline of an account of perceiving other minds that meets the three constraints.

Keywords: Perception; Problem of Access; Social Cognition; Theory of Mind

1. Introduction

Debates in social cognition have, for some time, centered on the conflict between theory-theories (TT) and simulation theories (ST) of mindreading. Recently, however, the debates are taking a turn towards the emergence of a new paradigm that depicts some instances of social cognition as importantly accomplished by perception. Perceptual accounts of knowing other minds come in a number of varieties (e.g., Cassam, 2007; Dretske, 1973; Gallagher, 2005, 2008; Gallagher & Zahavi, 2012; Green, 2010; Husserl, 1913/1982; Krueger, 2012; McDowell, 1998; McNeill, 2012; Ratcliffe, 2007; Scheler, 1954; Smith, 2010; Strawson, 1959; Stroud, 2004; Zahavi, 2007, 2011;

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45 Zahavi & Gallagher, 2008). Our primary focus will be on a type of account proposed,
 by some contemporary phenomenological philosophers and authors inspired by
 phenomenological philosophy, as an alternative to TT and ST (e.g., Gallagher, 2004,
 2005, 2008; Gallagher & Zahavi, 2012; Hutto, 2009; Krueger, 2012; Leudar & Costall,
 2009; Ratcliffe, 2007; Reddy, 2008; Zahavi, 2007, 2011; Zahavi & Gallagher, 2008).
 50 These accounts claim that perception “directly” picks up another’s mental state
 without any need of theorizing and simulating. We will refer to these accounts as the
 direct social perception (DSP) accounts of social cognition.

TT and ST approach the issue of social cognition under the title of ‘mindreading’ or
 ‘mentalizing’. The focus of discourse for theories of mindreading is, to borrow
 55 Goldman’s expression, “mind thinking about minds” (Goldman, 2006, p. 3). The core
 problem is the problem of accessing other minds over and above perceiving the others’
 bodies (the access problem). TT and ST accept the access problem as a legitimate and
 central problem and offer their respective solutions to the access problem. But DSP
 rejects the formulation of social cognition as essentially a matter of “mind thinking
 60 about minds” and rejects the access problem as a legitimate problem for all cases of
 social cognition. It contends that phenomenological analyses of episodes of social
 cognition, for example perceiving an emotion on someone’s face, reveals that in some
 cases of social cognition (a) bodily expressivity blurs the distinction between mental
 states and merely physical behavior, and (b) social cognition is not necessarily an act of
 65 “thinking”; it is sometimes simply an act of perceiving. Thus the explanandum in
 social cognition must include embodied mind perceiving embodied minds.
 Sometimes we simply see, without the aid of theorizing and simulating, the other’s
 mental state in the other’s bodily expressivity. On this view, thus, it is misleading to
 formulate the main question of social cognition in terms of the problem of access
 70 (Gallagher, 2005, 2008; Gallagher & Zahavi, 2012; Zahavi, 2011).

In this paper we discuss whether DSP’s phenomenological claim dissolves the
 problem of access to other minds (or the access problem) that concerns how we
 understand the other’s mind over and above immediate perceptual experience of the
 other’s body. If one accepts the phenomenological claim concerning the immediate
 75 givenness of the other’s mind in the other’s expressive behavior, does it mean that in
 these cases we no longer need to explore how we go beyond immediate perception in
 understanding other minds? In other words, does the reformulation of the core
 explanandum in social cognition from mindreading to perception imply that the
 access problem is simply a non-starter for any account of social *perception*? Or does the
 80 access problem remain a valid problem that even a theory of perceiving other minds
 ought to address?

We agree with the phenomenological claim that in some cases, the nature of one’s
 awareness of other minds is perceptual; however, we will argue that the access problem
 must remain in the agenda of *any* account of other minds, perceptual or non-
 85 perceptual. Despite their claims to the contrary, DSP, we will argue, must still deal with
 the access problem as a genuine problem in social cognition. In other words, DSP fails
 to dissolve the access problem of other minds by arguing that minds are directly
 perceived in expressive behavior. We contend that dissolving the access problem is not

desirable for a satisfactory perceptual account of other minds. In the following two sections, we elucidate the relation between TT and ST on the one hand, and DSP on the other, from the perspective of the access problem. We discuss how the access problem informs TT and ST, and how it is left out of the agenda of DSP. In section 4, we explain why no theory of social cognition can ignore the access problem, although for a perceptual account, it cannot be formulated in the exactly same way as in TT and ST. In accordance with this claim, we identify three constraints on theories of social cognition, namely, the Immediacy constraint, the Transcendence constraint, and the Accessibility constraint. In section 5, we explore how these constraints will work for a perceptual account.²

2. TT, ST, and the Access Problem

Interdisciplinary research on social cognition typically identifies social cognition with *mindreading*; that is, the cognitive activity of forming representations about the other's mental states, such as beliefs, desires, intentions, emotions, etc., based on the observation of the other's bodily behaviors. Furthermore, mindreading is thought to be mediated by a "theory of mind" (ToM), which is a system of representations of such mental states. On this view, normal adults tacitly understand how each type of mental state (e.g., perception, desire, belief, etc.) relates in a lawful manner to environmental inputs, to other mental states, and to behavioral outputs. We achieve knowledge of other minds by drawing on this kind of tacit understanding, which as a whole, constitutes a ToM.

There are two prominent accounts concerning the precise nature of ToM and mindreading, namely, theory-theory (TT) and simulation theory (ST) (e.g., Carruthers & Smith, 1992; Davies & Stone, 1995). TT holds that the lawful relations between environmental inputs, mental states, and behavioral outputs are actually represented in our minds in the form of a theory (Baron-Cohen, Leslie, & Frith, 1985; Gopnik & Meltzoff, 1997; Gopnik & Wellman, 1995; Nichols & Stich, 2003; Scholl & Leslie, 1999). TT thus conceives of mindreading as a form of tacit theoretical reasoning. There are different opinions concerning the extent to which ToM is analogous to standard scientific theories.³ Advocates of TT, however, are typically in agreement that mindreaders understand other minds by applying folk-psychological laws to observed behaviors.

ST doubts that mindreading requires mental representations of folk-psychological laws. Instead, ST proposes that we understand the other's mind by means of a simulation-plus-projection strategy, that is, by producing pretend or imaginary mental states that we would have if we were in the other's situation, and then imputing them to the other as their genuine states (e.g., Goldman, 1989, 2006; Gordon, 1986; Heal, 1986). Such simulation routines function just like folk-psychological reasoning because our minds conform to folk-psychological laws without representing them as such (Goldman, 2006). ST differs from TT, thus, in claiming that (a) we understand the other's mind by generating in our own minds an imaginary or pretend mental state that aims to be similar to the other's genuine mental state, and that (b) understanding

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another's mental state by simulation draws heavily on neurocognitive mechanisms that enable the mindreader's own experience of the mental state.

135 However, rejecting a necessary role for folk-psychological laws in mindreading does not lead ST to deny the role of some form of reasoning in understanding other minds. ST grants a crucial role to a particular form of reasoning in mental state attribution, a "generate-and-test" strategy (Goldman, 2006, p. 45). In such cases, one forms hypotheses about the mental states that might have caused the other's observed
140 behavior, then launches the simulation routine to test their respective plausibility, and finally attributes to the other those mental states that appeared in the most plausible hypothesis.⁴ Likewise, Gordon insists on "the methodological importance of hypothesis-testing and experimentation in simulation," that there is at the heart of social cognition by simulation a type of reasoning he terms "hypothetico-practical reasoning" (Gordon, 1986, pp. 162–163). Not only TT but also ST thus highlights the
145 role of reasoning in understanding other minds.

The common emphasis by TT and ST on the role of reasoning indicates that both accounts view the problem of other minds primarily in terms of the problem of access to other minds (or the access problem) that concerns how we manage to go beyond
150 perception to understand other minds that are hidden behind their bodily behaviors. They consider social cognition to be achieved by some psychological process over and above the perceptual knowledge of the other's behavior. This is not to say that TT and ST deny that perception may be a basic mechanism for gathering socially salient information such as the data of facial expressions, behavioral features, etc. However,
155 these approaches insist that the perceptual information of the bodily behavior must be processed by some dedicated cognitive mechanisms of mindreading, such as theorizing or simulating to enable an understanding of other minds. The shared underlying assumption of TT and ST is that merely *perceiving* the other's bodily behavior is never tantamount to understanding the other's mental state.

3. DSP and its Critique of the Access Problem

165 The main critique by DSP's adherents of TT and ST targets the starting formulation of the problem of other minds in terms of the access problem. Gallagher writes in a critical tone, "both theory theory and simulation theory set the problem as one of gaining access to other minds" because they assume that "other minds are hidden away, closed in, behind the overt behavior we can see" (2005, p. 209). He argues primarily on phenomenological grounds that "in most intersubjective situations we have a direct understanding of another
170 person's intentions because their intentions are explicitly expressed in their embodied actions" (2005, p. 224). Phenomenological analyses of the nature of the experience of other minds reveals, according to DSP, that we don't need to explain every instance of social cognition as accessing some "hidden" state by theorizing and/or simulating:

175 There is something highly problematic at the phenomenological level of description about claiming that intersubjective understanding is a multi-stage process in which

180 the first stage is the perception of meaningless behavior and the final one an intellectually based attribution of psychological meaning. In the majority of cases, it is quite difficult (and artificial) to divide a phenomenon neatly into a psychological aspect and a behavioral aspect—think merely of a smile, a handshake, an embrace, a leisurely stroll. (Gallagher & Zahavi, 2008, pp. 182–183)

185 DSP's critique of the access problem receives its motivation not only from phenomenological arguments but also from empirical studies in developmental psychology. DSP claims that the dominant formulation of the problem of other minds as a problem of access is implausible from a developmental point of view (e.g., Gallagher, 2005; Zahavi, 2007). Some developmental psychologists report that infants enjoy a primitive form of social understanding before they mindread by ToM (e.g., Hobson, 2002; Reddy, 2008; Rochat, 2001; Trevarthen, 1979, 1998; Tronick, Als, 190 Adamson, Wise, & Brazelton, 1978). For example, in the so-called "still face experiment," a mother and an infant are initially engaged in a reciprocal interaction, where they exchange their facial expressions and bodily gestures. At the experimentalist's order, the mother suddenly becomes non-responsive to the infant's expressions and gestures. Consequently, the infant immediately sobers and becomes 195 wary, and then makes attempts to bring the mother back into the normal pattern of interaction. Finally, she orients her face and body away from the mother, being totally withdrawn and hopeless (e.g., Tronick et al., 1978). This study, among others, suggests that infants already have a primitive form of awareness of others (especially their mothers) as beings with mentality and an awareness of their emotions.⁵ However, such 200 an ontogenetically primary understanding of other minds does not involve mindreading by ToM. DSP interprets these studies in developmental psychology as indicative of an embodied, affective, and perceptual kind of social cognition.

205 Furthermore, some empirical studies suggest that the ontogenetically primary, pre-ToM awareness of others continues to play a central role in adult social cognition. According to TT and ST, bodily coordination between individuals is nothing more than the consequence of social cognition. One comprehends the other's mind through a theory of minds, and subsequently this disembodied, individualistic process leads to the production of bodily coordinations in social scenarios. Psychological studies of adult social cognition, however, reveal that intersubjective interaction in face-to-face 210 encounters is often characterized by automatic attunement to smiles and other facial gestures, rhythmicity of vocal tones, and automatic coordination and synchronization of body postures (De Jaegher, Di Paolo, & Gallagher, 2010; Fuchs & De Jaegher, 2009; Shockley, Richardson, & Dale, 2009). Such bodily coordination also seems to shape the participants' awareness of their interacting partner. Thus, while TT and ST conceive of 215 social cognition as primarily an individual accomplishment, and accordingly, depict bodily attunement and synchronization as external to mindreading itself, such psychological studies suggest that social cognition is an embodied, interactive achievement partly constituted by bodily interaction itself. Seen from the perspective of such studies, social cognition is not primarily an issue of accessing hidden mental states because we are already "attuned" to another's mental state in terms of our ability 220

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to enter into automatic interactions, and this ability constitutes a form of automatic, embodied understanding of other minds.

Based on such phenomenological and empirical considerations, unlike TT and ST, DSP drops the access problem from its agenda. If DSP does not actually address the access problem, however, we can still ask how it ought to deal with it. Can DSP simply
225 abandon the access problem as a false problem pursued by TT and ST? Or does it still remain in the list of problems every theory of social cognition should eventually answer? The following section addresses this issue.

230 4. Revisiting the Access Problem

In view of DSP's roots in classical phenomenological writings, it may be argued that DSP does not need to address the access problem because the access problem is relevant in the empirical context of concrete social encounters, whereas classical phenomenological discussions of intersubjectivity, for example by Husserl, do not primarily engage with empirical debates of concrete social encounters.
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However, we doubt that digging into its Husserlian roots provides a good reason for DSP to drop the access problem from its agenda. Husserl can avoid the access problem because he tackles a more fundamental problem. His account of intersubjectivity as presented in the *Cartesian meditations* is driven by transcendental considerations (Husserl, 1931/1960), and he aims at illuminating the structure of consciousness that forms the basis of the experience of objectivity. Accordingly, whereas the access problem questions how we access other minds on the assumption that we already have the conception of another subject of consciousness, Husserl's concerns are about how it is that we first come up with the very idea of an "other." DSP's research questions are, however, closer to the mainstream theories of social cognition that focus on empirical discussions and, like the mainstream accounts, DSP concerns itself with the psychological nature of our concrete encounters with others, rather than with transcendental issues of constitution. Thus DSP cannot appeal to Husserl's
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250 transcendental philosophy to deny the need to address the access problem.

DSP nonetheless recommends that we remove the access problem from the agenda of social cognition research. The idea seems to be that since in face-to-face encounters perceptual experience immediately presents us with the other's mind, in these cases we typically need not and do not go beyond perceptual experience to understand other people. This is certainly not to say that we never appeal to extra-perceptual cognition to understand other minds. Even proponents of DSP admit that we occasionally undertake theoretical reasoning or mental simulation when direct perception is insufficient. In cases where extra-perceptual cognition is not engaged, however, DSP
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260 seems to suggest, we need not and do not go beyond immediate social perception to understand other people. According to DSP, there is no room for addressing the access problem with respect to direct social perception.

This treatment of the access problem, however, is inadvisable. To see why, consider under what conditions we can suppose that the access problem is a false problem. It is

265 only when people do not go beyond perceptual experiences of expressive behavior in
understanding other people. This would only be the case if perception of expressive
behavior provides us with a full understanding of the other's mind. For, even if some
aspects of the other's mind are immediately given in his or her expressive behavior, as
270 long as the mental state is not fully manifest to us, we still need to go beyond the
immediate experience to gain a better understanding of the other. Accordingly, one
could remove the access problem from the explananda of a theory of social cognition
only if one assumes that mental states are given in expressive behavior in a way such
that not a single significant aspect of mental states qua mental states are hidden from
our view in the experience of expressive behavior. This assumption, however,
275 contradicts a fundamental intuition about other minds: the intuition that other minds
are characterized by an "otherness" partly because they are always transcendent of
what we experience. The *experienced* transcendence of the other is a constitutive
feature of intersubjective experience, without which it would no longer be an
experience of other subjects (Husserl, 1931/1960).⁶ If the access problem can be
280 removed only at the expense of this fundamental intuition, DSP is obviously better off
including the problem in its agenda. We thus claim that the access problem is a
genuine problem for every theory of social cognition including DSP.

We must note that proponents of DSP are actually aware of the need to
accommodate the transcendence as well as the immediate givenness of the other's
285 mind. As Zahavi writes, "we experience the behavior of others as expressive of mental
states that *transcend* the behavior that expresses them. . . . The otherness of the other
is exactly *manifest* in his elusiveness and inaccessibility" (Zahavi, 2007, pp. 35–36).
In pushing forward the directness of social understanding, thus, DSP only contends
that we can immediately perceive the other's mind *in a limited aspect*, much less that it
290 is reducible to patterns of physical behaviors fully manifest to the public view.
Accordingly, DSP cannot be accused of losing grip of the transcendence of other
subjects (see also Overgaard, 2005).

Given that proponents of DSP are aware of the need to accommodate the
transcendence of other minds, one might think that DSP is well-equipped to address
295 the access problem. Recognizing the other's transcendence, however, is not enough to
fully appreciate the urgency of the access problem, for the access problem depends not
only on the intuition that the other's mind is always partly hidden away, but also on a
related intuition that the hidden aspects of the other's mind are potentially accessible.
It stands as a genuine problem, because although the other's mind is manifest only to a
300 limited extent, it is not experienced as totally beyond our epistemic reach. On one
hand, if the other's mind were fully manifest, there would be no need for us to go
beyond immediate experience, and so the access problem will not emerge. On the
other hand, if it were totally beyond our epistemic reach, it would be impossible for us
to gain a better grasp of the other's mind than what we have in the perception of
305 expressive behavior, and so again the access problem will not emerge. We argue that
DSP so far fails to do justice to the access problem, not because it fails to recognize the
experienced transcendence of the other, but because it fails to pay due attention to the
experienced possibility to access the hidden parts of the other's mind.

By insisting on the inclusion of the access problem into the explananda of a theory of social cognition, we are not claiming that theorists ought to explain how we access the other's mind on the basis of his or her physical behaviors. This is certainly the standard way of formulating the access problem; however, this formulation of the problem is unacceptable since it implies a denial of the immediate presence of the other's mind in experience. Accordingly, this formulation leads to a dilemma: we can either address the access problem but lose sight of the immediate presence of the other's mind, or hold onto the experiential immediacy of the other's mind but fail to address the access problem. Under this formulation, thus, DSP or any perceptual account can never meaningfully address the access problem.

However, this is not the only way of formulating the access problem. As we suggested above, the access problem gains its motivation from the following two intuitions: (i) the other's mind is always partly hidden away from one's immediate experience, but (ii) the hidden aspects are given as something which are given as potentially accessible, or in other words, *perceptually accessed as transcendent*. In this formulation of the access problem, the "hidden" aspects of the other's mental state are not construed as some inner Cartesian realm detached from observable behavior. Rather, the "hidden" aspects are aspects that *are perceptually accessed* but only as aspects that overflow the perceived expressive behavior and are at best made determinate by going beyond immediate experience of expressive behavior. Thus, to say that the access problem remains in the list of problems theories of social cognition must resolve amounts to saying that theories of social cognition should be answerable to the two intuitions (i) and (ii). Accordingly, DSP will count as having accounted for the access problem if it accommodates (i) and (ii) with a third premise: (iii) DSP's central claim concerning the immediate givenness of other minds. If DSP fails to accommodate all three premises it may well be accused of failing to explain an important aspect of our ability to understand other people.

Put differently, we propose that these premises function as constraints on how theories of social cognition must account for the nature of social perception. Given the discussion so far, the nature of social perception should be explicated in line with the following three constraints:

- *The Immediacy constraint*. Social perception presents us immediately with other minds.
- *The Transcendence constraint*. Social perception presents us with other minds only in a limited aspect.
- *The Accessibility constraint*. Social perception presents the hidden aspects of other minds as aspects that are perceptually accessed as transcendent and at best made determinate by going beyond immediate experience of expressive behavior.

When it comes to describing the nature of social perception, proponents of DSP have mostly focused on the immediacy of the other's givenness. Accordingly, it remains unclear whether and how DSP satisfies the Transcendence and the Accessibility constraints. In contrast, TT and ST could be interpreted as mostly concerned with the Transcendence constraint, paying much less attention to the Immediacy and Accessibility constraints.⁷ We contend that any account of social perception ought to

illuminate its nature under all three constraints in order to form the basis of a comprehensive theory of social cognition. In the following section, we present a first outline of how a theory of social perception can meet the constraints by elaborating a particular view on the content and object of social perception.

5. Co-Presentation Accounts of Social Perception

We claim that theories of social cognition must include an account of social perception in accordance with the Immediacy constraint, the Transcendence constraint, and the Accessibility constraint. But can any perceptual account of other minds accommodate the Transcendence and Accessibility constraints without compromising the Immediacy constraint? Our next task is to provide a more concrete idea of how our proposal is supposed to work for perceptual accounts of other minds. In the following, we introduce the preliminary outline for a theory of social perception satisfying the three constraints by drawing on a Husserlian account of perception.

Husserl's account of perceptual experience introduces the notion of the horizontal structure of experience. According to Husserl, perceptual experience is composed of "a core of 'what is actually presented' [that] is apprehended as being surrounded by a horizon of 'co-givenness'" (1913/1982, p. 94). For example, in the perception of a book, the presentation (or givenness) of its side facing the perceiver is accompanied by the co-presentation (or co-givenness) of its rear sides and its innards. Consequently, our perceptual experience directly concerns the book itself with the front side, the rear sides, and the innards. We do not see the front side, and then come to recognize it as part of a book by virtue of further cognition. Perception presents us with the book itself in a particular aspect, instead of any of its partial aspects in isolation, because the object of perception is jointly determined by the presented and the co-presented content.

Husserl also brings in the notion of co-presentation to account for perceptual access to other minds.⁸ What we are co-presented with in perceptually experiencing other people as having minds is "harmonious behavior" (Husserl, 1931/1960, p. 114)—that is, a loosely unified set of further behaviors the other may manifest as the situation evolves. For example, when I see a baby being miserable, I anticipate him or her to further manifest certain types of behaviors, such as weeping or yelling, but not other types of behaviors, such as cackling or singing. According to Husserl, these anticipations partly constitute the perception of the miserable baby. In such ways, the horizontal awareness of the other's future behavior combined with the presenting awareness of his or her current expression constitute the perceptual experience of the other's expressive behavior as already equipped with mental meaning as well as physical properties. This is not to say that there is no difference between the perception of a mere physical thing and the perception of another person. Whereas the physical thing is experienced as something the co-presented aspects of which can be presented in a sensorial manner, for the other's mentality "such [sensorial] verification must be excluded a priori" (Husserl, 1931/1960, p. 109). Despite this difference, material perception and social perception are on a par in that their contents are determined by

their horizontal structure of co-presented content, albeit constituted by different types of anticipations. Perception of physical things draws on sensorimotor anticipations of how the profile of the object would change as a function of change in the observer's or the object's position, while perception of other minds draws on anticipations of harmonious behavior.

Smith (2010) elaborates on a perceptual account of knowing other minds by combining a Husserlian account of perception and a functionalist conception of mental states. He suggests that the presentation of the current behavior and the co-presentation of further behaviors jointly allow our perceptual experiences to “latch onto” functional properties characteristic of mental states. For example, one might define “being miserable” as a functional property of a state that produces a frown given an unpleasant event, a weep given a sequence of unpleasant events after the initial event that triggered the frown, a yell given a sequence of even more unpleasant events after the initial event, etc. Then, if our perceptual experience involves the presentation of the other's frown with the co-presentation of his or her possible weeping and yelling in response to certain future situations, it “latches onto” the functional role associated to the mental property “being miserable.” Thus, Smith suggests that we may perceive other people as instantiating mental properties if the experience “latches onto” the functional role associated to those properties by virtue of the perceptual horizon constituted by possible presentations of the other's further behaviors. We call accounts of the type proposed by Husserl and Smith “co-presentation accounts of social perception” (CPP). They provide a significant elaboration on the phenomenon of direct social perception by articulating the structure of experience that enables the perception of other minds. According to CPP, the perception of an embodied mind consists of the presentation and the co-presentation of actual and possible behaviors.

Let us now consider how congruent CPP is with the three constraints on theories of social cognition described above. First, given its heavy reliance on Husserl's account of perceptual experience, CPP obviously conforms to the Immediacy constraint. Since the other's mentality is always only co-presented, never actually presented in a sensorial manner, one might be misled to conclude that Husserl's account of social perception denies that the immediate object of perceptual experience involves mentality (e.g., Krueger, 2012). This conclusion, however, only derives from a misunderstanding of Husserl's view. According to Husserl, the horizontal structure of perceptual experience generally allows us to directly encounter the thing itself with its presented and co-presented aspects, rather than its actually presented aspect alone. If perceptual experience involves presentation and co-presentation, thus, it does not mean that our perceptual awareness is immediately concerned with the former and only secondarily so with the latter. Rather, we perceive the thing itself that involves both the presented and the co-presented aspects, but cannot be identified with either of them. When we see a book, for example, what is directly given to our experience is a book with a three-dimensional, voluminous, cuboid shape; the direct object of perception is not the part of its surface facing our eyes. It is only through the mediation of retrospective reflection that we come to recognize that only the latter was

actually sensorily presented to us. Likewise, in the case of social perception, thanks to the perceptual horizon constituted by anticipations of harmonious behavior, we see expressive behaviors that already have mental meanings, rather than physical behaviors devoid of mentality. As Husserl writes, “the two [i.e., presentation and
 445 co-presentation] are so fused that they stand within the *functional community of one perception*, which simultaneously presents and appresents [i.e., co-presents], and yet furnishes for the total a consciousness of its being itself there” (1931/1960, p. 122). Alternatively, as Smith writes, “we see others as *persons*, possessing both mental and
 450 physical properties” (2010, p. 742), rather than bodies determined by their physical properties alone. In the Husserlian account of perception, in short, the notions of “directness” and “indirectness” of the perceptual object are not equated with the notions of “sensory presentation” and “co-presentation,” respectively. Thus, CPP meets the Immediacy constraint just as well as DSP.

Second, CPP also conforms to the Transcendence constraint. Husserl states that the
 455 “horizon of ‘co-givenness’” involves a “more or less vague *indeterminateness*” (1913/1982, p. 94). For example, in the perception of a book, its rear aspects are co-given as being colored without being co-given as having any one determinate color. Hence, although the book is given as a determinate thing, the perceptual experience does not determine it in its full entirety. The same goes with cases of social perception.
 460 Even when we see the other as having a determinate mental state, the mental state is not given as fully determined in our experience. Even when we are directly aware of another’s expressive behavior as already having mental meaning, there is always more about his or her emotion, intention, etc., than what we are aware of. Furthermore, unlike the indeterminate, hidden aspects of a physical thing, those of the other’s
 465 mentality do not even involve the possibility of revealing themselves in the form of sensory presentation. Accordingly, CPP depicts both physical things and other people as always transcendent of our experience, but the latter as more radically so than the former.

Third, CPP accommodates the Accessibility constraint as well. Following Husserl,
 470 Smith notes that the co-presented is not only given as indeterminate, but is also always involved in “a horizon of determinable indeterminateness” (Husserl, 1913/1982, p. 95). The indeterminate aspects of the other’s co-presented mentality are not given as aspects to which the perceiver has no access whatsoever. They are given as aspects that are *perceptually accessed as transcendent*, whose indeterminateness is best made
 475 determinate by going beyond immediate perception of expressive behavior. For example, the perceived mental property of the other “being miserable” may have as its indeterminate aspect “being abjectly miserable,” “being tolerably miserable,” and many other ways of being miserable (Smith, 2010, p. 745). While the exact way of the other being miserable is indeterminate for the perceiver, the latter
 480 nonetheless is aware that he or she is perceptually accessing some transcendent aspect of the other’s mind, which he or she can make *somewhat* determinate by going beyond the immediate experience of expressive behavior. We can do this by simply seeing the other’s behavior for a certain extended period, but more effectively by drawing cognitively on contextual knowledge and verbal reports.

485 CPP is able to accommodate the three constraints of Immediacy, Transcendence, and Accessibility largely because it adopts what we may term a *rich content-lean object* view rather than a *lean content-rich object* view about the experience of seeing other people.

490 According to the rich content-lean object view, the perceptual content of seeing minds goes beyond the perceptual content of seeing the sensory properties of expressive behavior (such as change in color of the face, etc.). The rich-lean view describes social perception as having two types of contents, presented and co-presented, which jointly constitute a single perceptual object, the other's expressive behavior as having mental meaning. Thus, going back to our example of perceiving
495 the mental state of the child as "miserable," CPP explains our perception of the child's mental state in terms of rich perceptual content combining the sensorily presented content of expressive behavior and the co-presented content of anticipation of harmonious behavior. The two contents constitute the single perceptual object—"a miserable child."

500 In contrast, the lean content-rich object view describes the content of social perception only in terms of the presented sensory content (such as change in color of the face) and the perceptual object is described as a mental state. Thus in the lean-rich view one would explain the perception of the miserable child in terms of perceptual content confined to sensorily presented content of expressive behavior, such as crying,
505 and which leads to the perceptual object as a full-blown (perceptual) understanding of the mental state of "a miserable child." Supporters of DSP may sometimes appear to promote the lean content-rich object view although it may not be a view they would want to defend.⁹

510 The discussion described above clearly shows why we should conceive of social perception in terms of the rich-lean view or CPP. The alternative to the rich-lean view, namely the lean-rich view, is unacceptable for the following two reasons, if a perceptual account proponent were to choose to defend it. First, it seems to invite a dilemma of choosing between behaviorism and Cartesianism in explaining how mental states are known only on the basis of the presented expressive behavior. Either
515 the expressive behavior is the mental state or the mental state is something inferred on the basis of the perception of the behavior. Second, if the content of social perception is only the presented content of expressive behavior whereas the perceptual object involves a mental state, it is difficult (if not impossible) to understand the features of social perception without compromising the Accessibility constraint. It is unclear in
520 what sense any of the sensorily presented content, such as color, shape, etc. could offer access to hidden aspects of mental states as aspects that are *transcendent* of the current perception.

525 A branch of DSP sometimes models itself as an account of "enactive" perception (Gallagher, 2008; Gallagher & Povinelli, 2012) which refers to a view of perception as constitutively enabled by the embodied perceiver's sensorimotor engagement with the world (Noë, 2004). In the context of social perception, it refers to a view of perception as constitutively enabled by social "interaction." Enactivist or Interactionist versions of DSP contend that the access problem does not arise for DSP, or for that matter for any

Interactionist account of social cognition (e.g., De Jaegher et al., 2010), because we are already in touch with another's mental state in our capacity to enter into automatic social interactions (De Jaegher et al., 2010; Fuchs & De Jaegher, 2009; Shockley et al., 2009).¹⁰ It may be objected by Interactionists that CPP accommodates the Transcendence and Accessibility constraints only by over-intellectualizing the content of social perception and ignoring the role of social interaction in social cognition. However, we claim that CPP allows expansion into an "action-oriented" account of social perception, where the perception of another's mental state acquires its content in virtue of the perceiver's capacity to enter into a unique type of interaction with the world. We briefly elaborate on the idea as follows.

5.1. *An Action-Oriented Account of Social Perception*

Co-presentation accounts conceive of the perception of mental states as constituted by expectations of certain action possibilities. Husserl and Smith characterize the co-presented content in terms of the perceiver's expectations of harmonious behavior from the perceived other. But what psychological process enables these expectations? We propose that the nature of the expectations is well captured by drawing on one's practical knowledge of interaction with the world. Indeed, such knowledge allows characterization at a number of levels, beginning from the level of bodily skills of interaction and reaching into more cognitively complex levels of integrating knowledge of context and situatedness.

A philosophical precursor of the view that social perception draws on bodily skills is found in Merleau-Ponty's account of the fundamental role of bodily skills, or the *body schema* or *corporeal schema*, in shaping the processes of perception and action into a unified process of interacting with the world. Observing that a 15-month-old infant opens his or her mouth when an adult takes one of the infant's fingers between his or her teeth and pretends to bite it, Merleau-Ponty writes, "biting' has immediately, for it [the infant], an intersubjective significance. It perceives its intentions in its body, and my [the adult's] body with its own, and thereby my intentions in its own body" (1945/2002, p. 210). The infant does not have a conceptual or theoretical understanding of the other person's intentions. But nonetheless, he or she is able to enter into an ontogenetically primitive form of social interaction with another person because he or she is able to perceive the other's intention by using his or her motor system, or by a primitive form of perception-action coupling, a primitive form of bodily interaction with the world. As Merleau-Ponty puts it elsewhere,

I can perceive that the other is an organism, that the organism is inhabited by a "psyche," because the visual image of the other is interpreted by the notion I myself have of my own body and thus appears as the visible envelopment of another "corporeal schema." (1960/1964, p. 118)

In contemporary mindreading literature, the discovery of mirror neurons led some simulation theories to build their account of social cognition on perception-action coupling mechanisms at the level of practical bodily skills (Gallese, 2003;

Gallese, Fadiga, Fogassi, & Rizzolatti, 1996; Gallese, Keysers, & Rizzolatti, 2004). The type of perception-action coupling discussed by these accounts is typically automatic mirror “resonance” phenomena where the perception of a goal-directed behavior triggers activation in parts of the neural motor system of the perceiver used for producing the same behavior. Such visuo-motor coupling, described as a process of simulation, grounds the understanding of the other’s behavior as intentional. Thus, perception-action coupling, as a mirroring or resonating mechanism, enables mindreading by simply drawing on the perceiver’s capacity of motor interaction with the world.

The description of perception-action coupling in terms of automatic resonance in some visuo-motor neurons, or “mirror” neurons, is accepted as virtually the default account of perception-action coupling mechanisms at the level of bodily skills. However, the mirroring account is severely limited regarding the scope of perception-action coupling in social cognition. There is much more to say about the nature of perception-action coupling in social perception, even at the level of bodily skills, than simply the coupling of visual processing with motor resonance mechanisms. By broadening the description of perception-action coupling beyond mirroring, an account of social perception sufficiently broadens the description of interaction at the bodily level to subsequently integrate more cognitively complex levels of practical knowledge of interaction incorporating context and situatedness. Indeed, such a proposal receives prima facie support from recent empirical studies in social neuroscience which demonstrate that processing of perceptual stimuli underlying the perception of another’s intention recruits brain regions known to be involved in action monitoring, response inhibition, motor preparatory processes, and communicative intentions (e.g., Schilbach et al., 2010; Schilbach et al., 2013).

At the level of bodily skills, extending the scope of interaction beyond mere mirroring phenomenon into richer types of perception-action coupling equips the account to satisfactorily answer the question: how is the other presented in social interactions? Consider the following scenario. Suppose you take a jug and bring it towards my empty glass, and I tilt the glass so that you can pour water in it. I understand your intention, but your and my intentions do not mirror each other. You intend to pour water in my glass and I show my understanding of your intention by an action different from yours. But the actions we perform are not arbitrary. Rather, they are performed to differ in such a way that they complement each other and jointly support the interaction. This case is easily generalized to most instances of social interaction. Social interaction is a matter of *response* to another intentional agent involving complementarity of actions and not merely automatic resonance to another agent. For one to be aware of interacting with an intentional agent and not merely with an automaton, it is necessary that the “other” be given as an agent who solicits a complementary action. Moreover, the capacity to perform complementary actions importantly includes practical knowledge of context and situatedness that often determine the motor planning at the level of bodily skills.¹¹ Gangopadhyay and Schilbach (2010) describe the case of the so-called “automatic resonance” response of smiling back when one is smiled at. They write:

620 Thus, for instance, we may automatically attune to perception of smiles by smiling back. However, if a woman finds herself alone in a subway late at night and a stranger suddenly draws close with a smile on his face, it is doubtful that she will automatically smile back. An account of other minds should be able to explain why sometimes we smile back when we see a smiling face and at other times we flee the scene. (Gangopadhyay & Schilbach, 2010, p. 415)

625 These considerations show how the active and interactive dimension of social perception is appreciated from the perspective of CPP. In the cases of interaction described above, one does not simply hold perceptual expectations about the other's harmonious behaviors in objective terms. That is, the content of the expectation is *not* properly expressed in the following type of counterfactual: if the situation were such and such, the perceived agent would behave in such and such a way. Rather, one's awareness of the other's harmonious behavior is formed in connection to one's awareness of one's own action possibilities and reaction possibilities to them. Thus, the content of the perceptual expectation constitutive of social perception in interaction is only expressible by the following sort of counterfactual: if I react in such and such a way, he or she would react in such and such a way. This *action-oriented* variation of CPP accommodates the centrality of social interaction as well as the active nature of social perception.

640 6. Conclusion

645 In this paper, we discussed the relation between an emerging group of perceptual accounts of other minds (DSP), which claim that sometimes knowing another's mental state is simply a matter of directly perceiving it, and the traditional problem of access to other minds discussed by non-perceptual accounts. We have argued that the access problem remains a valid problem for any account of social cognition, perceptual and non-perceptual, because we must violate certain fundamental intuitions about other minds to dismiss it as a false problem. These intuitions, although acknowledged by DSP, are not integrated into the theory. We develop these intuitions into constraints on how theories of social cognition account for the nature of social perception. We have proposed that the nature of social perception should be explicated in line with the Immediacy constraint, the Transcendence constraint, and the Accessibility constraint. Finally, we have presented a first outline of how a theory of social perception meets the three constraints by construing mentality as co-presented in the perception of expressive behavior. Thus, even if other minds are perceived, they are only perceived as transcendent of the other's expressive behavior.

660 Our proposal implies fruitful ways of moving forward in the debate between perceptual accounts of knowing other minds and the mainstream ToM paradigms. Some recent theories in social cognition also point out important ways for integrating perceptual theories with theory-theory and simulation theory approaches (e.g.,

Carruthers, 2011, 2013; Herschbach, 2008; Lavelle, 2012; Smith, 2010). We are sympathetic to these approaches but we further argue that for a satisfactory account of the cognitive processes of understanding other minds—an account that combines a discussion of perceptual and non-perceptual processes—there is urgent need for an adequate framework for perceptual accounts. DSP typically opposes such a framework to ToM paradigms (e.g., Gallagher & Zahavi, 2012), but if that were the case, then there could be no coherent account of social cognition encompassing both perceptual and non-perceptual processes. This is a strange situation to find oneself in because, after all, human social cognition does involve the use of both perceptual and extra-perceptual cognitive processes.

Our proposal of CPP suggests that rather than being in a relation of mutual exclusivity, perceptual and ToM approaches have important lessons to learn from each other for the development of an adequate framework of social cognition. For example, on one hand, ToM paradigms have much to learn about what is so unique about the *experience* of other people, which often constitutes the background of episodes of mindreading mediated by folk psychological theorizing or mental simulation. On the other hand, perceptual accounts also have much to learn from ToM accounts: the latter provide resources to explore the cognitive processes that help us make the other's indeterminate mental state as determinate as possible. We would like, therefore, to end our paper on the positive note that future research in social cognition will be built on successful integration of an adequate account of perception of other minds with mainstream mindreading paradigms, which recognize the special role of perception in mindreading.

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Notes

- [1] The authors are listed in alphabetical order. They contributed equally to this work.
- [2] We place our discussion within the domain of the cognitive processes involved in understanding other people's mental states, rather than the domain of epistemological questions of how we acquire *knowledge* about other people's mental states. We concur with Bohl and Gangopadhyay, who characterize the primary aim of theory of mind (ToM) accounts and direct perception accounts as follows:

The purpose of ToM accounts is not necessarily to provide an epistemological account of how we acquire *knowledge* about the mental states of others. It is assumed that people attribute mental states, correctly or not, and ToM accounts explain the cognitive processes that underlie

705 this practice The discussion of whether mindreading relies on inferential processes or on direct perception primarily concerns the cognitive processes rather than the epistemological status of mental-state attributions. (forthcoming)

We thank an anonymous reviewer for helping us clarify the domain of discourse.

710 [3] Some theorists advocate a strong analogy between ToM and other scientific theories. They even claim that children acquire a ToM just like a scientist developing a scientific theory (e.g., Gopnik & Wellman, 1992). Other theorists doubt that the analogy holds so far, and rather consider ToM in terms of modular capacities with an innate basis (e.g., Scholl & Leslie, 1999).

715 [4] Goldman (2006) distinguishes between “low-level” and “high-level” mindreading, where the former proceeds without any form of reasoning. Low-level mindreading is “simple, primitive, automatic, and largely below the level of consciousness” (2006, p. 113). Goldman describes the prototype for “low-level” mindreading as “the mirroring type of simulation process” (2006, p. 147). Mirroring per se, however, is not mindreading proper at all. Rather, mirroring leads to mindreading only when followed by conceptual acts Goldman calls “mental state classification (M-classification)” and “imputation” (2006, pp. 133–134).

720 [5] As one of the reviewers pointed out, there may be alternative interpretations of the experiment, according to which the infants’ distress is simply the result of anticipations about the object in front them (i.e., their mother) not being met. Since the purpose of the current discussion is only to provide some background about the empirical motivations of DSP, we simply offer the standard interpretation supported by some developmental psychologists and endorsed by proponents of DSP. For example, Rochat, Striano, and Blatt write,

725 Of all existing experimental paradigms, the phenomenon associated with the still-face procedure is arguably the most robust and reliable measure of affective attunement and implicit social cognition in early development. It points to young infants’ sensitivity of others as communicative agents who, when engaged in eye-to-eye contact, are expected to be socially responsive and to reciprocate (Rochat & Striano, 1999). In general, the still-face phenomenon suggests that early on infants are actively engaged in monitoring how people relate to them: how they feel and what they will do next in the context of dyadic exchanges. (2002, p. 290)

730 [6] Husserl writes:

735 Neither the other Ego himself, nor his subjective processes or his appearances themselves, nor anything else belonging to what is essentially his own, becomes given in our experience originally. If it were, if what belongs to the other’s own essence were directly accessible, it would be merely a moment of my own essence. (1931/1960, p. 109)

[7] Some recent theory of mind (ToM) approaches have pointed out how ToM theories need not be exclusively concerned with understanding non-perceptual mechanisms of mindreading but could be broadened to include processes that facilitate immediate experience of other minds (e.g., Carruthers, 2011, 2013; Lavelle, 2012).

740 [8] Husserl writes:

745 Human beings as components of the external world are originally given insofar as they are apprehended as unities of corporeal Bodies and souls. The Bodies which are externally standing over against me are experienced by me in primal presence just like other things, whereas the interiority of the psychic is experienced in appresence [co-presence]. (1952/1989, section 45)

[9] Critics also sometimes interpret DSP in terms of the lean content-rich object view. For example, Jacob criticizes DSP for its inability to “distance itself from behaviourism” (2011, p. 531). This criticism is arguably based on such a reading of DSP. By articulating its account

in terms of the rich content-lean object view, DSP will be able to deal with this type of criticism.

- [10] For an extensive critique of “Interactionism” as a self-sufficient research paradigm in social cognition, see Overgaard and Michael (forthcoming).
- [11] This opens up the possibility that the types of “theories” discussed by ToM approaches as “theories of mind” need not be confined to merely knowledge about facts of other minds. Practical knowledge of interaction involving context and situatedness may, over development, be consolidated into a database of “knowing-how” to interact. CPP thus enables mainstream ToM paradigms to focus beyond merely rule-based knowledge of facts about other minds as “theories” of other minds and include practical understanding of interaction as non-trivial part of a theory of mind. Indeed, it may be the case that such practical understanding is what enables one to gather any fact about other minds. We thank an anonymous reviewer for pointing this out.

References

- Baron-Cohen, S., Leslie, A., & Frith, U. (1985). Does the autistic child have a “theory of mind”? *Cognition*, 21, 37–46.
- Bohl, V., & Gangopadhyay, N. (forthcoming). Theory of mind and the unobservability of other minds. *Philosophical Explorations*. DOI: 10.1080/13869795.2013.821515.
- Carruthers, P. (2011). *The opacity of mind*. Oxford: Oxford University Press.
- Carruthers, P. (2013). Mindreading in infancy. *Mind & Language*, 28(2), 141–172.
- Carruthers, P., & Smith, P. K. (Eds.). (1992). *Theories of theories of mind*. Cambridge: Cambridge University Press.
- Cassam, Q. (2007). *The possibility of knowledge*. New York: Oxford University Press.
- Davies, M., & Stone, T. (Eds.). (1995). *Folk psychology: The theory of mind debate*. Oxford: Blackwell.
- De Jaeger, H., Di Paolo, E., & Gallagher, S. (2010). Can social interaction constitute social cognition? *Trends in Cognitive Sciences*, 14(10), 441–447.
- Dretske, F. I. (1973). Perception and other minds. *Noûs*, 7(1), 34–44.
- Fuchs, T., & De Jaeger, H. (2009). Enactive intersubjectivity: Participatory sense-making and mutual incorporation. *Phenomenology and the Cognitive Sciences*, 8, 465–486.
- Gallagher, S. (2004). Understanding interpersonal problems in autism: Interaction theory as an alternative to theory of mind. *Philosophy, Psychiatry, and Psychology*, 11(3), 199–217.
- Gallagher, S. (2005). *How the body shapes the mind*. Oxford: Clarendon.
- Gallagher, S. (2008). Direct perception in the intersubjective context. *Consciousness and Cognition*, 17, 535–543.
- Gallagher, S., & Povinelli, D. J. (2012). Enactive and behavioural abstraction accounts of social understanding in chimpanzees, infants, and adults. *Review of Philosophy and Psychology*, 3, 145–169.
- Gallagher, S., & Zahavi, D. (2012). *The phenomenological mind*. London: Routledge.
- Gallese, V. (2003). The manifold nature of interpersonal relations: The quest for a common mechanism. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, 358, 517–528.
- Gallese, V., Fadiga, L., Fogassi, L., & Rizzolatti, G. (1996). Action recognition in the premotor cortex. *Brain*, 119, 593–609.
- Gallese, V., Keysers, C., & Rizzolatti, G. (2004). A unifying view of the basis of social cognition. *Trends in Cognitive Sciences*, 8, 396–403.
- Gangopadhyay, N., & Schilbach, L. (2010). Seeing minds: A neurophilosophical investigation of the role of perception-action coupling in social perception. *Social Neuroscience*, 7, 410–423.
- Goldman, A. I. (1989). Interpretation psychologized. *Mind & Language*, 4, 161–185.

- Goldman, A. I. (2006). *Simulating minds: The philosophy, psychology, and neuroscience of mindreading*. Oxford: Oxford University Press.
- 795 Gopnik, A., & Meltzoff, A. (1997). *Words, thoughts, and theories*. Cambridge, MA: MIT Press.
- Gopnik, A., & Wellman, H. M. (1992). Why the child's theory of mind really is a theory. *Mind & Language*, 7, 145–171.
- Gordon, R. M. (1986). Folk psychology as simulation. *Mind & Language*, 1, 158–171.
- Green, M. (2010). Perceiving emotions. *Proceedings of the Aristotelian Society, Suppl. Vol. 84*, 45–61.
- 800 Heal, J. (1986). Replication and functionalism. In J. Butterfield (Ed.), *Language, mind, and logic* (pp. 135–150). Cambridge: Cambridge University Press.
- Herschbach, M. (2008). Folk psychological and phenomenological accounts of social perception. *Philosophical Explorations*, 11(3), 223–235.
- Hobson, P. (2002). *The cradle of thought: Exploring the origins of thinking*. London: Pan Macmillan.
- Husserl, E. (1960). *Cartesian meditations: An introduction to phenomenology* (D. Cairns, Trans.). The Hague: Martinus Nijhoff. (Original work published 1931)
- 805 Husserl, E. (1982). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: First book: General introduction to a pure phenomenology* (F. Kersten, Trans.). The Hague: Martinus Nijhoff. (Original work published 1913)
- Husserl, E. (1989). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy: Second book: Studies in the phenomenology of constitution* (R. Rojcewicz & A. Schuwer, Trans.). Dordrecht: Kluwer. (Original work published 1952)
- 810 Hutto, D. (2009). ToM rules, but it is not OK! In I. Leudar & A. Costall (Eds.), *Against theory of mind* (pp. 221–262). New York: Palgrave Macmillan.
- Jacob, P. (2011). The direct-perception model of empathy: A critique. *Review of Philosophy and Psychology*, 2, 519–540.
- Krueger, J. (2012). Seeing mind in action. *Phenomenology and the Cognitive Sciences*, 11, 149–173.
- 815 Lavelle, J. S. (2012). Theory-Theory and the Direct Perception of Mental States. *Review of Philosophy and Psychology*, 3(2), 213–230.
- Leudar, I., & Costall, A. (Eds.). (2009). *Against theory of mind*. New York: Palgrave Macmillan.
- McDowell, J. H. (1998). *Meaning, knowledge, and reality*. Cambridge, MA: Harvard University Press.
- McNeill, W. E. S. (2012). On seeing that someone is angry. *European Journal of Philosophy*, 20, 575–597.
- 820 Merleau-Ponty, M. (1964). The child's relations with others (W. Cobb, Trans.). In J. M. Edie (Ed.), and W. Cobb (trans), *The primacy of perception and other essays on phenomenological psychology, the philosophy of art, history, and politics* (pp. 96–155). Evanston, IL: Northwestern University Press. (Original work published 1960)
- Merleau-Ponty, M. (2002). *Phenomenology of perception* (C. Smith, Trans.). London: Routledge. (Original work published 1945)
- 825 Nichols, S., & Stich, S. (2003). *Mindreading: An integrated account of pretence, self-awareness, and understanding of other minds*. Oxford: Oxford University Press.
- Noë, A. (2004). *Action in perception*. Cambridge, MA: MIT Press.
- Overgaard, S. (2005). Rethinking other minds: Wittgenstein and Levinas on expression. *Inquiry*, 48, 249–274.
- Overgaard, S., & Michael, J. (forthcoming). The interactive turn in social cognition research: A critique. *Philosophical Psychology*. DOI: 10.1080/09515089.2013.827109
- 830 Ratcliffe, M. (2007). *Rethinking commonsense psychology: a critique of folk psychology, theory of mind, and simulation*. Basingstoke, UK: Palgrave Macmillan.
- Reddy, V. (2008). *How infants know minds*. Cambridge, MA: Harvard University Press.
- Rochat, P. (2001). *The infant's world*. Cambridge, MA: Harvard University Press.
- Rochat, P., Striano, T., & Blatt, L. (2002). Differential effects of happy, neutral, and sad still-faces on
- 835 2-, 4-, and 6-month-old infants. *Infant and Child Development*, 11, 289–303.
- Scheler, M. (1954). *The nature of sympathy*. London: Routledge and Kegan Paul.

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Schilbach, L., Eickhoff, S. B., Cieslik, E., Shah, N. J., Fink, G. R., & Vogeley, K. (2010). Eyes on me: An fMRI study of the effects of social gaze on action control. *Social Cognitive and Affective Neuroscience*, 6, 393–403.

840 Schilbach, L., Timmermans, B., Reddy, V., Costall, A., Bente, G., Schlicht, T., & Vogeley, K. (2013). Toward a second-person neuroscience. *Behavioral and Brain Sciences*, 36, 393–414.

Scholl, B. J., & Leslie, A. M. (1999). Modularity, development, and ‘theory of mind’. *Mind & Language*, 14, 131–153.

Shockley, K., Richardson, D. C., & Dale, R. (2009). Conversation and coordinative structures. *Topics in Cognitive Science*, 1, 305–319.

845 Smith, J. (2010). Seeing other people. *Philosophy and Phenomenological Research*, 81, 731–748.

Strawson, P. (1959). *Individuals: An Essay in descriptive metaphysics*. London: Routledge.

Stroud, B. (2004). Perceptual knowledge and epistemological satisfaction. In J. Greco (Ed.), *Ernest Sosa and his critics* (pp. 165–173). Oxford: Blackwell.

Trevarthen, C. (1979). Communication and cooperation in early infancy: A description of primary intersubjectivity. In M. Bullowa (Ed.), *Before speech: The beginning of human communication* (pp. 321–347). London: Cambridge University Press.

850 Trevarthen, C. (1998). The concept and foundations of infant intersubjectivity. In S. Bråten (Ed.), *Intersubjective communication and emotion in early ontogeny* (pp. 15–46). Cambridge: Cambridge University Press.

Tronick, E., Als, H., Adamson, L., Wise, S., & Brazelton, T. B. (1978). The infant’s response to entrapment between contradictory messages in face-to-face interaction. *Journal of the American Academy of Child Psychiatry*, 17, 1–13.

855 Zahavi, D. (2007). Expression and empathy. In D. D. Hutto & M. Ratcliffe (Eds.), *Folk psychology re-assessed* (pp. 25–40). Dordrecht: Springer.

Zahavi, D. (2011). Empathy and direct social perception. *Review of Philosophy and Psychology*, 2(3), 541–558.

860 Zahavi, D., & Gallagher, S. (2008). The (in)visibility of others: A reply to Herschbach. *Philosophical Explorations*, 11(3), 237–244.

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