

John Barresi

Consciousness and Intentionality

***Abstract:** My goal is to try to understand the intentionality of consciousness from a naturalistic perspective. My basic methodological assumption is that embodied agents, through their sensory-motor, affective, and cognitive activities directed at objects, engage in intentional relations with these objects. Furthermore, I assume that intentional relations can be viewed from a first- and a third-person perspective. What is called primary consciousness is the first-person perspective of the agent engaged in a current intentional relation. While primary consciousness posits an implicit 'subject' or 'self,' it is primarily oriented toward its 'object.' Acts of primary consciousness have only ephemeral existence, but when such acts are reflected upon by the agent reflexive or secondary conscious knowledge of oneself, as an embodied agent engaged in an intentional relation, is constituted. I show how these ideas relate to the understanding of intentional relations in human development and how they make possible adult understanding of philosophical notions of intentionality.*

In common sense usage intentionality occurs when an individual engages in some activity or pursues a goal with some conscious intention or purpose. On this view what is important about intentionality is that the actor is aware of the purpose or goal of his or her activity and represents the self as pursuing that goal. In philosophical usage intentionality refers to the 'aboutness' or directedness property of mental states. This is a more basic notion, and while all mental states are said to have intentionality in the philosophical sense, only some have intentionality in the manner of common sense usage. Brentano

Correspondence:

John Barresi, Department of Psychology, Dalhousie University, Halifax, Nova Scotia, B3H 4J1, Canada. jbarresi@dal.ca.

(1874) suggested that intentionality in the philosophical sense is the essential property that distinguishes mental from physical phenomena. Unlike physical events, mental events refer to, or are about, objects or states of affairs that may or may not exist. The present article focuses on the philosophical rather than common sense understanding of intentionality, though the common sense usage will appear later on.

The particular concern of this paper is how to account for our human ability to think about mental states as intentional. How is it that we can think of our selves as organisms with minds that are distinct from the objects we think about? How is it that we can even think of our selves as purely thinking beings composed entirely of a stream of intentional mental states independent of our bodies? The answer that I will give is a naturalistic one. My goal is to explain how organisms, such as we are, develop an understanding of mental life in general, which includes an understanding of how they themselves and others have a mental life that can be distinguished from their embodied organic involvement in the world. This story will be one of beings with capacities that allow them to develop a view of themselves as beings with mental states of an intentional nature. It will also be a story of the social origins of self-understanding. But before getting into the story we must look more closely at what we mean by intentionality in the philosophical sense.

The philosophical notion of intentionality initiated by Brentano has been developed in two major approaches: the logicist or linguistic approach and the phenomenological approach. The logicist approach focuses on the representational aspect of mental states and of symbolic language, and relates the two. On this view, intentionality involves representations ('propositional attitudes') with propositional content. This approach was an outgrowth of an attempt to understand natural language and its capacity to represent truth in terms of 'true' propositions. The logicist notion was initiated in the work of Frege (1918), who tried to develop a way of converting natural language into a logical language. Subsequent theorists including Russell (1940) and Fodor (1975; 1981) have suggested that natural language, and also certain mental states, can be viewed as compositional and representational, and that there is a logical 'language of thought' wherein mental states can relate to each other in a manner similar to sentences of a language. On this view, mental states are a world of their own, separate from, yet symbolically representing, states of the world, truly or falsely, and/or defining conditions, the satisfaction of which would make them true. Fodor (1980), in an article in which he pursued this

representational approach to its extreme, suggested that scientific psychologists should adopt ‘methodological solipsism’ when investigating mental phenomena, and avoid any attempt to develop a naturalistic psychology of embodied agents directly engaged in the world.

The parallels between language and thought developed in the logicist tradition of understanding intentionality have been productive in developing computational models of mind (mainly serial computational models). However, a problem arose in how to connect these representational states of mind to the world - what has been called the symbol-grounding problem (Harnad, 1990). This has led in recent years to increased interest in embodied approaches to mind (e.g., Clark, 1997; Gallagher, 2001; Lakoff & Johnson, 1999; Varela *et al.*, 1991). Concurrent with this developed interest in embodiment has been an interest in consciousness and phenomenological approaches. As a result, the second philosophical tradition in the analysis of intentionality, initiated by Husserl’s phenomenology (e.g., Husserl, 1960), has received increasing attention. Works by Gurwitsch (1966), Sartre (1936–7; 1964) and Merleau-Ponty (1962; 1964) are within this tradition. More recently some analytical philosophers, like Galen Strawson (2003), have also found inspiration in the phenomenological approach to intentionality. The goal of the phenomenological approach is to focus more directly on how conscious mental phenomena link persons to each other and to their worlds. It tries to analyse the complex structure of consciousness, and the processes by which conscious states become linked together in abstract and reflexive ways that ultimately constitute both subjects and objects. It is this latter approach, which most directly relates to the developmental account of intentionality as a natural phenomenon taken in this article. By speculating on the development of self-consciousness, I hope to show how we can come to understand the mind as representational in a logicist/linguistic sense out of our early and developed conscious engagement with each other and the world.

Primary Consciousness and Intentionality

Building upon the phenomenological tradition, but moving it toward a naturalized account of intentionality, we can define primary consciousness as the first-person perspective of the agent engaged in a current intentional relation - a relation that connects a subject of consciousness to an object of consciousness through a particular mode of experience, e.g., perception, thought, wish, etc. Primary

consciousness is the form of consciousness that is usually understood to be the basis of intentionality. Acts of primary consciousness have only ephemeral existence but they can be linked together through various processes (see, e.g., Gurwitsch, 1966; Strawson, 2003). Primary consciousness posits an implicit 'intentional subject' (Martin & Barresi, 2003; Barresi, 2004b) or 'self,' but is primarily oriented toward its 'intentional object.' In each act of primary consciousness or experience, there is both an implied subject pole and object pole, but neither of these has more than an immediate existence. A self or ego, and an object must be constituted through linking ephemeral acts, primarily through intentional relations that constitute the self (ego) and/or objects as the same through those acts. For instance, if an infant engages in a continued interaction with an object, through attention to it and an attempt to reach for it, the unity of the experiences directed at the object serve to constitute a self pole and object pole of a series of intentional relations that are interconnected through their common integrated activity.

While Husserl focused on how consciousness can constitute objects of experience through intentional relations, his views varied throughout his career on the status of the subject. In some of his work he posited the ego as a pure transcendental subject, the centre or pole that is the source of all intentional acts, but is not itself constituted in any of those acts. In opposition to this notion of a pure ego, Gurwitsch (1966), a later phenomenologist influenced by Gestalt psychology, wrote that the ego, like the object, is also constituted, but through a process of reflection on acts of consciousness:

[The ego] derives its unity and its coherence from the . . . acts that . . . constitute it; and it is nothing other than the organized totality of these acts. Hence when the subject, reflecting upon the act he experiences, ascertains that this act is his, this only means that the act in question . . . has its place within this united and organized whole. In this theory there is obviously no place for a center or a pole of conscious life from which the acts might issue or emerge. (Gurwitsch, 1966, p. 288)

In Gurwitsch's view there is no self or ego prior to the acts that constitute it. Nor is the self constituted by acts of primary consciousness in the absence of reflection. Rather, when the subject reflects on these acts and ascribes them to a self, the person constitutes an objective self by bringing together the particular acts which it integrates into an organized whole that it attributes to the self:

When a grasped act appears as connected with the ego, the latter presents itself as exceeding this act . . . It offers itself as a permanent entity,

as continuing to exist, beyond the grasped act . . . The ego thus appears *through* rather than *in* the grasped act. (Gurwitsch, 1966, p.295)

This process of reflection on one's acts as one's own, involves another level of consciousness beyond primary consciousness, sometimes called secondary consciousness. Secondary consciousness reflects on first-order intentional relations involving primary consciousness, but shifts attention toward the agent of the acts and the intentional relation in which the agent is engaged, thus making explicit the self or ego's involvement in an intentional relation. Whereas in primary consciousness the ego is implicit, and constituted in part through connected ephemeral acts involving integrated intentional relations, secondary consciousness involves an objective awareness of those acts as integrated and belonging to the subject.

Unlike primary consciousness, knowledge of an ego and its intentional relations is not limited to private knowledge of the acting agent; the ego is also available for public knowledge, it can be known by others. Gurwitsch considers two examples, hate from a first-person perspective, and love from a third-person perspective. In discussing the latter he states:

When I talk with my friend about his love, both of us have identically the same object in view — namely, a constituted psychic unity as distinct from multiple conscious acts through which it appears. This object, his love, is for him no less open to uncertainty and doubt than it is for me. (Gurwitsch, 1966, pg. 297)

While we may come to know the love of self and other in different ways, the intentional content of our knowledge is the same, the agent's love. Gurwitsch concludes:

My ego and my psychic facts, in contradistinction to the conscious acts, are then no longer my exclusive property, for they are accessible to other people, whereas my consciousness is not so; it is and remains closed and impenetrable for everyone except myself. The problem of the comprehension of other persons' minds is thus simplified and must be raised in quite new terms. The condition, however, of this simplification is the non-egological conception of consciousness (Gurwitsch, 1966, p. 297).

The implication here is that self knowledge, gained through secondary consciousness of self, is no different from knowledge of another agent gained through primary consciousness of the other, because the self and its acts treated as objects of knowledge are accessible to both self and other, whereas the first-person perspective of engaging in those acts, or primary consciousness, is not. But how are we to understand

this process by which private experiences and activities become capable of public knowledge? I believe that Intentional Relations Theory (IRT; Barresi, 2001; 2004a; Barresi & Moore, 1996; Moore, 1999) can provide such a perspective, as well as provide a basis for the development of our understanding of intentionality.

Intentional Relations Theory

Intentional Relations Theory (IRT) differs from traditional phenomenological approaches to the intentionality of consciousness in one major respect. Whereas, phenomenology begins with an analysis of consciousness, and, in effect, constructs the world, including self and other out of this analysis, IRT's starting position is that of positing a material embodied agent, whose states of consciousness are based in brain activity that relates the agent directly to the world and to comparable activities of other agents. From this starting point an attempt is made to provide a naturalistic account of intentional relations and the developmental emergence of knowledge of those relations and of the intentional properties of consciousness. Thus, rather than beginning with phenomenological analysis, IRT provides a naturalistic account of the possibility of phenomenological analysis. Without the developmental process through which we can come to know of consciousness as consciousness with its intentional properties, we would be unable to enter into any analysis of it. IRT provides that account by explaining how an embodied agent comes to view its activities as involving mental states with intentional content. As we shall see, that account implies a necessary social foundation to understanding individual minds.

According to IRT, an intentional relation (IR) connects an embodied agent to an object through a relation existing in virtue of an agent's sensorimotor, emotional/motivational and cognitive capacities. In most cases the relationship is direct, not mediated through concepts or representations, except insofar as states of the brain that mediate these processes are defined as, or can be inferred to use, representations.

Intentional relations are thus taken here to be, primarily, objective or external relations that exist between agents and objects, real and counterfactual, rather than internal relations between a mental state and its intentional content. IRs can be taxonomically categorized into three basic types: Actions: 'Jamie chases the cat'; Affective/motivational: 'Mackenzie fears the dog'; and Epistemic: 'Columbus sees land.' Each IR takes the form of an agent or subject of activity, a form of activity, and an object or goal of the activity. Furthermore, each of

the activities are ones in which an animate agent or person performs a conscious act directed at some object, event or state of affairs, and does not simply describe a causal process involving two physical objects. However, it should be noted that IRs can also involve collective agents: 'The carpenters built the house,' where each particular agent may be said to be individually conscious of a shared common activity or goal, and where each agent engages in specific acts that take into account past and anticipated future acts of other agents. If there were two carpenters, this would be a case of triadic interaction involved in a shared intentional relation toward a common object - the house to be built. But there are more complexities in this kind of example that we will shortly consider.

So far we have considered only first order IRs. Second order IRs take first order intentional relations as their object. Typically, second order IRs involve agents with affective or epistemic relations to the first order activities of an agent, where the latter agent can be self or another person. For instance: 'Fiona knows that she is in love with Ian' and 'Fiona knows that Mary is in love with Ian,' are two second order intentional relations where Fiona is an agent of the second order epistemic state of 'knowing' and 'x loves Ian' is the first order intentional relation of that epistemic state, where x is self in one case and Mary in the other. In IRT, second order IRs of this sort are the basis upon which we understand self and other as embodied agents of the same kind and to which the same intentional states can be attributed. The fact that people are capable of acquiring such second order intentional understanding that applies uniformly to self and other is the key to understanding how mental states can be intentional. But how is this possible?

Viewed from the perspective of IRT, there are three fundamentally different basic answers to this question in the psychological literature. All fall under the notion of a 'Theory of Mind (ToM).' According to what is called the 'Theory' Theory of Mind (TT) humans have innately or acquire a ToM or ToM mechanisms that can be applied uniformly to self and other based purely on inference from behaviour (e.g., Gopnik & Meltzoff, 1997; Leslie, 1987). Uniformity of inference in this account is based on the fact that one can interpret one's own behaviour in the same way that one can interpret the behaviour of others. Hence, in the case of Fiona, it could be said that, since love is a public concept, whose criteria of application is based on behaviour (though perhaps also requiring innate ideas or mechanisms by which we understand love as involving mental properties), she can know when she or Mary is in love by noticing the same kinds of behaviour of

Mary and herself vis-à-vis Ian. Simulation theorists (ST) take a different view of how Fiona knows about her own love versus Mary's love (e.g., Goldman, 1992; Gordon, 1986; Humphrey, 1984; Harris, 1989). On their view, love may have some behavioural consequences that can be used to identify it in another person, but that it is fundamentally a subjective mental state, and without a personal appreciation of the feeling state that usually goes with the overt behaviour, we cannot truly understand love as a psychological state. On this view, we understand love directly in our own case, but only indirectly and by simulation in the case of another person. We can understand what someone else feels only by placing ourselves imaginatively in their situation, when we observe their behaviour in context (e.g., Mary around Ian). Only by placing our mind in their body in this way can we understand the psychological, intentional, and subjective meaning of their behaviour. By contrast, in our own case, our behaviour is only a consequence of this subjective state, not the state itself, so no inference is necessary from our own behaviour to the mental state that we are in.

A third kind of theory invokes the notion of matching or mirroring between self and other. Ingredients of matching theory can be found in Hobson (1991; 1998) and elsewhere (see, Moore & Corkum, 1994; also Gallese *et al.*, 2004), but IRT (Barresi & Moore, 1996; Barresi, 2001; 2004a; Moore, 1999) may provide the most elaborated version of this approach. It will be developed further in the present account. The key notion in matching theories, particularly in IRT, is that the first-person information that we have about our own IRs (e.g., Fiona's feeling for Ian) is distinctly different from the third-person information that we have about the IRs of others (e.g., Mary's behaviour toward Ian), and that in order to develop uniform second order concepts or representations of IRs that can be applied equally to self and other, we need to match these two types of information in a single concept or form of knowledge that contains both types of information. In Barresi and Moore (1996) we posited an 'intentional schema' to integrate this multimodal information from self and other. On this view, being in love should not be thought of primarily as a private, subjective experience, as in the ST view, nor as a mental intentional state that can be inferred from behaviour, as in the TT view, but as an embodied IR between the agent and object that, in the case of love, involves both feelings and concomitant behavioural expressions. Moreover, in learning the concept of love or any other IR, it is supposed that we must learn both the first-person, 'inner' aspect, of the IR, as well as the third-person, 'outer' aspect; otherwise, we fail to have the concept. For instance, one can be in love, say for the first time, without

knowing it, because all one knows about love is the outer aspect, and one does not recognize this outer aspect in one's feelings for another until it is pointed out to one. Of course, love in our culture is primarily a social concept, and learned to a large extent through language. But other more basic IRs, like chasing, fearing, or seeing, are more fundamental, and may be understood to some extent by an organism without the mediation of language.

To be more explicit, and to relate it to our prior discussion of consciousness, IRT proposes that first-person information about our own IRs is contained in primary consciousness as we are engaged in the IR, that it is directed outward to the object, which is experienced in terms of the relation, and that the self as agent, is implicit in this information, but not explicitly represented. Thus when the child fears the dog, her whole attention is on the dog and her emotional reaction is projected onto the dog as a fearful object. She has no explicit awareness of herself as an agent in the state of fear. By contrast, the observer of her reaction to the dog, has third-person information of her reactions and expressions, and tends to attribute these reactions of fear to the child, not to intrinsic properties of the dog, though aware that the dog is the cause of the reactions. In order for the child herself to become aware of her state of fear, she has to take her own first level intentional relation as an object of a second level epistemic intentional relation, secondary consciousness in our previous discussion. In order to do so, she must have the concept of self as agent and fear as an intentional relation with two sides, an inner first-person side and outer third-person side, which are united in the concept of that kind of IR. In the same way, an external observer may see her fear, in primary consciousness of the other, but, unless that observer also has the concept of the first-order intentional relation, all that is seen is the behavioural expression of the agent, and not the IR, with its inner and outer aspect. However, in this case, this second level is not secondary consciousness, but remains primary consciousness of the other. Only if the observer becomes aware of being aware of the other's IR, does secondary consciousness appear in the observer.

In our first account of IRT (Barresi & Moore, 1996), the intentional schema was hypothesized to account for the integration of the first- and third-person aspects of the IR. The intentional schema was described as an intermodal perceptual and conceptual structure that linked the two sources of information into a concept under conditions in which matched information of the two types are attended to at the same time. There are a variety of possible conditions of matching that were considered, but the focus was on imitation and triadic

interaction, where two individuals, usually an infant and an adult, are engaged in a shared IR directed at some object or situation, and the infant becomes aware of their shared activity and its first- and third-person aspects, the first-person of self and the third-person of other. In our developmental account, such triadic activity of share IRs laid the conceptual foundation for later attribution of IRs to self and other as independent agents. However, without the prior sharing of common IRs, no concept of the IR could be developed that integrated first- and third-person properties of the IR. In the present account I wish to go somewhat further in analysing the developmental process, in part to deal better with recent developments in the neuroscience of social understanding (cf. Barresi, 2004c).

Four Developmental Steps in the Consciousness of Intentional Relations

In our original account of IRT (Barresi & Moore, 1996), we described a four level model of the development of social understanding of intentional relations. This account was applied phylogenetically and, in the case of humans, ontogenetically. In the present account the same four levels will be used but modified to some extent to deal with more recent findings. Level one of the model presupposed that organisms develop distinct representations of their own and other individuals' intentional relations. In the case of self, only first-person information entered into representations of one's own IRs. Such representations would not explicitly represent the self in a manner that combined first-with third-person information of self as a unitary agent of IRs. In the case of others, representations would be based on third-person information, but not include any first-person information. Hence there would be no way to match self to other, and understand self and other within the same representational system. It was hypothesized that most organisms had representations of self and other of this sort, and that young infants also represented the IRs of self and other in this manner. Representations that integrated first- and third-person information of IRs first appeared at level two of the model, when two individuals engaged in triadic interaction where they shared IRs with some common object. This was thought rarely to occur in organisms other than higher primates and humans, but was described only in the case of adult-infant triadic interaction, beginning around 9 months in the infant's social interactions.

In light of recent developments, it seems worthwhile to make some finer distinctions that allow for earlier phases of social understanding

that lie between levels 1 and 2. The focus originally was on understanding IRs in the full sense of agent-relation-object. But, partial common understanding of self and other can occur at a subagent level. For instance, research on monkey ‘mirror neurons,’ seems to show that monkeys can understand the goal-directed actions of another organism in the same manner as they understand their own actions (Gallese *et al.*, 1996). These pre-motor neurons fire in the planning of one’s own actions, but also in perceiving comparable goal directed actions in another animate being. It is not clear yet the extent to which experience comes to play in the development of such neurons. But, one hypothesized means of making the generalization from self to other (e.g., Keysers & Parrett, 2004) is that one first connects one’s first-person internal information of intentional action to the perceptual feedback that one receives, through vision or audition, of one’s own action. Then vision or audition mediates the connection to the action of others. Vision and audition here serve as modalities through which one acquires third-person information not only of others but also of self. Thus, strictly first-person information (of goal-directedness, kinesthetics, and proprioception) of purposive goal-directed action, where self is implicit, can be linked to self as object in vision and audition, and to another person as a comparable object engaged in a similar activity. That a developmental account of this type might work in humans is indicated by research that shows self-recognition of body parts through vision develops in 4–6 month infants (Bahrick & Watson, 1985), and that infants around 6 months are able to recognize goal-directed actions of others involving particular objects (Woodward, 1998). Even further, teaching an infant to grasp an object at an earlier age is correlated with understanding similar grasping actions of another person (Sommerville *et al.*, 2005). Thus, at least for simple actions, it seems that learning to succeed at an action, which involves coordination of first-person (e.g., proprioceptive) and typically third-person (e.g., visual) information of one’s own action, may be correlated with understanding the integrated first- and third-person aspects of another’s actions. However, such action understanding can be viewed as sub-personal. Other research (Woodward & Guajardo, 2002) suggests that the infant’s understanding of ‘pointing,’ which can be regarded as an agent-level attempt at shared triadic interaction involving an epistemic IR of attention, is not understood until the end of the first year in humans, and not understood at all, under natural conditions, in any other primate. It is also important to note that here again, acquiring the ability to point, and acquiring the ability to appreciate the pointing intention of another person, are correlated

developmentally, though not necessarily involving unidirectional understanding from self to other, as the reverse direction of apparent understanding also occurs, at least as indicated by temporal order of achievement. In all these cases we have evidence that a correlated matching between first- and third-person information about actions is essential for understanding the goal-directed nature of action, whether it be of self or other. However, the understanding here is not yet an understanding of self and other as intentional agents.

The second year of life is a period of major transition in an infant's understanding of the embodied intentionality of self and other. Prior to that period the infant has no objective sense of self or other, certainly not one that treats self and other as agents of the same kind, and having intentional properties that can apply separately to each of them. The understanding of shared intentionality that we have been describing at Level 2 of IRT, while sensitive to shared concurrent activity, does not yet objectify that activity in a second order intentional relation involving 'we' as the agent of the activity. It is a situational understanding of the second order relation, not requiring a conceptual understanding. During the first half of the second year this begins to change as the infant becomes increasingly aware of differences between self and other in their orientations to the world. The infant becomes more flexible in his or her involvement in the activity of the other. As Braten (1998) puts it, the infant can co-enact at a sub-personal first-person level the activity of the other as the other engages in the activity, but it can increasingly distinguish this co-enactment of the other's intentional relation from its own separate first- and third-person point of view. As a result, the infant is in a position to triangulate an objective situation or world to which two separate agents, self and other, have different embodied subjective intentional relations (cf., Hobson, 1998). In IRT, this third level of social understanding requires the development of a memory based, but generic, form of imagination, which can be used to match appropriate first-person information to perceived third-person information of the activity of the other, and to match appropriate third-person information to current first-person information of one's own activity. Thus second-order representations of IRs of self and other can be constructed, which differ from each other. The infant's developing capacity to understand the 'common sense' intentionality or intentions of others, separately from overt actions, and their ability to empathize with the other's specific desires and to help them achieve them, separate from their own desires, are examples of how imagining the first-person information about other's intentional relations is used.

Their acquired capacity for self-recognition with mirrors and their developing self-consciousness are signs of their ability to imagine information of self from a third-person point of view. Because of the role that imagination plays in differentiating between IRs of self and other, it is at this level that phenomena typically associated with simulation theory (ST) begin to emerge. Imagination of how the other might feel, even if it conflicts with our own feelings, can be imagined from a first-person perspective. However, whereas ST focuses entirely on how we can make use of our own minds (or first-person information) to interpret the third-person information that we have directly of the other, IRT posits that we also use imagined third-person information in order to have a better appreciation of how our own agency appears to others. One consequence of this is that the 2-year-old begins to exhibit self-reflective emotions like embarrassment.

The achievement of Level 3 forms of understanding of IRs in the 2-year-old provides the infant with the capacity for reflective or secondary consciousness of his or her own first-order IRs, as well as the capacity of using primary consciousness for understanding first-order IRs of others. In both cases it involves understanding that individual embodied agents have distinct intentional orientations toward the world. But the IRs that can be understood at this level are limited to current embodied IRs, such as emotional expression directed at a current object, or intention directed at an immediate goal. The infant is not yet able to deal with IRs involving imagined or counterfactual objects or states of affairs, or goals at greater distance in space and time. In order to understand these more complex IRs the child must acquire what has been called a representational theory of mind (Perner, 1991). At about the age of 4, the child becomes able to deal with a variety of these more complex IRs, including the understanding of false belief in self and other, differences between own and other's representation of a current object, differences between one's past, present, and future self in beliefs and desires, and the ability to think of one's self as a changing mental self, extended in time (see Moore & Lemmon, 2001). All these capacities require distinguishing between a current IR and some imagined or counterfactual IR in some way related to the current IR, but different from it. Barresi and Moore (1996) suggested that a developmentally acquired ability for double imagination provides the necessary ingredient for this achievement. With double imagination it is possible to represent an imagined IR, with an imagined first- as well as an imagined third-person component, and not just one imagined component as in Level 3. So, now the

child can think of the object of an IR, not only as a real object, but also as a counterfactual, 'inexistent,' or intentional, object. It is at this point that the child can be said to have acquired the necessary ingredients in order to understand later, as an adult, intentionality in the philosophical sense, as the child of this age already has practical use of a notion of this sort in understanding of self and other. To state it simply, and perhaps provocatively, where philosophers — particularly of the logicist/representational sort — begin in their analysis of the intentionality of consciousness is just at this point where the present naturalized account of intentionality ends. This is the point where a child is able to distinguish its own private representational perspective from those of other persons.

Conclusion

Understanding intentionality in a philosophical sense requires being able to view one's own present conscious mental states, as well as other mental states, in self and other, as representational, having content that may be true or false. Taking this stance on one's point-of-view of reality requires disembedding one's self mentally from embodied engagement in the world, and conceptualizing, at an abstract level, this engagement. The fact that human beings as adults have the capacity to develop such a point-of-view, with the necessary abstraction, is a social-cognitive achievement, not an intrinsic capacity of the human mind to reflect upon itself. So, I have argued in the present paper. I have provided a developmental account of how the ingredients necessary for this achievement emerge during the first 4 years of human life. Predominant among the ingredients that are necessary is the ability to view self and other on the same plane as animate agents in the world engaged in intentional relations with the world and each other. In developing the ability to reflect on one's own as well as another person's intentional relations, it is necessary to integrate the first- and third-person aspects of IRs, in order to see them as having an 'inner' and 'outer' aspect, and having this same form whether it be one's own or another's IRs. It is through shared IRs, and dialogical communication with others, that we come to be able to form this integrated perspective of IRs, and, also eventually to distinguish self from other as having potentially different IRs. Early understanding of IRs is of current embodied relations with the world. However, to achieve an understanding of intentionality as having content that merely represents rather than directly relates to the world, the concept of different 'mental' perspectives, and the understanding of the possibility of

misrepresentation are required. This is an achievement added onto an understanding of current embodied IRs that develops in the fourth year of life, and it provides not only an understanding of the possible purely mental nature of intentionality, but also provides the ground for a notion of a purely mental self, distinct from its body and world, and conscious of both. But this detached abstract view of self in the world has its naturalistic origins in a more fully embodied and adapted engagement in our social and biological worlds.

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