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The phenomenology and development of social perspectives

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Abstract The paper first gives a conceptual distinction of the first, second and third person perspectives in social cognition research and connects them to the major present theories of understanding others (simulation, interaction and theory theory). It then argues for a foundational role of second person interactions for the development of social perspectives. To support this thesis, the paper analyzes in detail how infants, in particular through triangular interactions with persons and objects, expand their understanding of perspectives and arrive at a self–other metaperspective. This allows them to grasp the other's as well as their own perspective as such, which is equivalent to an explicit third person perspective and to an explicit first person perspective or self-consciousness. The paper describes the major steps towards these perspectives, pointing to a close interdependence of both developments. It argues that embodied second person interactions are not only an enabling, but the constitutive condition for the development of an explicit first and third person perspective.

Keywords Second person perspective · Social cognition · Embodied interaction
Self–other metaperspective · Self-consciousness

Introduction

The duality of the first and the third person perspective (1PP and 3PP) is an established opposition in philosophy of mind where it is mainly used to demonstrate the irreducibility of subjectivity as against a physicalistic concept of the world. The *experiential* perspective of a subject and the *observational* perspective, e.g. of a neuroscientist, it is argued, cannot be brought to a final congruence because even the sum of any possible knowledge about objective processes occurring in the subject's brain, body, and surrounding world would not include what it is like for

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the subject to have the experience in question (Nagel 1974; Jackson 1982). However, in the context of social cognition, this duality seems insufficient: It implies that there is a principal gap between a person's mental states and another's perception of that person's body, the one only experienced from within, the other only observable from without. This gap could only be bridged by relying on inference from outward behaviour, internal modelling or verbal reports, not by direct empathic perception and non-verbal, inter-bodily communication. Therefore, it has recently been proposed to introduce the notion of the second person or intersubjective perspective (2PP) in order to overcome the antagonism of first and third person or subjective and objective perspective (Gallagher 2001, 2008; Zahavi 2001, 2005, p. 206–214; Reddy 2003).

The resulting triad of perspectives has gained particular importance for theory and research in social cognition, as it also allows us to define the kind of access which, according to different theories, we use in understanding other persons:

1. Following the classical 'theory of mind' concept or theory theory, other minds are known by reference to the best suitable hypothesis on the reasons and motives for their behaviour. This kind of inference is made on the basis of observation, which means, from a third person point of view. Interacting with others does not add anything to this access in principle (Perner 1991).
2. In contrast, according to the simulation theory, other minds are known by reference to a first person model that we form of their experience: Understanding others means to run an inner simulation of their behaviour, thus creating an 'as-if' mental state which then has to be somehow projected onto the other (Gallese and Goldman 1998; Goldman 2006).
3. Finally, interaction theory as the most recent approach to social cognition means running the second person route: It is through immediate perception of, and embodied interaction with others that we gain our primary experience of their feelings and intentions, without recourse to inner theories or simulations. This approach focuses on the expressive bodily behaviour, inter-bodily resonance, intentions as visible in action and the shared situational context in order to explain social understanding (Gallagher 2001, 2008; Zahavi 2001, 2008; De Jaegher and Di Paolo 2007; Fuchs and De Jaegher 2009; Stawarska 2009).

Importantly, the introduction of the 2PP changes the whole picture, since it implies that the first and 3PP are no longer confronted with a mind–body gap in the strict sense. On the one hand, our first person experience extends to interpersonal situations of co-experiencing affective and intentional states (such as a joint laugh) that may not be divided among the partners. On the other hand, when observing another person from a third person point of view, we still perceive the person as an animate and minded being showing feelings in expressive behaviour (such as shame) and intentions in actions (such as reaching for something). The problem of other minds only arises when starting out from a strictly Cartesian 1PP and/or from a strictly behaviourist 3PP. However, these are both abstractions from the 2PP, which underlies our everyday interactions with others. Accordingly, Gallagher and Zahavi from a phenomenological point of view, Trevarthen and Reddy from a developmental point of view, have argued for a primacy of prereflective intersubjectivity and second person

interactions in social understanding (Trevarthen 1979, 1993; Reddy 2008; Reddy and Morris 2004). Similar claims have been advocated by enactivist approaches to intersubjectivity, emphasizing a constitutive role of interactive processes for social cognition (De Jaegher and Di Paolo 2007; De Jaegher et al. 2010; Froese and Fuchs 2012).

However, even if we might agree with such positions, we should still assume that all three perspectives have a particular role to play at least in certain aspects of intersubjectivity. After all, it seems obvious that humans, at some point in their development, do become able to take another's perspective and to explicitly transpose themselves into the person's point of view. This implies to use one's own first person experience as a guide for understanding others, imagining what one would probably feel like in their situation. Here lies the (limited) justification of simulation theory. Moreover, we may sometimes apply methods of conjecturing or inferring another's mental state (belief, desire, intention) from a third person perspective, particularly in cases where the person in question is absent and/or verbal communication impossible. This may be regarded as a justification of theory theory. For these reasons, I argue that we should look for an integrative concept of social perspectives that is able to account both for the basic forms of embodied intersubjectivity and for more sophisticated, explicit forms of understanding others. Such a concept could be based on the demonstration that the latter are ultimately derived from second person interactions as well; this is the route I will take in the paper.

In what follows, I will attempt to contribute to an integrative theory of social cognition (1) by presenting a phenomenological concept of the triad of perspectives and (2) by applying this concept to the development of perspectivity in early childhood. My argument will take the following course:

1. Within each of the three perspectives, we can distinguish a basic, *implicit* level (prereflective awareness of self or other) and a secondary, *explicit* level of understanding the perspective *as such*.
2. Regarding the development in early childhood, all perspectives are given on the implicit level from the beginning. However, the further development of perspectives is based primarily on second person interactions. It starts from *sharing* perspectives in joint attention, then moves on to *taking* the other's perspective in cooperative situations and finally arrives at *understanding* the others' as well as one's own perspective as such.
3. A crucial presupposition for the development of perspectivity is triangulation, which opens up the primary dyad to include triadic interactions with objects and persons. This provides for an external point of view, thus allowing the child to acquire a growing flexibility and finally an understanding of perspectives.
4. In the course of this development, the child acquires an explicit first person as well as an explicit third person perspective which is equivalent to self-consciousness and "other-consciousness".

One of the main aims of the paper is thus to bridge the gap between primary embodied interrelations and more sophisticated forms of perspectival consciousness. I intend to show that these reflective, explicit approaches to oneself and to others are not only derived from second person social interactions, but that they still display an inherently intersubjective, dialogical structure. In short, my thesis is: Embodied social

interaction in the 2PP is not only an enabling, but the constitutive condition for the development of an explicit first and 3PP.[1]

A concept of perspectives

To begin with, I will clarify some terminological and conceptual issues related to perspectivity. The triad of perspectives may be derived from the speech situation (see also Stawarska 2009):

- The first person ('I') is the one who talks.
- The second person ('you') is the person who is addressed, that means, the person who is present and can be experienced in face-to-face reciprocal interaction. Importantly, there is a *reversibility* between the speech roles, or between 'I' and 'you'.
- The third person ('he' or 'she') is the person who is talked about that means who is normally absent and cannot be experienced in interaction. There is no reversibility of speech roles. Interestingly, if the third person is present nevertheless then his or her being addressed as 'he' or 'she' often has a derogative meaning or expresses a class distinction, as when the master says "he may withdraw" to a servant. The third person pronoun then takes on a distancing and objectifying, even a devaluating sense.

If we now take the term 'perspective' to denote a specific form of experiential access to oneself and to others, this yields the following distinction:

- The 1PP is the subjective or experiencing perspective;
- The 2PP means the intersubjective, participant or co-experiencing perspective, referring to situations of reciprocal interaction that are characterized by some form of mutual relatedness and coupling of the partners;
- The 3PP means the observer perspective, referring to situations of one-way, remote observation of others or to situations of talking or thinking about absent persons.

Importantly, we may further distinguish between the *primary perspective* that a person *implicitly* holds and her *explicit* awareness or grasp of the perspective as such. This comprehension of perspectives may also be regarded as adopting *a second order* or metaperspective on them. Certainly, the explicit awareness of perspectives is not an all-or-nothing phenomenon. It is only gradually acquired in early development, and it is latent or present in different degrees later on. But if we make the distinction in principle, we arrive at the following table (Table 1) which can be further explained as follows:

1. The implicit or primary 1PP corresponds to basic, pre-reflective experience which always includes an implicit self-awareness (Zahavi 2005). In adopting a

[1] For a distinction of contextual, enabling and constitutive conditions of social cognition see De Jaegher et al. (2010).

Table 1 Implicit and explicit social perspectives

Implicit 1PP	Pre-reflective self-awareness
Explicit 1PP	Self-consciousness (1st person metaperspective)
Implicit 2PP	Pre-reflective self-other awareness, based on embodied interaction
Explicit 2PP	Explicit awareness of self-other interaction (self-other metaperspective); may include perspective-taking (explicit 3PP) as well as self-reflection (explicit 1PP)
Implicit 3PP	Observation of others
Explicit 3PP	"Other-consciousness", including perspective-taking, imaginary transposition or inferential at tribution (3rd person metaperspective)

first person metaperspective, I become aware of my subjective perspective as such, which is equivalent to self-consciousness or self-reflection (Fig. 1).

2. The implicit 2PP means a pre-reflective awareness of self and other, based on ongoing face-to-face interactions (Fig. 2). It includes an immediate perception of the other's bodily behaviour as expressive and goal-directed. In my primary experience of the other, there is no gap between his inner and outer, no hidden inner mind or merely outward behaviour whose meaning I would have to infer. I perceive the other as a bodily, animate being, and I immediately perceive his intentions-in-action in the context of the meaningful situation. Moreover, I also experience myself as being looked at, attended to or addressed *by* the other. Thus, the 2PP includes my awareness of the other as well as my implicit awareness of his awareness of me. It means a primary inter-bodily relatedness or *co-experiencing*.[2]

Now in adopting an explicit 2PP or self–other metaperspective, I focus on the present interaction as such and direct my attention to it. This happens in particular when an irritation, misunderstanding or disturbance occurs, and I ask myself what is going on between us, in particular when a close relationship is concerned. In this case, I take a step back, so to speak, and try to grasp why the other said or did what he did, what he might be thinking or feeling, whether I said something wrong, what the state of our relationship is, etc. I might also attempt to transpose myself into the other, simulate to be in his or her position, to reason about his or her motives, search for his or her hidden intentions, etc. Thus, adopting a self–other metaperspective may include deliberately taking the other's perspective (explicit 3PP) as well as reflecting on myself (explicit 1PP).

[2] One might argue that the notion of perspective is not really adequate do describe this mutual relatedness because the notion itself is usually understood in an individualistic sense. Moreover, it seems to imply a rather static point of view, as is evident from its primary usage in Renaissance visual arts. I am aware of these limitations of the term which run the risk of implicitly projecting a mentalistic understanding on the interactive or second person approach. Nevertheless, this has to be weighed against the advantage of using a unitary term for the different ways of relating to oneself and to others. Moreover, the notion is particularly suited to build a bridge between interactive and theory of mind approaches to intersubjectivity. In this paper, I will take the route of using "second person perspective" interchangeably with "second person engagement", "second person interaction" or similar terms.

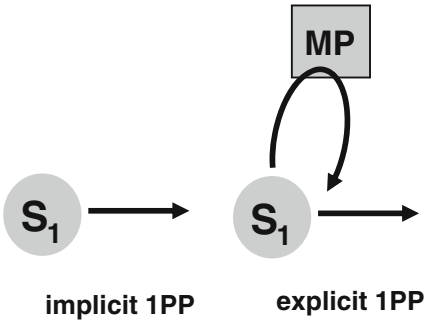

Fig. 1 Implicit and explicit 1PP (*MP* metaperspective)

3. The implicit third person perspective refers to the prereflective, non-interactive *observation* of other persons as embodied agents, showing expressions and intentions-in-action that may be understood without recourse to inference or simulation (Fig. 3).[3] In contrast, taking an explicit perspective on others (third person metaperspective) includes the just mentioned procedures of imaginary transposition or simulation, reasoning or inferential attribution, etc., in relation to persons that I observe, as is the case for example in false belief tasks. In analogy to explicit self-consciousness, this may also be termed "other-consciousness".

The term "explicit 3PP" is thus used to denote deliberate perspective taking or transposition *both* within and outside of an interaction. For even while interacting I can tacitly assume an observing stance and resort to imaginative or inferential procedures, thus taking an explicit third person view on the other. This means that I am alternating between an immediately involved or engaged and a more detached or objectifying attitude.[4] Psychotherapists, for example, use this option regularly in order to enhance their understanding of the client even though the embodied interaction is going on in the meantime. On the other hand, observing others from a distance can well imply an *engaged* attitude, particularly when it is about a person I am closely connected to or identified with: Think of witnessing a close friend being insulted by another person or of watching a touching scene in a movie. In such cases, the emotional involvement taken from primary second person interactions informs my observation of the other, and we may talk of an engaged or participant observation. Thus, I propose to distinguish between (a) the social perspectives as denoting the kind of access one has to oneself and to others depending on the (spatial) situation and

[3] One might object here that this is more than simple observation. However, this objection would already presuppose a scientific or behaviorist stance from which there can only be observations of material objects moving in space. My point here is that we experience others primarily as embodied agents even outside of an interaction. The kind of neutral observation of others that is assumed to be our default mode of perception by theory theorists is indeed a scientific abstraction which has already accepted the dichotomy of body and mind.

[4] Characteristically, the engaged attitude involves an immediate co-presence and reciprocity of the partners, whereas the strategies of inference or imaginary transposition in the detached stance are employed *in retrospect*, that means, at least slightly deferred in relation to the other's observed behaviour. This is one of the reasons why at least an *explicit* simulation theory can hardly describe our everyday interactions: It would just take too much time for us to apply these procedures on the other's constantly ongoing behaviour.

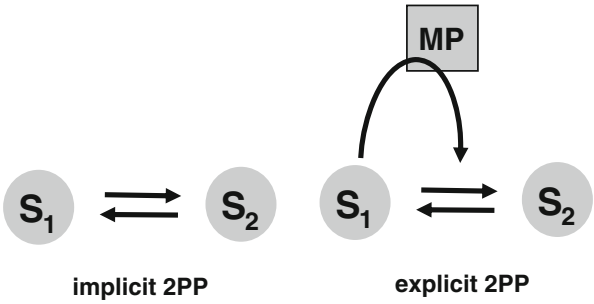

Fig. 2 Implicit and explicit 2PP

(b) the attitude or stance (engaged vs. detached, empathic vs. objectifying) that one assumes within a given perspective. Switching from an implicit to an explicit perspective is usually accompanied by a more detached or objectifying attitude, but may still include some form of engagement, as is obvious in the case of the psychotherapist.

After these conceptual considerations, I will now argue that second person-embodied interactions are the basis for social understanding in everyday life, but also the basis for the development of perspectives in early childhood. I start with some phenomenological arguments for the first thesis, then I will proceed to my main topic, a developmental account of perspectivity. As I will try to show, perspective taking and imaginary transposition (explicit 3PP) as well as self-consciousness (explicit 1PP) do not develop by themselves, but are acquired by the child only through ongoing and increasingly complex interactive experiences.

Primacy of second person interactions for social understanding

Primary social perception means experiencing others as expressive and intentional embodied subjects. As Husserl (1952) and Scheler (1973) have argued, we are originally directed towards others in the "personalistic" or engaged attitude, perceiving them as psychophysical unities, and thus being "…directly acquainted with another person's joy in his laughter, with his sorrow and pain in his tears, with his shame in his blushing" (Scheler 1973, p. 254).[5] Similarly, Schuetz regarded the direct face-to-face encounter as basic in the sense that all other forms of interpersonal understanding derive their validity from the "thou-orientation" or pre-predicative relation to the other (*Du-Einstellung*, Schütz 1967, p. 162). Recently, Gallagher (2001, 2008) and Zahavi (2001, 2008) have argued that in most everyday situations we do not use any introspective simulation or inference when we interact with another person. Instead, we immediately perceive the other's intentions and emotions in his or her expressive behaviour as related to a meaningful context: his shame in blushing, his liking in seeking behaviour, his disliking in repulsive behaviour, etc. The other's body is not just a tool for conveying signs of hidden intentions, it is rather

[5] A related argument can be found in Wittgenstein: "We do not see facial contortions and make inference from them (like a doctor framing a diagnosis) to joy, grief, boredom. We describe a face *immediately* as sad, radiant, bored, even when we are unable to give any other description of the features. Grief, one would like to say, is personified in the face" (Wittgenstein 1967, p 225).

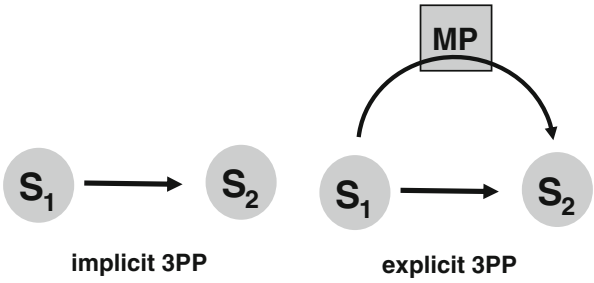

Fig. 3 Implicit and explicit 3PP

itself intentional and expressive. Behaviour conveys embodied meaning, and as such it is "neither internal nor external, but rather beyond this artificial distinction" (Zahavi 2001, p. 153).

Of course, this perception of another's expressive and intentional behaviour can occur in non-interactive observation as well. But interaction adds a decisive component: it is through our own bodily resonance and reactions that we become aware of the other in a particular way. "Not only is the experience of the other person more immediate and more powerful in direct engagement, but it calls out from *you* a different way of being, an immediate responsiveness, a feeling in response, and an obligation to 'answer' the person's acts" (Reddy 2008, p. 27). "Obligation" should not be taken in a moral sense only, a better term might be just, "readiness".[6] Frijda (1986) has generally defined emotions in terms of action readiness: different emotions are characterized by different patterns of action which they induce. This also applies to emotions that we perceive in others; they evoke certain action tendencies and resonances in our own body. Thus, shame that we witness induces an embarrassed aversion, rage a fearful withdrawal or an indignant protest, sadness a tendency to connect and console, etc. The action readiness, responsiveness and resonance that we (tacitly or overtly) feel in our own body feeds into the way in which we perceive the other's emotional state. We do not only *see* the rage in his face and gesture, but also *sense* it with our own body.

This mutual bodily resonance is characteristic of second person interactions. Being affected by each other's expressive behaviour results in shared states of either congruent or complementary bodily feelings and affects. One can join in a hearty laugh with another (congruent resonance) or react with timidity to his expression of rage (complementary resonance).[7] Moreover, one's reaction in turn will immediately influence the other's own bodily resonance and behaviour, and so on. This creates a circular interplay of expressions and reactions running in split seconds and constantly modifying each partner's bodily state. Both are coupled to each other to form an extended body, as it were, through "mutual incorporation" (Fuchs and De Jaegher 2009; Froese and Fuchs 2012). This intercorporal coupling is not some kind of

[6] Thus, already in the second year of life, infants show compassion when witnessing another's mishap or altruistic behaviour such as helping others to achieve their goals (Warneken and Tomasello 2006), but certainly not because they feel a moral obligation to do so.

[7] The case of complementary or incongruent resonance clearly shows that simulation cannot be the general way of perceiving another's emotion: if we would have to simulate his rage first in order to react this would take by far too much time—reacting with fright or fear is a matter of split seconds.

contagion, but a subtle non-verbal communication by which we become aware of each other's state in a much more intimate way than is possible in remote observation. No inferential procedure, imagination or simulation is necessary for this process, at least not at the experiential level.[8] We do not simulate another's angry gaze or voice, even less his anger, but rather feel tense, shrinking or invaded by his behaviour. Through interactive coupling our body becomes the very medium of social cognition.

Primary and everyday social understanding is thus based on interaction and intercorporality. Only secondarily can this engaged interpersonal attitude be replaced by a more detached stance from which we perceive the other's body as an object or an outward surface, separated from an inner mind whose states we now have to infer or explain. This dissociation between the other's mind and body arises from a *disruption* of the primary second person engagement. As I argued before, it is mostly in situations where the other's behaviour is ambiguous, i.e. not immediately understandable in the context of the situation, that we take a third person view on him and start to reason in order to make sense of his behaviour. The explicit 3PP is an additional option—the exception, not the rule.[9]

But the 1PP taken as such is not the primary perspective of social cognition either. The idea that we first need to introspect an inner mental realm in order to then attribute our own states to other subjects reveals a Cartesian heritage: It assumes a solitary subject in full self-possession that only secondarily enters into contact with others. But do we really have such a separated and privileged knowledge of our own minds? Scheler (1973), among others, has pointed to the unreliability of introspection: Far from being unquestionably given, my self-experience is open to interpretation, and in many cases, others may know better what state I am in or what I am feeling than I do. Moreover, emotions are not isolated states that we find within ourselves but ways of relating to situations in the world, and others are always already involved in them. Particularly in empathy I do not discover a private emotion within myself which I then ascribe to others by analogy or projection. Rather, I am affected by the other from the start, connected with him in a shared situation, and there is no absolute boundary or inside–outside distinction that separates my feelings from his/

[8] At this point, proponents of theory theory or simulation theory usually resort to subpersonal processes. Thus, according to Spaulding. "… an appeal to phenomenology is unjustified in this context because much of mindreading is supposed to be non-conscious, at the sub-personal level, and phenomenology cannot tell us what is happening at the sub-personal level" (Spaulding 2010, p. 129). Of course, a subpersonal process of theorizing, inferring or simulating cannot be verified as long as we cannot discern it in fMRI scans (and even mirror neurons certainly do not 'simulate' themselves). However, this means that such a process cannot be falsified either—and a theory that has become immune to falsification seems not to be on the best track, to say the least. For an in-depth discussion of this issue see Gallagher (2008) and Zahavi (2011).

[9] Another example for making sense of others' behaviour from an explicit third person point of view is found in psychopathology, namely in autism. Autistic children lack the capacity of direct emotional perception and inter-bodily resonance that allows for perceiving others as feeling and minded beings (cf. Gallagher 2004; Hobson 2005). Instead, they take a "naturalistic" stance towards others, regarding them as a curious kind of objects whose behaviour they come to explain and predict through learning about their regularities—much like a theory theorist would have it. However, since the basis of second person interactions is lacking, autistic children usually reach this explicit third person view only belatedly or not at all. Moreover, even if they use their 'detour strategy' successfully, they mostly lack an *empathic* understanding of others.

hers. Interaffectivity is the sphere in which our emotions primarily unfold and gain their meaning.[10]

Finally, the primacy of intersubjectivity also applies to the constitution of an explicit 1PP. Granted, on a basic level, all conscious experience implies a pre-reflective or minimal self-awareness that does not depend on the subject's relation to others (Zahavi 1999). But as I will argue in the last section, the level of explicit or reflective self-consciousness (first person metaperspective) is only constituted through intersubjectivity, for it presupposes that I have realized and adopted the other's gaze on me, or that I have learnt to see myself in others' eyes. The view that self-consciousness depends on intersubjectivity has famously been developed by Hegel (1977), and later on by Mead (1934). Reflective thinking, self-consciousness and also conscience may be regarded as an internalized dialogue which is originally derived from the interaction with the other. On this view, the self-sufficient Cartesian ego which only subsequently enters into interaction with others is a mere fiction. I will come back to this later on.

The development of perspectives

Turning now to the developmental point of view, I will first argue for a primary presence of second person interactions from birth on. On this basis, I will explore the further development of perspectivity through embodied interaction.

Primordiality of the second person perspective

To begin with, all perspectival experiences are given in the implicit sense from birth on, that means, they can be taken as equiprimordial. A basic self-awareness or 1PP is clearly present in neonates: an awareness of their body as distinct from the objects around them, of their own actions as distinct from the movements of things and people, and a sense of self-agency when producing sounds that they hear or movements that they feel (Stern 1985). Neonates are also able to distinguish between self-stimulation and external stimulation, as can be shown by their preference of another's touching their cheeks over against their own touching (the latter involving a discriminative "double touch"; cf. Rochat and Hespos 1997). Rochat concludes from this that they already have an early sense of self-based on proprioception (Rochat 2001, p. 40f.). Similarly, an implicit 3PP can already be attributed to infants when observing another person outside of an interaction. They also show a clearly different reaction to human persons versus inanimate objects from the beginning (Legerstee 1999, p. 220f.; Meltzoff and Brooks 2001).

On the other hand, precisely these capacities to distinguish self, others and objects refute the primary narcissism or egocentrism which Freud as well as Piaget (1928)

[10] Of course, I have a first person authority regarding my raw experience of pain, thirst or anxiety—others cannot deny my feelings unless I have only pretended to have them. But what the meaning of my feelings is depends on a shared context, and as Wittgenstein (1953/1968) has argued, sharing and naming mental experiences is a prerequisite for explicitly knowing one's own experience. In other words, we could never know through private introspection what we actually feel if our feelings were not shared and labelled in social contexts.

attributed to the infant. The infant does not start out from a self-contained 1PP or a neutral observation of objects to only gradually discover other human beings. Rather, second person interactions are present from the very beginning. Research on early imitation of facial expressions reveals a basic form of co-consciousness in neonates, in the sense that they have a perceptive–proprioceptive awareness of both self and other which allows them to transpose the seen expressions into their own felt movements (Meltzoff and Moore 1989). Soon after birth, infants also engage in social interactions which they regulate through vocalizing, looking or also averting their gazes (Stifter and Moyer 1990). By 6–8 weeks, they even participate in reciprocal turn-taking interactions or 'protoconversations' with their caregivers which has led Trevarthen to talk of a "primary intersubjectivity" (Trevarthen 1977, 1979).

There is also evidence for a primary perception of expression which has already been pointed out by Scheler (1973). As early as in the first months, infants are capable of discerning emotions in the postures, movements, facial expressions, gestures, vocal intonations, and actions of others (Hobson 2005, pp. 39ff.). For example, Field et al. (1982) have demonstrated that only 36 h after their birth, neonates can discriminate the facial expressions of happiness, sadness and surprise. The primacy of expression is supported by Stern's (1985) concept of 'vitality affects' showing that different sense modalities can have the same 'kinematics' and thus express the same affect. The emotion of joy and the expressions of joy have the same intermodal dynamics, and this is the basis for the direct perception of others' emotional states even in earliest childhood.

Moreover, as I argued before, to perceive others' emotions already implies a tendency to react to them (Frijda 1986). Infants' responsiveness to others' embodied affects is demonstrated by the affective synchrony which emerges in dyadic interactions at around 2–3 months (Trevarthen 1979; Stern 1985). Affect attunement, bodily resonance and intercorporality bring about what Tronick (1998) has called 'dyadic states of awareness', often experienced with intense joy and pleasure. The emerging affect during a joyful playing situation between mother and infant may not be divided and distributed among them. Rather, it is a form of co-experiencing which arises from the 'between', or from the over-arching process in which both are immersed. All this shows a primary involvement of the infant in second person interactions and interaffectivity. The neonate does not start from a self-centered state but is a self-with-others from the very beginning.

Development through interaction and triangulation

How do social perspectives develop from here towards an explicit 1PP, 2PP and 3PP? What enables the child to finally acquire an understanding of his own and of another's perspective as such? In what follows, I will argue that this happens mainly in and through social interactions, on the basis of the primary 2PP. Given their variability, intensity and meaningfulness for the child, interactions are the adequate playground for developing and practicing awareness of the perspectives. Instead of postulating innate cognitive modules that develop by themselves and "come online" at certain stages of brain maturation (Baron-Cohen 1995; German and Leslie 2000), the enactive approach to social cognition assumes a kind of learning by doing, where

the capacities that are needed for specific interactions develop within and through these interactions (Carpendale and Lewis 2004; de Haan et al. 2011). Neurobiological maturation, though certainly necessary, cannot be the main agent of development. This becomes obvious by the growing body of research showing that the quality and variability of early relationships and interactions strongly influences the infant's development of social cognition and perspective-taking.[11] It is precisely the mutuality and turn-taking pattern of interactions which conveys an increasing understanding of what it means to be directed towards another, to be attended to by him and to be jointly directed towards a common object or goal. I will follow the major steps of this development.

According to Reddy, infants primarily realize another's attention when it is directed to themselves. Already at 2 months of age, they are aware of their own visibility to others, judging from their attempts to reduce that visibility in coy-like reactions (Reddy 2008, p. 139). Similarly, when the embodied interaction with their mother is disrupted as in the still-face experiment, infants from 2–3 months on try to catch the mother's attention and re-establish mutual contact by all means, showing that they realize whether they are actually attended to or not.[12] Moreover, during the first year, a number of interaction types contribute to an increasing awareness of both one's own and the other's perspective, for example mutual imitations, proto-conversations, reciprocal patterns of giving and taking, demanding and responding, offering and withdrawing, etc. (Trevarthen 1993). In all these cases, it is not just the observation of the adult's behaviour, but the ongoing mutual exchange that conveys a first understanding of the other's intentions and of the matching or mismatching of one's own and the other's perspective.

However, the crucial presupposition for the further development of perspectivity is to reach an independent or external point of view from which different perspectives may be compared and finally grasped explicitly. I propose that the main principle providing for this external angle is social triangulation. This opens up the primary dyad to include triadic interactions both with external objects and third persons, later on also using words as representing objects or persons. Triangulation will serve as a guiding principle for the following analyses.

So far, triangulation has mainly been a topic of research into joint attention or object triangulation which arises around the 9th and 10th month (Tomasello 1995,

[11] This research has shown that the development of social understanding is enhanced by a variety of interactional contexts that include early bilingualism (Kovács 2009), mental state language and play interactions with peers and siblings. Thus, Meins et al. found that maternal mind–minded language (using ascriptions of feelings, wishes, intentions, etc.) to 6-month-old infants predicted their false belief performance at age 4 (Meins et al. 2002). Perner et al. (1994) and Jenkins and Astington (1996) reported that preschoolers with siblings acquire false belief understanding at an earlier age than children without siblings.

Moreover, attachment quality and parental sensitivity also play a role for the development of social cognition. Fonagy et al. (1997) found that securely attached children, as measured with the Separation Anxiety Test, were more competent on theory of mind tasks than insecurely attached children. Finally, it is well established that maternal postpartum depression leads to a significant impairment and retardation of the child's affective and cognitive development for a period of over 5 years, the main reason being the mother's reduced interactive capacity and sensitivity (Murray et al. 1996; Grace et al. 2003).

[12] In the still-face procedure, the mother is instructed to interrupt a normal playing situation with her baby by keeping her face frozen for 2 min which usually causes an irritated and aversive reaction of the baby (Tronick et al. 1978; Weinberg and Tronick 1996).

1999). The crucial constellation here consists of a triangle (Fig. 4, left) whose basis is the primary embodied relation between mother and infant, supported through mutual eye contact, and whose sides are (a) the convergent directions of their gazes towards an object and (b) the mother's or the infant's gesture of declarative pointing. As Davidson has put it, "… each is interacting simultaneously with the world and with the other agent" (Davidson 2001, p. 128), and *each is also aware of the other's gaze* which is often expressed by a shared affect such as "knowing smiles" (Carpenter et al. 1998). Sharing attention means being aware of this sharing.

Prior to this triangulation, the infant was engaged in two different kinds of dyadic relations—either in dealing with *objects* or in mutual affective interaction with *persons*. The transition from mere reaching-for-the-object to pointing-at-it, or from action to gesture, marks the decisive conjunction of both types of relation: it creates a joint space of object-directed intentions and corresponding intersubjective gestures. The meaning of the pointing finger as the first signifying gesture is co-constituted through the interaction—it is shared or "in-between" both partners, not privately owned (Fuchs and De Jaegher 2009). It is hardly imaginable how declarative pointing could be understood by the infant apart from the interactive exchange of gazes and the shared reference to an external object, that means, apart from a second person interaction.[13]

Joint attention transforms objects as well as persons. On the one hand, objects are transformed from ego-bound things for action into ego-distant things for pointing-towards or symbolic interaction.[14] By seeing them "through others' eyes", they become *objects* in the proper sense of the word, namely independent from one's own subjective perspective. On the other hand, in order to show the object to another *person*, the infant has to grasp what this person sees and to take into account her spatial perspective at least implicitly. This crucially extends the primary dyadic space: Before, as Eilan (2005, p. 18) notes, the adult only functioned as an affective affordance for the infant. Now involving a third element means treating her as someone who has a perspective not only on the infant himself, but on the world in general—a perspective which initially differs from the infant's own. Moreover, the congruence of gazes in joint attention has to be established through the interaction, which teaches the infant that he or she can guide the other's attention. However, it is important to note that the main goal for the infant in joint attention is not to obtain objects through another's help (this would only require imperative pointing acts) but to become engaged with the other and to share a common interest which is the aim of declarative pointing (Hobson 2002, p. 253).[15]

Object triangulation thus affords a co-awareness of self and other on one and the same object, or a shared intentionality (Tomasello et al. 2005). Still, as Moll and

[13] An a additional argument for this may be seen in the fact that autistic children have severe difficulties both in producing and understanding declarative pointing, most probably because they lack the sense of mutual intercorporal exchange (Dawson et al. 1998).

[14] On this, see also Werner and Kaplan (1963, p. 43f.): The role of declarative pointing as a first step towards symbolic interaction is attested in German language by the word *Bedeutung* (signification, meaning) which is derived from *deuten* = to point.

[15] Camaioni et al. (2004) investigated the link of early pointing gestures to an understanding of others' intentions as demonstrated by a study where 12–15 months old children carried out an action that they have seen the experimenter unsuccessfully trying to perform before. Only declarative, not imperative pointing was significantly associated with a correct understanding of the adult's intentions. Correspondingly, children had developed the capacity of declarative pointing later than that of imperative pointing.

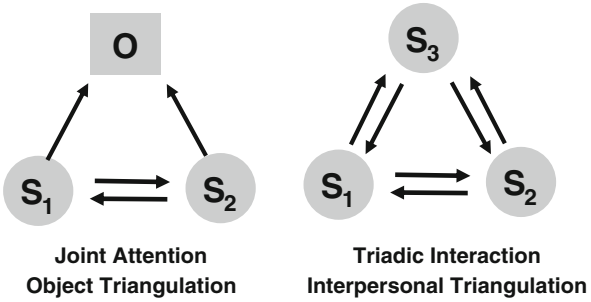

Fig. 4 Object triangulation and interpersonal triangulation

Meltzoff have pointed out, it would be mistaken to think that joint attention already implies a sophisticated understanding of another's perspective or even mental state. "The reason is that it does not involve any explicit determination of what the other sees, let alone how another perceives, knows, or feels, etc., when this differs from the child's own view or experience" (Moll and Meltzoff 2011, p. 396). Before looking at further developments, I want to focus on another crucial step towards understanding perspectivity which does not involve objects but persons, namely the experience and practice of interpersonal triangulation (Fig. 4, right).

To date, early intersubjectivity has mostly been investigated in dyadic situations. However, already in the first year of life, infants also engage in interactions including a third person who is often (of course not necessarily) the father. This triangulation of interaction has been investigated, above all, by Fivaz-Depeursinge and her group (Fivaz-Depeursinge and Corboz-Warnery 1999; Fivaz-Depeursinge et al. 2005). Infants as young as 12 weeks make bids for sharing their affects of pleasure, interest or distress with both parents; they rapidly alternate their gaze and affective signals between them. Later on, when joint attention arises, its object may often be the father or another third person, and vice versa: The infant may become aware of her primary interaction with the mother being *witnessed* by the father. This opens the enclosed cycle of dyadic embodied interaction; now there is an additional view from outside, a view on the dyadic relation itself (thus prefiguring a self–other metaperspective).

Moreover, in triadic interactions, the perspectival role often changes: At one time, the infant and the parent playing with each other are observed by the third person; at another time, the infant herself/himself will become the observer of her parents interacting with each other (Fivaz-Depeursinge et al. 2005). This variable dynamics of triangulation is an important presupposition for acquiring an understanding of perspectives; being the third, the witness or observer is not bound to a certain person, but is possible for each of us in turn. The infant begins to understand what one can see or do from a certain point of view, and thus begins to gradually realize what Mead (1934) has called the "generalized other". Since in face-to-face or second person interactions the other is always given as a "specific you", the generalized other can only be the "general third".[16] Thus, triangulation also widens the infant's social

[16] This may be regarded as the basis of Lacan's idea that the father, through intervening in the dual relationship between mother and child, introduces a symbolic distance between them and becomes the first representative of the norms of society or the "Law" (Lacan 1993).

space. Including the third person into her awareness allows her to gain distance and additional degrees of freedom in her primary relationships. Of course, further research would be needed to show in more detail how interpersonal triangulation contributes to an explicit understanding of the other's perspective.

From sharing to understanding perspectives

Current accounts of the development of perspectivity agree that there is a gradual progress from implicit to explicit modes of perspective-taking. Before asking how this development is possible, let us look at its major stages. Tomasello has proposed that infants become aware of others as intentional agents from around 9–12 months of age (as evidenced in phenomena such as joint attention, social referencing, understanding others' goal-directed behaviour, etc.), whereas only from around 4–5 years of age they become aware of others as mental agents with thoughts and beliefs that may differ from reality (Tomasello 1999; Tomasello and Rakoczy 2003). Tomasello argues that this step takes much longer because purely mental intentions and beliefs, contrary to expressive emotions or intentions-in-action, are not easily grasped in embodied behaviour. Therefore their comprehension requires prolonged real-life interactions, including verbal conversations, in which the difference of perspectives becomes apparent, be it in misunderstandings, requests for clarification, disagreements or conflicts (Tomasello 1999, p. 176, 182).

Moll and Meltzoff (2010, 2011) have distinguished three steps of the development:

1. Sharing perspectives: On the first level around 1 year of age, children understand the other's gaze following and joint attention. They share the other's perspective and they are aware of this sharing.
2. Taking perspectives: On the second level, reached at about 2.5 years of age, children become able to determine which objects other persons can or cannot perceive from their spatial point of view. For example, when being shown a card with a picture of a dog on the one side, and of a cat on the other, children at this age are able to tell which animal the adult sees when she holds up the card between herself and the child (Masangkay et al. 1974). Perspective-taking in the full sense may thus be conceived as recognizing another's point of view when it differs from one's own.
3. Understanding perspectives: Finally, between 4 and 5 years of age, children get insight into the perspectivity of knowledge and beliefs. They understand that people may not only see different things but see things differently, and that their intentions or beliefs may not match with the current state of affairs. According to Perner, this implies the ability to distinguish and confront two conflicting perspectives on the same object, as it is tested in the false belief task (Perner et al. 2002). Another test for this ability is the so-called "turtle task" in which a picture of a turtle is lying between an adult and the child who then has to tell how she herself sees the turtle ("right side up") and how the adult sees it ("upside down"). Whereas younger children give egocentric replies, judging that the adult sees the turtle as they do, children at 4.5 years of age are able to switch to the allocentric perspective and to recognize the adult's different view (Masangkay et al. 1974; see also Flavel 1992, for an overview). This corresponds to the age at which children are usually able to pass the false belief task.

Thus, the developmental trajectory starts from sharing perspectives in joint attention, then moves on to implicitly taking the other's perspective in cooperative situations and finally arrives at explicitly understanding the other's perspective as such. What is the crucial point of this development? Whether we look at conflicting perceptions or at false belief, what allows children to solve these tasks is obviously their ability *to be aware of both perspectives simultaneously,* or to *flexibly shift between them*. However, this shifting and comparing of perspectives is only possible from a vantage point at a higher level, namely from a self–other metaperspective which provides an equidistance to both one's own and the other's point of view—a "bird's-eye view" (cf. Fig. 2). Once children have reached this position, they have acquired an understanding of perspectives as such. This also enables them to imagine the viewpoint and knowledge of another person outside of an interaction from an observational point of view—applying an explicit 3PP or "other-consciousness", as demonstrated in false belief tasks. As we can see, the position thus achieved corresponds precisely to the triangular structure of interactions that I have highlighted in the previous paragraph as the basis for the development of perspectivity (cf. Figs. 2 and 4). This comes as no surprise: Sharing perspectives is the presupposition for gradually understanding them because only in the process of sharing one becomes aware of the similarity and differences of perspectives between self and other (Barresi and Moore 1993), thus approaching the level of self–other metaperspective. Sharing perspectives, however, is only possible in interactive situations, particularly in joint attention or joint action. On this basis, we can now go on to look for the interactive experiences that stimulate and enable the development of perspectivity.

Training the flexibility and understanding of perspectives in interaction

In what follows, I will take a closer look at some specific experiences that contribute to the flexibility of perspectives, arguing that they are based on second person triadic interactions. These are (1) collaborative interaction, (2) pretend play and (3) verbal communication. In all three kinds of situations, learning to compare different perspectives and to shift between them is a crucial feature.

1. Collaborative interaction. The first type of triadic interactions that lead from sharing to taking and understanding perspectives are joint or collaborative actions of infant and adult. Starting from joint attention by the end of the first year, it plays an increasing role in the second year of life. Examples are giving and taking objects, rolling a ball back and forth, building a block tower together, putting toys in a box together, etc. The main characteristics of such cooperative activities are (cf. Bratman 1992; Tomasello et al. 2005):

   (a) Sharing a goal with respect to some external entity and being motivated to cooperate in its realization ("we do X together");
   (b) Coordinated and complementary action roles (e.g. the adult holds the box, the infant inserts toys, etc.);
   (c) Sharing intentions or action roles in pursuit of a goal, that means each partner is aware of both roles ("you do x, I do y"), allowing also for mutual help and role reversal.

This type of distributed interaction contributes particularly to taking the other's perspective. To begin with, infants process social situations differently depending on whether they are engaged in second person interactions or only observing others. Thus, in a study by Tomasello and Haberl (2003), a 12-month-old infant and an adult jointly played with certain objects which enabled the infant to later on register the adult as knowing precisely these objects, but not others which the infant alone was shown in between. In contrast, in a similar study, even 14-month-olds did *not* pass the same test when they had only *witnessed* the adult dealing with the objects from a 3PP (Moll et al. 2007). In other words, through engaging in collaborative interaction (but not through observation alone), the infants became aware of what the adult was attending to. This illustrates the significance of interaction for learning to grasp the other's state of knowledge.

Even more important is the frequent reversal of perspectives that joint activities afford. Thus, in a study by Carpenter et al. (2005), an adult held out a basket in which the child could place a toy. Then he changed the roles and handed the basket to the child. From 12 months of age (more reliably from 18 months), the infants took it and looked to the adult in anticipation of his placing something in it. Obviously they understood both roles, thus being able to switch perspectives on the situation and to engage in "role reversal imitation" (Carpenter et al. 2005). Taking the other's role and perspective is particularly stimulated by the infant's motivation to let the collaborative action go on. Ross and Lollis (1987) observed that when an adult stopped participating in a joint activity, infants about 14 months of age not only prompted him to re-engage, but sometimes even performed the recalcitrant adult's turn for him. This suggests that being jointly engaged in a task is a strong motivation for helping the other in his role if necessary. Infants do not learn about the social world primarily from third person observation, but from engagement with others.

Having acquired these capacities, children can eventually use them outside of collaborative interactions as well. By 18 months, they comprehend what other persons intend to do with an instrument in a given context and help them to achieve their goal. Thus, when seeing an adult trying in vain to manipulate a toy and showing frustration, the child readily picks up the toy and shows the adult how to do it (Meltzoff 1995; Warneken and Tomasello 2006). Similarly, when 18-month-olds see an adult trying to open a box whose content was previously removed in his absence, they show him where the object is (Buttelmann et al. 2009). That means, they are now able to correctly register the adult's knowledge and intentions even when they are only *observing* his presence or absence. Nevertheless, the studies also show that an affective and even altruistic engagement with others is a crucial motivation for taking their perspective.

2. Pretend play. Joint play is another type of triadic interaction that involves playing with perspectives and intentions, in particular when it implies an "as-if" mode or pretence. Symbolic pretend play (using a banana as a telephone, a pencil as a toothbrush, etc.) arises during the latter half of the second year of life (McCune 1995; Rakoczy 2008). The child then usually looks at the adult with a playful, smiling expression, knowing that the unconventional use of the object is "funny". This

sense of humour is a clear sign of the child's being aware of a contrast of perspectives which is created by shifting the object into a new frame of reference. Pretence implies distancing oneself from the immediacy of perception or action within the usual context. The pencil is not taken as an object for conventional or instrumental use but for an as-if purpose, or in other words, it is taken not as a tool, but as a toy.

Pretend play is not discovered solitarily, but bound to interactive situations in which children learn and imitate the pretend meanings. Children below 24 months only produce pretence acts with objects that they had seen another person use symbolically first (Rakoczy et al. 2005). Thus, the contrast of perspectives is jointly created through a shared intentionality (Tomasello and Rakoczy 2003); it is by implicitly taking the other's perspective that the child becomes able to shift between the two views on the object, that means, between the primary and the virtual or "as-if" perspective. Pretence is thus based on the triangular structure of joint attention (see Fig. 4), but extends it by attributing to the shared object not only two different *spatial* directions of view, but also two different *meanings* (Fig. 5). Once the child has learnt about this possible "double face" of objects by taking the other's perspective, he/she can produce pretence acts spontaneously as well. With this, the child learns that the meaning of objects is socially defined and primarily valid in the interactive contexts which people constitute through the alignment of their perspectives. In pretence, collaborative activities create a new, fictional reality. This is also the basis of role-taking, where the object of pretence is not an external object but one's own body, or oneself as playing a certain role (being a mother, a captain, a lion, etc.). Again, once children have grasped the principle of pretence in the course of second person interactions, they can then transfer it to playing on their own.

3. Verbal interaction. Verbal interaction plays a decisive role for the development of mental state understanding since it implies a constant shift of perspectives. From 12 months on, infants learn the meaning of words mainly in situations of joint attention, namely when adults use the words as accompanying declarative pointing or iconic gesturing (often in pointing-and-naming games). The infant begins to understand that verbal utterances are used to share a focus of attention or to direct others to do certain things (Tomasello 2008, pp. 109ff.). This also means to grasp the bi-directionality of linguistic symbols (Saussure 1916); they can be used by each of the partners to direct the other's attention, *and* they evoke the same idea in oneself. As Mead has pointed out, symbolic vocal gestures are characterized by a reflexivity which supports the shifting of perspectives: "We are, especially through the use of the vocal gestures, continually arousing in ourselves those responses which we call out in other persons, so that we are

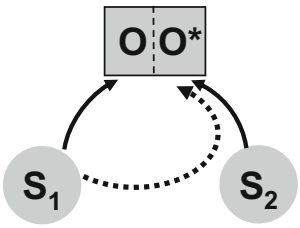

Fig. 5 In pretence, the object is given both from a primary or conventional point of view (*O*) and from a virtual point of view (*O**), enabled by S_1 taking S_2's perspective

taking the attitudes of the other persons in our own conduct" (Mead 1934, p. 69). Thus, learning a new word also involves a reversal of speech roles: The child uses the new symbol to direct another person's attention precisely as they have used it to direct her attention before. Verbal symbols are "double-faced", implying an alternation of roles and perspectives. Thus, they create a triangular structure of interaction as well (Fig. 6). On the one hand, the spoken word "points" to the shared object (as the declarative pointing gesture already did); on the other hand, by representing the shared focus or object of attention, the word can point to absent objects or situations as well. As a representational symbol, the word even becomes itself a kind of "third object" that both partners can refer to, for example when commenting on an utterance that was made by the other.

The bi-directionality of verbal symbols is enhanced in deictic expressions such as "I" and "you" or "here" and "there", which children have learnt to master mostly by 3 years of age (Loveland 1984). As their referent shifts constantly between the speaker and the addressee of a conversation, they involve a reciprocity or reversibility of speech roles and standpoints (Stawarska 2009). This was aptly pointed out by Merleau-Ponty:

"The 'I' arises when the child understands that every 'you' that is addressed to him is for him an 'I'; that is, there must be a consciousness of the reciprocity of points of view in order that the word 'I' may be used … The pronoun 'I' has its full meaning only when the child uses it not as an individual sign to designate his own person – a sign that would be assigned once for all to himself and to nobody else – but when he understands that each person is an 'I' for himself and a 'you' for others" (Merleau-Ponty 2000, p. 150).

Strictly speaking, this means that the flexible usage of deictic expressions requires an understanding not only of the reversibility, but also of the generality of possible viewpoints (everybody can be "I")—an understanding that already prefigures a "view from nowhere" or full-blown self-other metaperspective.

Verbal interaction in general allows for a multiplicity of perspectives on one and the same situation that may be described under various aspects, thus fostering the comprehension of perspectives as such. This was shown, for example, in a study by Lohmann and Tomasello (2003) who trained 3-year-old children in adult–child interactions with deceptive objects (e.g. a candle looking like an apple) and various

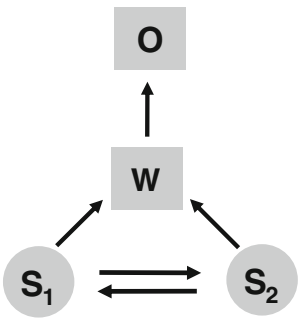

Fig. 6 Triadic interaction with words (*W*) as symbols for objects (*O*)

kinds of accompanying language. If the adult used specifically perspective-shifting words (e.g. apple versus candle), or verbs expressing propositional attitudes (e.g. know, think, believe), the children, after three training sessions, were significantly better able to pass several types of false belief tasks (not related to the training). This was not the case if the adult's words were unrelated to perspectivity. Other verbal interactions that teach the shifting of perspectives are (a) reflective discourse, in which a partner's utterance comments on what the other had said before; (b) clarification requests by the adult when the child says something the adult does not understand; (c) disagreements and misunderstandings about each partner's point of view, often leading to correcting or denying utterances (Tomasello and Rakoczy 2003), in a "negotiation of meaning". It is obvious that the negation ("no!", "don't do this!", etc.) plays a particular role for the experience of conflicting perspectives, all the more as it is often accompanied by restrictive measures taken by the adult.

In sum, verbal communication may be regarded as a constant training of perspective-taking and -shifting that is provided from the second year of life onwards. Moreover, by engaging in narrative practices, children also learn about others' intentions and goals as underlying a certain course of action. Through listening to fairy tales and other stories, they are trained in grasping possible perspectives, social roles and typical narratives which they can use in direct social understanding as well as in imaginative projection outside of face-to-face interactions (Gallagher and Hutto 2008). Thus, verbal interaction is a pre-eminent way of acquiring more sophisticated forms of social understanding.

I have now described some major steps leading from primary second person interactions to an explicit second and third person perspective, in particular from sharing to understanding perspectives. These steps are based on the triadic extension of dyadic interactions, including shared references to external entities or situations and allowing for a shifting or reversal of each other's perspectives and roles. Similar to trigonometry, where the determination of the distance of an external point depends on changing one's own position and comparing the perspectives, the second person interaction with its inherent reciprocity constitutes the necessary basis for gaining an external point of view from which the positions of self and other may be compared and integrated. This principle of triangulation also underlies the development of self-consciousness which I will address in the final paragraph.

The development of self-consciousness

As I intend to show, the development from pre-reflective self-awareness to an explicit 1PP is based on second person interactions as well, namely on an understanding of others as intentional agents capable of *directing their attention towards oneself*. Thus, discovering one's own perspective and that of others are simultaneous processes that reciprocally enable each other. Mead, Sartre and others have argued that the capacity of self-reflection is mediated by intersubjective experience, implying the adoption of another's perspective on myself. Through the other, a kind of self-awareness is acquired wherein I apprehend myself as a person among persons, even as an object among objects (Zahavi 1999, p.164). Granted, the development of self-consciousness in infancy is only partly understood so far and would deserve much more empirical research (for an overview, see Cicchetti and Beeghly

1990; Rochat 1995; Moore and Lemmon 2001). I will therefore only point out some landmarks of this development.

Already during the first year of life, self-awareness develops through perceiving others' attention to oneself (Trevarthen 1993). When the infant looks at the mother's face, he can see himself and his feelings reflected in her expression: "The precursor of the mirror is the mother's face", as Winnicott (1967) writes. Reddy has pointed out that infants from the age of 2 months react to attention to themselves with a variety of emotions such as pleasure, shyness, pride and showing off (Reddy 2008, p. 120ff.). This already indicates an awareness of the self as being attended to by others. Of course, it does not yet involve an explicit 1PP, but rather an early feeling of self-with-others within second person interactions. It is through these self–other conscious affects that infants increasingly become aware of themselves.

Self–other awareness further unfolds in joint attention which obviously involves a sense of another's point of view in relation to oneself. Infants show things to an adult in order to engage him or her in sharing *their view* and attending to *themselves.* Thus, joint attention is not only related to objects, but also gives infants a new means of assessing how people relate to them, and they often insist on catching their attention. "In checking back and forth whether someone else is engaged jointly with them, infants begin also to check for their own existence in the mind of others" (Rochat 2009, p. 80).

Even given these early forms of self-awareness in mutual and shared attention, they still remain implicit until the middle of the second year. Children do not yet possess conceptual self-knowledge, nor do they perceive objects or traces of themselves as *standing* for themselves. It is only at about 18 to 20 months of age that they recognize the image in the mirror as their own, as shown by the well-known mirror rouge test. When looking at their specular image, they become aware that some rouge has surreptitiously been brought on their nose or forehead and reach for it on their face (Amsterdam 1977; Rochat 1995). With this, they recognize that they can be represented in a form that exists outside their own bodily self. It means to adopt an external view of oneself which is in fact nothing else but the perspective of the others (Fig. 7). The mirror image stands for their body as experienced from within as well as for their outward bodily appearance. Hence, it also means *to integrate* one's own primary and the others' perspective, or in Mead's terms, the 'I' and the 'Me'.[17] The two selves are different and yet coinciding ("this is me here" *and* "that is me over there")—it is *as if* I were over there, in the mirror.

It is therefore no coincidence that the onset of self-recognition in the mirror occurs at approximately the same time as pretend play and personal pronoun use including me and mine. Thus, in a study conducted by Lewis and Ramsay (2004), children who were capable of mirror self-recognition also used more personal pronouns and showed more pretend play than children who were not. Obviously, recognizing the representational self in the mirror is linked to a major progress of symbolic understanding in other domains such as play and language. In all three cases, a concurrence *and* integration of one's own and another's perspective is involved.

[17] "The 'I' is the response of the organism to the attitudes of others, the 'me' is the organized set of attitudes of others which one assumes. The attitudes of the others constitute the organized 'me', and then one reacts towards that as an 'I'" (Mead 1934, p. 175).

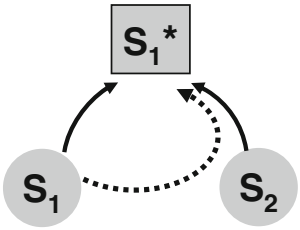

Fig. 7 Self-recognition in the mirror (S_1*) as one appears to another (S_2)

Whereas mirror self-recognition is also found in great apes, dolphins and even magpies (Prior et al. 2008), an exclusively human reaction is the embarrassment typically shown by children when facing their own mirror image. They may even try to hide their face behind their hands (Rochat 2009, 87f). This is the expression of a developing emotional "self-consciousness" that results from becoming aware of oneself in others' eyes in an evaluative sense. Up to the middle of the second year, primary emotions do not imply any self-evaluation, whereas now emotions arise that are linked to self-worth according to the norms and standards taken from others. Such secondary or "self-other conscious emotions" are embarrassment, shame and pride, developing to full-blown self-evaluating emotions by 2.5 years (Kagan 1984; Lewis 1992). Shame in particular is inseparable from self-consciousness, arising from the comparison and devaluation of self in relation to others and their judging eyes. The self-reflection and also self-alienation caused by shame has been famously explicated by Sartre (1956) in terms of the other's gaze turning me into an object. As shame and the other secondary emotions demonstrate, self-consciousness may not be regarded as a mere cognitive achievement but is equally grounded in interaffectivity—in perceiving others' attention and emotion toward the self.

Whereas shame is bound to the present moment, guilt implies an awareness of oneself as having done wrong in the past, a feeling of responsibility that extends over time. Guilt feelings are a later development (Kochanska et al. 2002), for a stable sense of the permanence of self is not reached before 3 years of age. This can be demonstrated by testing self-recognition over time: In a study by Povinelli, 3-year-olds reached for a sticker they saw attached to their own head while viewing a live video of themselves, but did not reach for it when viewing the replay of a video taken only 3 min prior (Povinelli 2001). It is only in the fourth year of life that children identify themselves in pictures and movies taken in the past (Rochat 2009). A similar result is obtained by research on belief change: In a study by Gopnik and Astington (1988), children were first shown deceptive objects, then the true nature of the objects was revealed. Children were now asked what they thought the object was when they first saw it. Most 3-year-olds answered incorrectly, whereas most 5-year-olds where able to remember their former belief. This obviously requires a first person metaperspective from which different states of self over time may be compared in retrospect ("before I thought this was X, but now I think it is Y"; cf. Fig. 8). These results indicate that it is only during their fourth year that children begin to grasp the temporal continuity of the self, thus integrating different experiences of self over time.

In sum, self-consciousness as explicit 1PP is in principle equivalent to seeing oneself through others' eyes (Fig. 9). It develops in the course of social interactions, primarily as a co-awareness of self-with-others, then as a shifting between one's

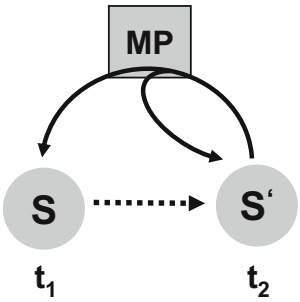

Fig. 8 Self-consciousness: comparing different states of self over time (*S*–*S*') from a first person metaperspective

primary embodied sense of self and the point of view that others have of oneself. To recognize oneself in the mirror, to feel ashamed in front of others or to reflect on oneself from an external point of view—all this means an integration of one's own and the other's perspective. Although it also delimitates and affirms the self as different from others, self-consciousness is not self-enclosed, but essentially relational. The other is implicitly present in its very structure. Self-consciousness may thus be conceived in a Vygotskyan way, as in internalization of social interaction structures (Vygotsky 1978).

Therefore self-consciousness does not mean a fixed position, but a continuous alternation between one's own primary perspective and the perspective of a real or virtual other, based on the achievement of a first person metaperspective. It does not yield a static "ego", as an acquired property, but implies a constant internal dialogue between the 'I' and the 'Me'. This is particularly obvious in the dialogical structure of conscience in which demands of others towards oneself are internalized. In sum, the flexibility of perspectives which is characteristic of the human mind is the result of interactive processes which still remain tacitly present and effective even when they are internalized as the dialogical structure of self-consciousness. This structure may be regarded as the organized sedimentation of interactive experiences.

Conclusion

Whereas theory theory and simulation theory approaches to social cognition remain largely individualistic, I have proposed an alternative account based on the assumption that the development of social understanding is based primarily on the 2PP and on the continuous practice of second person interactions. It is mainly through dyadic and triadic interactive experiences that children gradually acquire explicit knowledge

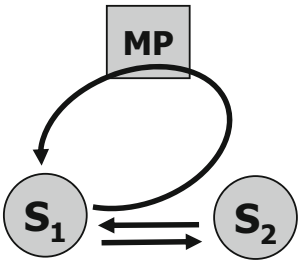

Fig. 9 Self-consciousness as first person metaperspective: seeing oneself from the other's point of view

of others and of themselves.

According to this view, the origin of social understanding lies in intercorporality and interaffectivity, implying a primary co-awareness of self-with-other. The idea that subjective experience ("mental states") is hidden from others by an ontological abyss is derived from a dualistic heritage. Rather, experiences are both embodied in behaviour and embedded in shared situations. Expressive bodies, meaningful gestures, intentions-in-action and contextual background information enable us to directly perceive the other as a psychophysical unity, without necessary recourse to first person simulation or third person inference. These forms of primary or second person intersubjectivity are and become increasingly available to the infant already in the first year of life.

On the other hand, understanding others may also involve aspects that are not as readily accessible but require perspective-taking and imaginary transposition. The interaction theory of intersubjectivity put forward by phenomenologists and enactivists should therefore be complemented by accounts of the development of more sophisticated forms of social understanding. Aiming at such an integrative theory, I have argued that it is mainly through a special, namely triangular kind of person and object interactions that children expand their understanding of perspectives to finally arrive at a self–other metaperspective. Thus, they learn to grasp their own as well as the other's perspective as such, which is equivalent to self-consciousness and to "other-consciousness", or to an explicit first and 3PP. As both explicit perspectives are dependent on taking an external or higher-order view of oneself and others, it is only through triadic interactive experiences that infants become able to fully realize these perspectives. On the other hand, the *basis* of each of the triangular schemas I have given above is still formed by primary second person interactions and intercorporal relations. Thus embodied social interaction becomes a *constitutive condition* for the development of higher-order social cognition and self-recognition. I summarize the major steps:

1. As we have seen, the explicit 3PP develops in several stages. The developmental trajectory starts from sharing perspectives in joint attention and triadic interaction, then moves on to implicitly taking the other's perspective in cooperative situations and finally arrives at explicitly understanding the other's perspective as such. This allows children to be aware of another's viewpoint and knowledge even when it is in conflict with their own. Whereas infants begin to perceive others as intentional agents from around 9–12 months of age, it is not before 4–5 years of age that they become aware of others as mental agents with thoughts and beliefs that may differ from reality (Tomasello 1999). While the first of these two stages is usually called secondary intersubjectivity (Trevarthen and Hubley 1978), the latter may be termed 'tertiary intersubjectivity'.

Understanding conflicting perspectives of self and other implies the capacity to flexibly shift between them. This is only possible from a self–other metaperspective which is the hallmark of tertiary intersubjectivity. As I have argued, triadic interactions with others, especially those involving a third person, are a crucial means to acquire such a position. Collaborative interactions, pretend play and verbal communication are particularly suited to train the flexibility of perspectives, since they all imply a triangulation of self, other and object or word. The contrast of perspectives is

jointly created through a shared intentionality: It is by taking the other's perspective that the child becomes able to help him in his role, to shift between two meanings of one and the same object, or to use a word as representing an absent object. Conversely, such symbolic interactions, on their part, foster the understanding of the other's perspective.

2. The explicit 1PP or self-consciousness develops in several stages as well, though the specific nexus is still far from being clarified. I have pointed out that the process leading from pre-reflective self-awareness to explicit self-consciousness is dependent on a growing understanding of others as intentional agents capable of directing their attention towards the infant himself. In other words: Self-consciousness means becoming aware of one's being-for-others. Already during the first year of life, infants' self-awareness develops through being attended to by others, as becomes manifest in pleasure, shyness, pride or showing off. In the second year, the achievement of mirror self-recognition manifests the capacity to adopt an external point of view of oneself: the mirror image is equivalent to one's appearance to others. In humans, this stage is characteristically accompanied by the emergence of self-conscious affects such as embarrassment, and later on, shame and pride. Self-consciousness is thus grounded in interaffectivity: in the perception of others' attention and evaluative emotion toward oneself. "Man becomes an I through You" (Buber 1970, p.80). Children learn to reflect because they *care* about how others feel and think about them.

To recognize oneself in the mirror, to feel ashamed in the face of others or to reflect on oneself from an external point of view equally imply an oscillation between one's own primary experience and the actual or virtual perspective of others. Similarly, self-consciousness in its full sense is based on reaching a self–other metaperspective that integrates different views of oneself in space or in time. Thus, there is an interdependence in the development of explicit knowledge of self and explicit knowledge of others, both enabling and extending each other. Both are derived from the triangular structure of interaction that we have followed through different situations, leading to increasingly complex structures of intersubjectivity.

Once acquired, the self–other metaperspective can result in rather sophisticated forms of intersubjectivity that may be expressed in formulae such as "I feel that you feel what I feel", "I think that you think what I think", etc. (Laing et al. 1966). Normally, this is not a necessary element of understanding others. But the more the social situation is restricted in terms of sensory modalities, channels of communication and interactive feedback, the more explicit "mentalizing" strategies become important for conjecturing the other's intentions and goals. Typical examples are poker games, the prisoner's dilemma (Rapaport and Chammah 1965) or paranoid ideations about others that may arise in deaf persons or in immigrants faced with a foreign environment (Fuchs 1999; Fearon et al. 2006). In such cases of 3PP, the lack of intercorporality, immediate feedback or basic trust forces the subject to resort to explicit procedures of theorizing about others.

Although the development of social understanding proceeds to these more abstract capacities based on a self–other metaperspective, it is only *through embodied social interactions* that humans acquire and practice the skills that they eventually learn to

use outside of primary second person interactions as well. These interactions are constitutive for the development of metaperspectival capacities in childhood, and they still play an enabling role for their exercise in later life. Thus, even the situations of explicit conjecturing about others from a 3PP testify to the foundation of human sociality in second person interactions, based on intercorporality and interaffectivity.

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