

Seeing Faces: Sartre and Imitation Studies

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# Seeing Faces

## *Sartre and Imitation Studies*<sup>1</sup>

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BEATA STAWARSKA

Recent decades testify to a renewal of interest in interdisciplinary research where phenomenological studies of consciousness are put into play with the analytic philosophy of mind and the empirical research from disciplines grouped under the heading of cognitive science. K. Wider's book *The Bodily Nature of Consciousness: Sartre and Contemporary Philosophy of Mind* (Cornell University Press, 1997) is a prime example of this approach. Michael Wheeler's *Reconstructing the Cognitive World* (MIT, 2005) engages Heidegger in a fruitful relation with the analytic philosophy of mind. There is also a growing body of research in the emerging field of enactive cognitive science, which draws directly and indirectly on Merleau-Ponty.

This marked revival of interest in interdisciplinary research raises the question of how exactly to correlate phenomenological methods based on first person approaches, i.e. rigorous and trained reflection on experience, with objective or third person approaches, based on external observation. This question has received a number of responses (Gallagher 2003). One view, neurophenomenology, proposed by F. Varela, stipulates that the disciplines based on first and third person methodologies should enter in a relation of mutual constraint and enlightenment (Varela 1996). This relation is especially productive in cases of conflict between views espoused by phenomenologists and natural scientists, in that it allows the disciplines to throw a critical light on each other and also to stimulate their respective developments. Another view, heterophenomenology, defended by Dennett, claims that first-person reports should be transformed into raw data for science, i.e. for third person analysis (Dennett 1991). This view has received critical reception from the phenomenological camp, to the effect that it is a naive and possibly unscientific strategy which does not integrate but ultimately effaces the first person perspective of phenomenological analysis from objective

study (Gallagher 2003). In the heterophenomenological framework, the scientist who interprets the subjective reports in view of turning them into data is herself not trained in the phenomenological method and relies on her own first-person experience and/or upon unbracketed preexisting beliefs which tend to be derived from the so-called folk psychology. Finally, there have recently been developments towards having a phenomenologically enlightened experimental science or front-loaded phenomenology. In this perspective, phenomenological contributions should be used directly in conducting empirical research. The novelty of this perspective lies in that it moves from the historically dominant unidirectional influence of the natural sciences on phenomenology to a bi-directional relation between the two disciplines, where phenomenology itself has a say in how natural science progresses.

In this paper, I propose to examine recent experimental studies on infants' mimicking facial gestures of adults in light of this complex dialogue between phenomenology and the cognitive sciences. My phenomenological allies will be Sartre as well as Merleau-Ponty. Armed with their philosophical contributions to the problematic of social relations, I will engage in an interdisciplinary dialogue of mutual constraint and enlightenment advocated by Varela between phenomenological and empirical disciplines. This project will critically bear on Dennett's heterophenomenological proposal; finally, it will permit me to hypothesize about front-loading phenomenology into experimental research on imitation.

Experimental research into infantile imitation of facial and manual gestures of adults has been conducted over the last 30 years by a team of researchers in many parts of the world. In the United States, imitation has been most extensively studied by Andrew Meltzoff and his associates. Meltzoff et al. conclusively demonstrated that infants are able to imitate simple facial gestures of adults, such as tongue protrusion and mouth opening, literally from birth on (Meltzoff and Moore 1977). The infants do not imitate in a reflex like fashion, i.e. they do not automatically produce a fully fledged copy of what they see the adult perform. They initially experiment with the relevant body part (e. g. the tongue) to gradually arrive at the gesture matching the one displayed by the adult. Infantile mimicry cannot therefore be explained in terms of a simple releasing mechanism but seems to mobilize a more complex cognitive system (Gallagher and Meltzoff 1996). This conclusion is further substantiated by the fact that infants not only imitate what they see the adult do on-line, but can also imitate from memory. For example, in a specially designed

experiment to test delayed imitation, infants observed two facial gestures of mouth opening and tongue protrusion; they were prevented from mimicking the facial display by having a pacifier inserted in their mouth during the experiment. It was documented that after the pacifier has been removed and the adult assumed a neutral facial expression, the infants imitated the gesture they previously perceived (Meltzoff and Moore 1977).

This data documents the precocious existence and relative complexity of the so-called *invisible* imitation, i.e., imitation performed by parts of the body that cannot be visually accessed by self (i.e., the face). Consider that the infant transported from the delivery room to the lab has not yet seen her own face, and so cannot compare two visual givens when she mimics the experimenter's facial gestures. This ability challenges the received view in psychology that invisible imitation depends on previous mirror exposure to the otherwise unseen body part. In Piaget's terms, "For imitation of [facial] movements to be possible, there must be co-ordination of visual schemas with tactilo-kinesthetic schemas." (Piaget 1962, 45). Since a young child (prior to 8-12 months) was assumed to have exclusively tactual and kinesthetic but no visual awareness of the movements of the face proper, neonate facial imitation was therefore deemed impossible.

Contrary to this well-established view, Meltzoff et al. demonstrated that infants are capable of invisible imitation without the need to obtain a visual representation of the unseen countenance. How they do they navigate between different sense modalities and bridge – what traditionally was thought to be a gap – between vision and inner sense, so as to be able to echo the other's visible movements with the face proper? According to Meltzoff and colleagues, infants inhabit more-than-one sense modality at birth thanks to an innate representational system which regulates the intermodal connection of visual information about other people's facial gestures with the proprioceptive awareness of the movements and location of the infant's own unseen face. Following the researchers, the imitated facial gesture of e. g. mouth opening is coded in a sense-neutral or supramodal representation which can be cast both in the modality of vision and proprioception. The supramodal representational system which handles the communication between different sense modalities accounts therefore for the possibility and the mechanics of neonate imitative performance: the active intermodal matching (AIM) system transfers the representation of a given gesture from its perceived appearance on the adult's face to the infant's 'invisible' face, thus facilitating the reproduction of a perceived act (Meltzoff and Gopnik 1993).

The intermodal matching system which interrelates perceived and performed activity would play a significant role in how we relate to others or how we register similarities between our own and other people's behavior. This explains why imitation research has been incorporated into the current debates about how infants form a theory of mind or how they arrive at the idea that other people are mindful agents analogous to themselves (Meltzoff 2002). Seen from the phenomenological perspective, the interest and novelty of recent experimental research lies, however, primarily in the challenge and call for revision it poses to phenomenological accounts of interpersonal relations, e. g. the one developed by Merleau-Ponty. Merleau-Ponty's account has been directly informed by previously dominant and currently questioned psychological theories, which declared neonate imitation impossible and located it in later stages of infantile development. Clearly, the debate engendered by the up-to-date psychological reports does not hang exclusively on the sheer factual presence of imitation at the zero point of human ontogenesis. The relevant questions raised by imitation research concern rather the sort of cognitive processes that are mobilized in neonates, their dependence on innate structures and/or experience, and the implications of neonate imitation for any philosophical theory that wants to address the earliest manifestations of intersubjectivity. These philosophical questions raised by up-to-date developmental studies to phenomenological accounts of self and others were discussed by Gallagher and Meltzoff (1996). Referring mainly to Merleau-Ponty's Sorbonne lecture on "Child's Relations with Others," the authors argue that recent developmental studies challenge the philosopher's claim that infants are born into a state of non-differentiated confusion between self and environment and suggest rather that a primitive body schema facilitates the neonate's primitive sense of self and that a basic framework of relations to others exists from birth on (Merleau-Ponty 1964).

To substantiate these points, recall that neonate imitation does not operate in a reflex-like fashion but takes the form of a learning process which gradually approximates the perceived facial gesture by the infant's own motor performance. The condition *sine qua non* of such gradual approximation of a visual model is that the infant be able to monitor and correct the gesture she performs by means of proprioceptive feedback from its own body. This ability implies that the neonate possesses an innate body schema which facilitates a basic and rudimentary awareness of self as an organized embodied agent with a set of motor possibilities. Another implication of the fact that

imitation is a gradual approximation process concerns the infant's relation to the person she imitates: the infant clearly registers the non-identity between her own proprioceptively felt gesture and the visually perceived gesture of the adult, even if the gesture may be cast within the same supramodal framework, as Meltzoff et al. claim. In order to be able to grasp the other's gesture as a model to be attained, the infant must be aware of the distinction between what the other does and what the infant (feels that she) does. It can therefore be concluded that neonate imitation relies on a primitive sense of self and a minimal distinction between self and non-self. Phrased differently, the very *modus operandi* of imitation precludes confusion between the two actors involved and, insofar as imitation is a process observable at age zero, it follows that a minimal distinction between self and other occurs from the start and not at a later developmental stage.

As Gallagher and Meltzoff observe, Merleau-Ponty would not have objected to the argument that imitation requires the correlated awareness of self and a distinction from non-self. However, following the dominant psychological authorities of his time, notably Piaget's, he assumed that such awareness is precluded at age zero by the relative developmental immaturity of the infant and postponed in ontogenetic time to the age of 8-12 months. Unable to correlate the so-called visual and tactile-kinesthetic schemas, i.e., to intermodally link the visual information received from the outside with the tactile and kinesthetic sensations originating in her own body, the infant cannot imitate facial gestures of others since she is supposedly unable to connect them with the distinct modality in which she experiences her own unseen face in the first months of life. This denial of neonate imitation by psychologists received neurological backing from the then accepted belief that neurological pathways are incompletely myelinated at birth, hindering the infant's proprioceptive awareness of her own body and thus excluding any sense of individuated selfhood. Due to these developmental blocks, the infant was thought to live in an anonymous non-differentiated state by a wide range of theorists, including Guillaume, Wallon, Lacan – the authors whose views Merleau-Ponty cited and embraced in his lecture on “Child's Relations with Others.” These views postulated the primacy of self-other confusion or, in Piaget's own words, *adualism*, as the original state of human sociality. Wallon termed this initial indistinction between me and the other *syncretism* or syncretic sociality. A classic example of this adualistic or syncretic sociality was arguably found in the cases of transitivity, for example the so-called “emo-

tional contagion” reported in neonate nurseries where the crying of one infant would spread to all the others in the vicinity, regardless of their prior emotional state. This phenomenon of an emotional spillover was interpreted as a proof that no firm boundaries exist between young infants. On this interpretation, the generalized crying is a multi-voiced yet non-differentiated event, a fusional choir without individuated singers. Merleau-Ponty embraced this interpretation that “indistinction of the two personalities ... makes transitivity possible,” as much as he accepted that this indistinction follows from the developmental immaturity of the neonate (Merleau-Ponty 1964). Invoking up-to-date research in developmental psychology, Meltzoff and Gallagher call the validity of this fusional view of infantile sociality into doubt and argue for the primacy of self-and-other distinction in human ontogeny. In an effort to pursue a constructive dialogue between the cognitive sciences and phenomenology, the authors thus demonstrate that phenomenological views are directly challenged by recent empirical findings.

It remains to show that the dialogue between phenomenology and cognitive science need not have a purely unilateral character with the theoretical discipline being critiqued by her empirical sister, but that a bilateral dialogue is called for as well. Specifically, I contend that phenomenology, notably Sartre’s analysis of sociality from *Being and Nothingness* (1956 [1943]), helps provide better tools for interpreting the data gathered in experimental research on imitation than the theory of mind model currently in use. This latter model is based on the idea that the self relates to other mindful selves by constructing a theory to the effect that they possess a mind similar to her own. The starting point of self-other relations is typically located in the first person experience of one’s own mind as a matrix for making theoretical inferences about other minds. The imitative practice is argued to play a foundational role in this regard, insofar as it enables the infants to relate visual information about others with “internal states, the way they ‘feel’ themselves to be” (Meltzoff and Gopnik 1993, 337). This intermodal relation enables infants to make the perceptual judgments that human others are ‘like me’ – ultimately that they have a mind like my own (Ibid.).

I would like to challenge this mentalistic interpretation of infantile imitation with Sartre’s help. Consider that what Meltzoff and Gopnik (1993, 337) term “internal states” indicate the infant’s *proprioceptive awareness of her own face*. Now, it is unclear that the facial awareness counts as an internal and private mental event, as Meltzoff and Gopnik stipulate. I will argue that the awareness of the face

proper is neither exclusively *internal* nor *private*. Contra Meltzoff and Gopnik, it therefore does not meet the conditions for postulating the presence of (primitive) mental states which supposedly function as precursors of mind in young infants.

Meltzoff and Gopnik follow “common-sense psychology” and adopt its double requirement of interiority and privacy for the mind theory: “mental states are located inside the skin (or the head or the body), while physical objects, including the bodies of others, are located outside it.” (1993, 339). These internal states are “private experiences,” which cannot be “publicly observable.” They are defined therefore as invisible sensations confined to the interiority of subjective life, which could only be accessed in the first person mode. Yet does the sensory awareness of the face proper in ‘invisible’ imitation really support this idea of an invisible subject residing in a visible body?

It does not, as long as it is understood that ‘unseen’ does not equal ‘invisible’ i. e. existing independently of the visual register. Consider first the twofold function of proprioceptive feedback of the body proper. As Gallagher and Meltzoff note, proprioception “consists of nonconscious, physiological information that updates the body with respect to posture and movement.” (Gallagher and Meltzoff 1996, 223) This information allows to automatically co-ordinate posture and movement without the need to have perceptual awareness of the body proper.<sup>2</sup> Proprioceptive feedback includes also proprioceptive awareness, i.e. “a felt experience of the bodily position,” such that one knows where a given bodily part is located without having to monitor it visually. This latter element is not, however, independent of perception: the awareness of the location of bodily organs is a constituting element of the perceptual aspect of the body image; as such, it stands for a primitive aspect belonging to one’s awareness of the bodily exterior and cannot be confined to the bodily interior and defined as an internal state. The dual proprioceptive function of the body/face proper thus blurs the absolute distinction between interiority and exteriority, and it implies further that the cross-modal translation between vision and feeling in facial mimicry is not a transfer from a visible exterior (face of the other) to an exclusively motor non-perceptual proprioceptive information about an invisible interior (face proper). Matching the facial gesture seen with the facial gesture felt is thus not a question of bridging the gap between visible and invisible experiences (Meltzoff and Gopnik 1993, 340). If proprioception is both motor and perceptual, then the cross-modal transfer from the face of the other to the face proper

involves both a transfer within the perceptual system, between vision and perceptual proprioceptive awareness of the face proper, and a transfer between the perceptual system (including vision and proprioceptive awareness) and the motor system (proprioceptive information).<sup>3</sup> The cross-modal transfer is thus a process of both inter-corporeal and intra-corporeal communication.

One wonders indeed however would the infant map the visible countenance of the other onto her own face and know that the face proper has an exterior that 'looks like' the other's face if her experience of the face proper was exclusively motor? The parallel of similitude between self and other suggests not only that the infant knows that the other looks 'like me' but also that 'I look like' the other. The primitive aspect of the body image in facial awareness enables this bi-directional visual analogy between the face proper and the face of the other to be established. However, insofar as the (primitive) body image is an element of inter-subjective relations, it may also be affected and enhanced by others (Gallagher and Cole 1995). How others look at me impacts how I feel. In the field of invisible imitation that interests us here that means that being seen by others during face-to-face interaction provides an indirect experience of one's visible facial exterior. This argument supports the claim that facial awareness developed in neonate mimicry is not exclusively internal and private, but includes the sense of one's facial exterior as an element of public relations with others as well.

This experience of being seen allows the infant to develop an indirect sense of the facial exterior proper as visible to the other, even though occluded from her own view. The visual sense of face proper gained therein does not have a representational character since it does not rely on visual content or featural information about the countenance to be consulted by the self but on being visible to others as an object under their gaze. Phenomenological analysis of the effects of the gaze can be found in Sartre's discussion of life with others in terms of the gaze (1956 [1943]). Following Sartre, being exposed to the gaze of the other produces a powerful affective reaction in the self and is a source of the discovery of the body proper as an object visible to the other. Recall the classic story: Engaged in the process of eavesdropping through a keyhole on a conversation unfolding behind closed doors, you find yourself suddenly spotted by another person who happens to pass by in the hallway. With her gaze, she fixes your crouching pathetic figure in the hallway, reduces you to a humiliating caricature of yourself. For the other, you have become congealed into the manifest façade of an eavesdropper, a

role which you now live in the manner of a thing rather than as a free project of consciousness. Even though the objectification by the foreign gaze temporarily freezes up your freedom, you continue to experience it consciously as humiliation and shame in front of the other. In fact, Sartre argues, the affective states of shame, as well as pride, arise exclusively within the interpersonal world

Sartre's analysis of the gaze has been rightly criticized for being essentially negative and for excluding the possibility of a positive experience of the gaze of the other. Kathleen Wider (1999) discussed the very case of infantile imitation as a phenomenon which may provide a source of self-discovery rather than of self-alienation. I believe, however, that despite its pervasively negative formulation, Sartre's analysis of the gaze provides an important insight concerning the mediatory role played by the other person in my experience of the body proper. In the experience of being seen, the visibility of the body proper becomes fulfilled by the other's gaze, while it is given to oneself in an empty fashion (*à vide*). Under the gaze, I realize that "I exist for myself as a body known by the Other" (Sartre 1956, 351). The experience of the gaze as described by Sartre supports therefore the thesis that the unseen exterior of the body proper acquires visual significance indirectly through the exposure to other seers. As such, it provides ground for the argument that the sensory awareness of the face in 'invisible' imitation is not visually neutral, but that the self gains the sense of its face as manifest in the visible public world through face-to-face interaction with others. Hence it is neither the representation of the face in an external mirror image nor an internalized mental representation of the other's face but, the event of being seen by others in the very *locus* of the face proper that contributes to building up the sense of facial visibility by endowing the infant with a non-representational facial exterior. The lived sense of the face is therefore not confined to internal and private sensations, as the mentalistic interpretation of neonate imitation suggests.

There is no room and supposedly no need to have such a sensory awareness of one's facial exterior in the AIM model of infantile imitation designed by Meltzoff et al. Interestingly enough, however, the AIM model for imitation of facial gestures by sighted infants is largely inspired by the dilemma raised by the seventeenth century philosopher William Molyneux, which concerns congenitally blind subjects. Molyneux wondered whether a congenitally blind person, who can distinguish by touch between a cube and a sphere, would be able to distinguish and identify them through vision as well, if she

were to recover sight. The issue at stake in this question is whether an inter-modal translation between the visual and the tactile spheres requires learning and experience or whether it is operated directly by those subjects whose dispose of tactile and visual sensibility (such as a sight recovery patient). Molyneux, as well as Locke and Berkeley, believed that the connection between visible and tactile realms had to be developed and that a congenitally blind person would fail to make it upon recovering sight.<sup>4</sup>

Contrary to that view, Meltzoff proposes that the ability to make an inter-modal transfer between tactility and vision is innate. Special experiments were designed to corroborate that view (Meltzoff and Borton 1979): young infants (26 to 33 days old) were made to orally explore two different kinds of pacifiers without being able to see them. Half of the pacifiers used in the experiment had the spherical part that is inserted in the mouth covered with rubber nubs, the other half had a smooth surface. Care was taken that the infants do not see which pacifier they explored tactually. In the second part of the experiment, the infants were shown both pacifiers, and the time of their visual fixating both shapes was measured. The result of the experiment was positive: a significant majority (24 out of 32) “fixated the shape matching the tactual stimulus longer than the non-matching shape” (Meltzoff and Borton, 1979, 403). The infants therefore confirmed the possibility of making a direct inter-modal transfer from tactility to vision. Yet does that imply that they answered the Molyneux question in the positive as well?

The issue hangs on whether or not sighted infants can be treated on a par with newly-sighted adults. Meltzoff believes drawing such a parallel is valid: “Like a blind man, a newborn infant has not visually inspected objects and has not had a chance to associate visual and tactual experiences of the same object.” (Meltzoff 1993, 219). Due to lack of visual experience and of associative experience between tactility and vision, young sighted infants do not appear therefore to differ substantially from subjects whose life-long experience has been predominantly tactile and aural prior to the recovery of vision. For both sight is a novelty, and with (close to) null visual experience, a young infantile self and a newly sighted self seem functionally equivalent to a *tabula rasa*. One can therefore apply the Molyneux question to the imitation studies and inquire whether a blind person who can perform facial movements, such as mouth opening and closing, would be able to imitate those gestures were he to recover sight and see another person in front of him perform the very same facial movements (Meltzoff 1993, 220). Molyneux would answer such a

hypothetical question negatively, and argue that there is no ground for a newly-sighted person to make the direct transfer from the visual spectacle of the other's body to the movements of the body proper, from the facial gesture as seen and as felt. Molyneux would thus have to exclude the possibility of infantile facial imitation as well: the infant would be just as incapable of making the inter-modal transition from the visible other to the 'invisible' self as a newly sighted person would be. However, Meltzoff argues, if neonate facial imitation is possible – and there is ample evidence that it is – then the transfer between tactility and vision can be operated both by individuals who have just recovered sight and by young sighted infants who have never seen the face proper, since it does not require learning and experience, but is dependent on an innately present inter-modal matching mechanism.

The question remains, however, whether the Molyneux dilemma applies directly to infantile imitation studies, specifically whether subjects who were born blind and recovered sight in their adulthood can be treated on a par with young sighted subjects. This procedure glosses over the fact that blindness leads to developing a set of predominantly tactile habits, which do not automatically translate into visual strategies upon recovery of sight. Numerous studies on the subject demonstrate that sight recovery patients have trouble making the connection between the world they have habitually explored and manipulated through touch and the newly discovered world of vision. They often cling to their 'tactile' habits in their everyday life, and do not automatically correct them with the visual information at their disposal.<sup>5</sup> The development of such fixed sensory habits puts pressure on the assumption implicit in the AIM model that sense modalities are governed exclusively by supra-modal representations.<sup>6</sup>

More pertinent for the purpose of the present discussion of facial embodiment, however, is the question whether the experience of face proper in blind and sighted subjects can be treated on a par. They can only as long as it is valid to identify lack of visual perception of face proper due to bodily constitution, i. e. the fact that a sighted subject cannot see her face, even though she could see its mirror reflection and does have visual perception of other parts of her body and of other bodies, with the lack of visual perception of face proper on account of blindness i. e. total deficiency of sight. 'Invisible' imitation would then comprise the same 'invisible' quality of the face proper for both the sighted and the blind, even though imitating infants are not 'blind' to their face due to an overall incapacity to see, and their 'invisible' face is not coupled with an invisible

world. The difference between the blind and the sighted would then equal the difference in scope between total and partial blindness and between total and partial invisibility of the body proper, with the facial invisibility being shared by the blind and the sighted. The difference regarding facial embodiment in the blind and the sighted appears however not to be just in *scope* but in *kind* as well.

As I have argued in reference to Sartre, sighted infants may develop a sense of having a facial exterior through the exposure to other seers. The moments of seeing the other display facial gestures and of being seen by the other are correlated during this face-to-face encounter. The experience of being seen is an integral part of the exercise of sight in 'invisible' imitation, where the infant not only registers the facial spectacle on the face of the other, but also reads clues about the facial exterior proper from the gaze of the other and develops the sense of being visible in the public world. Being under the gaze thus plays a constructive role in the making of the transfer between the face of the other and the face proper in 'invisible' imitation. If this experience of visual presence through exposure to other gazes is an integral part of being sighted, then it is excluded from the range of possible experience of persons who lack sight. The blind do not simply lack the ability to see, they also lack the ability to experience being seen, to track the direction of foreign gazes upon their bodies and faces. Lack or loss of sight is thus double in that it affects not only the access to the visible world but also to the visible body proper. It appears therefore that the difference of facial embodiment between the sighted and the blind is not only of scope between partial and total blindness but also of kind between a visually neutral and visually significant face. Even though young sighted infants' visual experience might be so minimal that it approximates the *de facto* lack of visual experience in newly sighted persons, still that does not justify using the born-blind adult's case as a paradigm for developing a universal model of inter-modal matching and applying it to the phenomenon of facial imitation. This procedure of building universal models on the basis of the particular case of sight deficiency is misleading in that it neglects the importance of being seen, which is an element of the exercise of sight which the blind do not have, for developing the visible facial exterior proper in the interaction with others. It suggests that facial embodiment is by definition visually neutral and provides ground for positing an invisible mental realm. However, as the narratives of the blind reveal, there is an important difference in the experience of the face proper between the sighted and the blind.

Consider the following observation from Hull, a professor of religious education, who documented the years following his loss of sight in a striking personal diary:<sup>7</sup>

“Nearly every time I smile, I am aware of it ...aware of the muscular effort: not that my smiles have become more forced...but it has become more or less a conscious effort. It must be because there is no reinforcement ... no returning smile ...like sending off dead letters...” (Cole 1998, 30)

Another observation on the experience of the smile from Peter White, a radio and TV journalist, who went blind as a young baby:

“I have always been conscious of the smile. A smile is a physical entity to a blind person because of the sensation that it generates inside yourself. It’s almost in the throat, a bubbly feeling ... You can feel your face twist and certain muscles relax so you know intellectually that this changes the shape of your face.” (Cole 1998, 15)

Striking in these narratives of late as well as early onset blind persons is the fact that they describe facial gestures such as the smile in terms of a muscular phenomenon confined to the body proper, an internal sensation resulting from facial contractions, whose external appearance and possible effect on others is either bracketed (“like sending off dead letters”) or inferred by a conscious reflective effort (“you know intellectually that this changes the shape of your face”). Such internalization of facial gestures in the blind is not a phenomenon that automatically extends onto sighted subjects; Hull, who experienced both sight and blindness (unlike White, who has no distinct recollection of seeing), lives it as a dramatic change in his relations with the “significant others:” he can no longer have face-to-face interactions with his wife and children, not simply because he can no longer see their faces, but also because he can no longer know whether or not the faces he makes reach their destination. The effect of the smile on the other has been bracketed from his field of possible experience as he can no longer read silent cues from the face and the gaze of other and only the corporeal source of his own facial gesture provides its feedback.<sup>8</sup> Hence, even though his muscular apparatus has not been affected, Hull feels “less connected and expressive in his face” after the loss of vision. Facial expressivity does not therefore seem reducible to localized muscular contractions but rather to be part of visual communication with others who respond to one’s expressive face and provide a looping feedback. If Hull feels the weight of the smile, it is because his smile no longer extends into a social exchange between self and other, no longer circulates in the

public space of vision. The loss of sight thus turns the face proper into an 'invisible' entity – Hull feared losing his faciality together with vision, he felt the horror of becoming faceless once he was out of the visual interplay with other seers (Cole 1998, 30).<sup>9</sup>

The loss of facial expressivity in late onset blindness underscores the fundamentally social character of facial expressions in sighted subjects whose facial expressions exist in a visual continuum with other persons' and whose exercise is not confined to proprioceptive sensations. Surely not all facial gestures function as means of visually engaging with others; the function of gestures is not limited to interpersonal communication, but involves a cognitive aspect as well where the gesture serves to accomplish thought. Nor can the function of a smile be reduced to its social function – the smile can also be an expression of subjective pleasure, and the congenitally blind are capable of such enjoyment smiles even though they have difficulties with social smiles. It is not my intention to suggest that facial gestures serve an exclusively communicative function; however, insofar as the primary concern of this essay is the relation between self and other established in facial mimicry, it is this social function of facial gestures and the consequences of interaction with others for facial embodiment proper that are inquired into. The case of blindness is instructive in that regard, because it makes clear that this social dimension of facial embodiment is neutralized in vision deficiency, with facial gestures becoming reduced to their proprioceptive sense. If such a reduction accompanies the loss of sight, then one can infer that a sighted person's sense of facial expressions proper must *exceed* the sheer proprioceptive feedback and involve a sensory awareness of a visually significant and publicly manifest facial exterior as well (i. e. that the face proper in sighted subjects is not only an element of the body-schema but also of the body-image, even though it is unseen). One cannot therefore conflate the sensory awareness of the face proper in the sighted and the blind. The internalized non-visual sense of the face proper which typifies facial embodiment in a blind person does not apply to facial imitation performed by sighted infants, and so does not support a universally applicable hypothesis of a mind confined to self's interior life and exclusively private. The face-to-face interaction with others in imitation involves an awareness of the face proper as having an exterior as well as being internally felt, of being publicly manifest and not exclusively private, and does not therefore provide precursors of mental states and support the mind theory. Facial interaction in infantile mimicry seems to better support the theory of primary intersubjec-

tivity, i. e. an embodied practice of communicating with others through manifest expressive behavior, with no need to postulate hidden mental states.<sup>10</sup>

This alternative interpretation challenges the polarized view of human experience underpinning Meltzoff and Gopnik's interpretation which maps the naive dualism of the material and the mental onto the split between the visible and the invisible, and so reintroduces traditional metaphysical categories into contemporary empirical research. Needless to say, the authors do not invoke metaphysics but rather make references to the supposedly pervasive and generally accepted beliefs regarding the mind and the body. However, the problematic metaphysical claim of a dis-embodied mind that parades in the guise of these folk psychology postulates and which biases the interpretation of imitation research in favor of the theory of mind is easily exposed and calls for some caution in the face of the dominant interpretation. It also calls for caution in the face of philosophical efforts to turn subjective reports into raw scientific data by untrained interpreters who rely on beliefs derived from folk psychology and so may import similarly problematic metaphysical presuppositions into the body of science. The preceding reflections on the dominant interpretation of neonate imitation sends therefore a warning sign against the heterophenomenological proposal with its claims to providing a neutral and objective alternative to trained phenomenological reflection. Contrary to its purported neutrality and objectivity, heterophenomenology runs the risk of incorporating pervasive yet problematic ideas into experimental research.

Before concluding my exposition, let me hypothesize about front loading phenomenology into experimental research on imitation. For the purpose, I will focus on the role of the gaze in neonate imitation. The gaze has not been included as a variable in the facial mimicry research conducted by Meltzoff et al. (but see Brooks and Meltzoff 2002). This may be surprising insofar as the gaze is an irreducible element of all face-to-face interaction and typically serves to establish the communicative channel between two individuals facing each other and looking at each other. In fact, we use the term face-to-face relation only for those forms of social interaction which are sustained by mutual visual attention. Henceforth, we typically confine face-to-face relations to the sighted population and hesitate whether or not they may be attributed to the blind. It is also questionable that we could qualify the interaction between a blind and a sighted person as a face-to-face relation, insofar as the blind individual *does not see that she is being looked at* and so does not engage in a

*mutual* visual relation with the sighted individual. Mutuality appears to provide the key to face-to-face interactions, where both actors see the other and see that they are being seen.

The aforementioned omission of mutual gaze in Meltzoff's neonate imitation studies has the effect of excluding the mutual visual attention that binds two sighted individuals facing each other. On Meltzoff's account, the crux of neonate imitation consists in the intermodal relation between the infant's internal awareness of her own unseen face and the visual representation of the face of the adult. Facial imitation is therefore construed exclusively as an intermodal transfer between the visually perceived and proprioceptively felt body parts, at the exclusion of the reciprocal relation between self and other via mutual visual contact and the bidirectional nature of this relation. Phenomenological contributions may help correct this omission. Sartre's insights about the interrelation between seeing and being seen, as well as Merleau-Ponty's claims about the reversible relation between vision and visibility, could be utilized and front loaded into empirical research. They would serve to test whether the conjoined experience of looking and being looked at is an indispensable element of facial mimicry or whether infants imitate facial gestures independently of the degree of visual contact with the adult. For example, one could compare imitative performance in groups where the adult maintains eye contact with the infant and with groups where the adult averts the gaze. If mutual visual attention did turn out to significantly affect the imitative performance, then it would be shown that infants differentially experience mutual gaze long before they are able to theorize about the other's non-manifest mental states. It would also be shown that the engagement with the other takes the form of a direct perceptual experience rather than being a theoretical process based on inference. The other would be grasped as a perceiving agent rather than as a perceived body to which mental states need to be attributed on the basis of one's own inner events. It would be evidenced that the infant's facial awareness includes the sense of being visible to others and so that facial imitation supports the idea of a publicly manifest social self rather than a hidden private mind. I conclude therefore that insights drawn from phenomenology may be utilized to produce new empirical results in the area of neonate imitation research and to challenge the dominant theory of mind paradigm of social relations. In that case, neonate imitation research clearly testifies to the continued validity of the methodology of mutual constraint and enlightenment for interdisciplinary research, with phenomenology not only being constrained

and updated by recent experimental research but also contributing directly to the design of experimental work and to the interpretation of the data.

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## Notes

1. Earlier discussions of the material presented here were published as "Merleau-Ponty in Dialogue with the Cognitive Sciences in Light of Recent Imitation Research" in *Philosophy Today*, 2003, and "Facial Embodiment in 'Invisible' Imitation" in *International Journal for Interdisciplinary Studies*, 2003.
2. As such it plays a crucial role in the (non-perceptual) body-schema system, whose innate presence facilitates neonate imitation.
3. "There are two interrelated processes involved here: (a) crossmodal communication between vision and proprioceptive awareness (PA); and (b) communication between the perceptual system (which includes vision and PA) and proprioceptive information (PI). On the physiological level PI and PA depend on the same proprioceptors, and in some cases the same central neural structures, which supply the information necessary for both the automatic governing of movement and the perceptual sensation of one's own movements (Phillips, 1985). Since PI and PA depend on the same physiological mechanisms it would not seem unreasonable to suggest an immediate two-way connection or interactive co-ordination between proprioceptive information, updating motor action at the level of the body schema, and proprioceptive awareness, as a perceptual element of the body image. And since PA and vision are intermodally linked, then there is also a link between vision and PI, or more generally between sensory/perceptual and motor activities. In the case of imitation the subject who is intentionally imitating depends on both PA and PI. What she sees gets translated into a proprioceptive awareness of her own relevant body parts; and PI allows her to move those parts so that her proprioceptive awareness matches up to what she sees." (Gallagher and Meltzoff 1996, p. 224).
4. Molyneux posed this question to the philosopher John Locke; Locke attended to this problem in his 1690 *Essay Concerning Human Understanding*, and gave a negative answer. George Berkeley examined the issue in more detail in his 1709

*A New Theory of Vision*, where he concluded that there was no necessary connection between sight and touch, and that the connection had to be developed through experience.

5. See e. g. case histories by Gregory and Wallace (1963) and Valvo (1971) both in Sacks (1995).
6. Meltzoff and Moore contend that sensory deficits such as blindness can be compensated for as long as the central supramodal representation system is not compromised (1997, p. 189).
7. Originally published under the title *Touching the Rock* in 1990. I refer here to J. Cole's discussion of his and other cases of blindness from *About Face* (1998).
8. Hull can read still read clues from others' voice if they speak, but fails to read them from others' non-vocal behaviour if they are silent.
9. The dimension of visible bodily expressivity which a late onset blind person loses, a person born blind has to superimpose onto her bodily behavior. Hence David Blunkett, a distinguished politician who is congenitally blind, comments on the difficulties he encounters while being interviewed on TV: absorbed by the questions and answers, he gives an austere and cold impression as he 'forgets' that he is viewed by the spectators. "You forget that automatically people are viewing you, and as you've grown up without that you have to think of it and superimpose some facial reaction onto the rest of your thoughts." (Cole 1998, p. 20).
10. If interaction with others is an embodied practice, there is no need therefore to employ a theoretical stance in order to relate to others, as theory of mind advocates suggest. Simulating or theorizing about other's mental states would then not be primary ways of interacting with other persons, even though simulation and theoretical interpretation would in some cases "explain a very narrow and specialized set of cognitive processes that we sometimes use to relate to others," such as explanation and prediction based on mental contents (Gallagher 2001).

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