

MERLEAU-PONTY AND THE AFFECTIVE MATERNAL-FOETAL RELATION

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INTRODUCTION

The belief that the emotional state of the mother can impact upon her child's development during pregnancy is long held and cross cultural.¹ Yet within many developed nations the possibility of a maternal-foetal relation or communication has been poorly understood and not often researched. Recently however it has been found that many maternal affective states such as depression, stress, and anxiety have negative outcomes for foetal development and flourishing.²

Consequently, within the contemporary literature there has been the beginning of a shift in thinking, and in some instances a call for more research, into the nature of this suspected maternal-foetal affective communication.³ By 2004, there was sufficient interest in the phenomenon that Sjögren *et al.* stated "the development of an emotional attachment to the foetus/future child during the pregnancy constitutes a fairly new field of research."⁴ To date, this body of research remains both small, controversial, and poorly understood.

The primary aim of this paper is to outline a theory of maternal-foetal communication that can be employed in understanding *how* it is that through gestation, a mother and foetus affectively interrelate, and how this interrelation may account for the kinds of empirical research outcomes that are beginning to appear. In order to do this I will draw upon Maurice Merleau-Ponty's understanding of body schematic development which I then modify in light of recent empirical research into foetal development.

This paper is divided into three sections. The first two are an exegesis and critique of the phenomenology of Maurice Merleau-Ponty.⁵ I focus primarily upon Merleau-Ponty's notion of the body schema which for him forms not only the basis of our self-awareness, but also an embodied communion between self and others, especially during infancy. The critique that follows in the second section focuses upon two main issues that have been identified within his philosophy. The first is that of Shaun Gallagher and Andrew Meltzoff,⁶ who have argued that the body schema cannot develop post-partum. The second issue has been identified by both Claude Lefort and Dorothea Olkowski,⁷ who have separately targeted Merleau-Ponty's understanding of the development of subjectivity as being too individualist and visually based.

These critiques come together with empirical research into foetal development in the third section in order to open the way for the necessary modifications required to Merleau-Ponty's philosophy so as to forge a new understanding of body schematic development. The modification that I propose is essentially that many of his developmental milestones occur *in utero* rather than post-partum and require the maternal body schema in order to develop.

However, before I begin I would like to make a couple of terminological qualifications. The 'body schema,' 'corporeal schema,' or 'body image' as it is problematically translated in Merleau-Ponty's *Phenomenology of Perception*,⁸ is most often described as the manner in which humans can move knowledgeably, effectively, and efficiently in the world while at the same time not being reflectively aware that we are doing so. The body schema is the generic term for the way in which the body maintains integrative interrelationships between bodily sensations and affect, movement, and perception such that they can be prereflectively experienced.

The body schema forms developmentally through the increasingly complex conglomeration of those bodily movements which, through practice, we have honed into habituation and through habituation into the prereflective aspect of our psyche. Together, these practiced movements and proprioceptive adjustments allow us a capacity to move without needing to think about how it is that we are moving, like when we drive a car or ride a bicycle.⁹

For Merleau-Ponty it is the way that our bodies move 'for' us that provides for the subject a sense of self – an experience of bodily ownership that is quite literally manifest in our capacity to intentionally engage in the world. Subjectivity is the experience of having our bodies enact or follow through in intentional engagement in a familiar and predictable way without needing conscious mental direction. I will show in this paper how the body schema developmentally forms through the maternal body schema during gestation.

In 1986, Shaun Gallagher argued that much of Merleau-Ponty's work on the concept of the body schema was being misinterpreted due to the unfortunate translation of *schéma corporel* as body 'image' rather than body 'schema' in Colin Smith's translation of Merleau-Ponty's *Phenomenology of Perception*.¹⁰ He proposed that a clear conceptual distinction was warranted because the two notions of 'schema' and 'image' had quite divergent pathologies and developmental milestones. The division that he proposes is primarily between having a mental 'image' of one's own body and the prereflective performance of the body as a 'schema.'

Gallagher defines the body schema as "a system of motor capacities that function without the necessity of perceptual monitoring", while the body image "in contrast, consists of a system of perceptions, attitudes, and beliefs pertaining to one's own body."¹¹ The theoretical work that I focus on in this paper is to do with the notion of the body schema only and I take Gallagher's distinction as a premise. Thus I accept that the body schema is limited to the prereflective performance of the body that does not require a sophisticated level of cognitive functioning in order to achieve.

1. MERLEAU-PONTY AND INFANT DEVELOPMENT

I begin this section with a brief overview of Merleau-Ponty's theory of infant development and argue that the body schema develops along the trajectory that Merleau-Ponty proposes. However, I will show that this development does not occur post partum as Merleau-Ponty argues, but *in utero* through an affective maternal communion. This modification I then apply in order to fully grasp the implications of recent empirical research findings into foetal activity for foetal body schema development. With this aim in mind the following exegesis will focus upon Merleau-Ponty's understanding of corporeal schematic development and the implications that this holds for infant subjectivity development.

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For Merleau-Ponty, the trajectory of infant development unfolds in the following way:

There is the first phase, which we call precommunication, in which there is not one individual against another but rather an anonymous collectivity, an undifferentiated group life (*vie à plusieurs*). Next, on the basis of this initial community, both by the objectification of one's own body and the constitution of the other in his difference, there occurs a segregation, a distinction of individuals – a process which, moreover, as we shall see, is never completely finished.¹²

So, like many of his peers such as Piaget and Freud, Merleau-Ponty thought that an infant required interaction within a social environment in order to develop self-experience.¹³ However, where Merleau-Ponty diverges from these theorists is in the claim that subjectivity develops as an alterity or divergence *from* others rather than through learning to socialise *with* others. For Merleau-Ponty we begin life enmeshed with others and must discover our 'selves' as something separate and this is not possible until the body schema has developmentally provided a sense of self-unification through the familiarity that habitual bodily movement provides.¹⁴

When this process of bodily habituation has reached a certain quantum amount which allows the child movement without needing to concentrate upon the movement itself, we can say that the child has taken possession of her body as her own. This experience of bodily ownership is, for Merleau-Ponty, subjectivity. The emergence of subjectivity is thus embodied. The body schema forms the substrate from which the child can then direct their perception out into the world while being simultaneously grounded by their bodies within a perspective.

Prior to the emergence of the body or corporeal schema, Merleau-Ponty describes infant life as syncretic; as one where "there is not one individual over against another but rather an anonymous collectivity, an undifferentiated group life."¹⁵ In this way, Merleau-Ponty's characterisation of (very early) infant life echoes that of James as one of "blooming, buzzing confusion."¹⁶ Syncretic sociability, for Merleau-Ponty, is affectively intercommunal and the infant's initial confusion results from experiencing the intentions and affect of others as a chaotic maelstrom. In the third section of this paper I will argue that the neonate has already surpassed this intercommunal syncretic phase of development to a large degree. Syncretism I suggest, occurs during gestation, and forms the basis for empirical findings that suggest an affective maternal-foetal communication.¹⁷

The child's transition from experiencing his/her body as indistinct from that of others, to the self-objectification required for self-consciousness, is mediated through the developing body schema. During the early syncretic phase the first sense that a child will have of herself Merleau-Ponty calls the phenomenal body. This embodied phenomenal self is not self-conscious. Rather the child's contact with the world is only grasped as momentarily experiential; it is the body as lived, the manner in which the body is orientated within the environment; the body minus the coordination and coherence that the body schema provides.

The body schema emerges, for Merleau-Ponty, as the child begins to structure her behaviour into habituated patterns of movement and adjustments that allow her to maintain homeostatic equilibrium within her world. It is the developing body schema that provides the child with an increasing ability to possess "a perception of [his or her] ... body's position in relation to the vertical, the horizontal, and certain other axes of important co-ordinates of its environment."¹⁸

Through the phenomenal body the child explores the world by testing his or her capacity to interact. Through the pull and push of the child's bodily intentions within specific situations and contexts, certain patterns of behaviour will begin to emerge as practical ways of engaging in and with certain 'signs' that will elicit particular habitual behaviours within the environment. For Merleau-Ponty it is these habituations that gradually form the foundation for our body schematic functioning and thus our self-awareness. In the third section of this paper I will show how recent empirical research into foetal movement shows this process as having begun by the 22nd week of gestation. For Merleau-Ponty however, it was not until the child was at least six months of age that the

body schema was sufficiently established so as to enable the child to begin to take possession of their bodies.¹⁹

According to Merleau-Ponty, actual self-awareness occurs between fifteen and eighteen months in a developmental stage famously known as the ‘mirror stage’ when the toddler will begin to recognise her mirror reflection as herself. At this time the child will come to direct her attention toward herself and begin to see the body that she possesses as an object akin to other bodies in the world. This recognition, for Merleau-Ponty, heralds the emergence of self-consciousness as an alterity which is experientially intertwined with the sense of subjectivity or bodily ‘ownership’ that the body schema provides.

The development of self-awareness at this mirror stage allows the child to begin to ‘limit’ their lives to themselves. “To the extent that he [the infant] lacks the visual consciousness of his body, he cannot separate what he lives from what others live as what he sees them living.”²⁰ So for Merleau-Ponty vision is the primary sense through which a child constructs subjectivity and self-reflective consciousness.

This aspect of Merleau-Ponty’s work—the emphasis that he places upon the spectral—has come under much criticism and in the next section I will concur with two of those critiques. However, how Merleau-Ponty understands the body schema as forming the basis for our self-conscious and reflective experiences of both the world and ourselves is very insightful and as I will show in the third section of this paper, is proving to be consistent with recent empirical research into foetal development. It would seem that Merleau-Ponty may have been correct when he described how it is only through our structured movement and engagements that we can know and be at home in the world and it is only through these engagements that we can know and come to experience ourselves as selves.

However, before moving into those arguments I now wish to turn to the way Merleau-Ponty describes the manner in which ‘objects’ can, and very often are, incorporated into the body’s schematic functioning and the implications this has for our affective experiences. I do this because it is my argument that the maternal body elicits the development of the foetal body schema through this affective bodily incorporation at the level of body schematic functioning. Put simplistically, the maternal body schema incorporates the foetal body in much the same way that we incorporate artefacts into our body schemas. However, in this case, doing so elicits, moulds, and structures foetal movement into the schemas necessary for basic neurological development. For Merleau-Ponty, many artefacts and objects in our day to day lives get taken up within our normal body schematic functioning to varying degrees. He describes how:

A woman may, without any calculation, keep a safe distance between the feather in her hat and things which might break it off. She feels where the feather is just as we feel where our hand is. If I am in the habit of driving a car, I enter a narrow opening and see that I can ‘get through’ without comparing the width of the opening with that of the wings, just as I go through a doorway without checking the width of the doorway against that of my body. The hat and the car have ceased to be objects with a size and volume which is established by comparison with other objects. They have become potentialities of volume, the demand for a certain amount of free space.²¹

Jonathan Cole and Barbara Montero in their paper “Affective Proprioception” relate differing experiences and reflections of patients who have become confined to a wheelchair.²² For these men and women the degree that they are able to incorporate their wheelchairs into their body schematic functioning not only impacts upon their capacities for fluid movement but also on how they experience being in a wheelchair as an obstruction to their ‘normal’ mode of movement or as *how* they move.

In order for movement to feel precise and harmonious in patients bound to wheelchairs, the wheelchair as well as the body must become phenomenologically *absent* (or prereflective) when the patient is intending toward a task.²³ In order to feel *absent*, Merleau-Ponty would argue, the wheelchair must be experienced as a part of the body’s prereflective schematic functioning. While some might want to suggest that a wheelchair does not form a

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part of the material body and thus cannot be a part of the body schema, for many it comes to be experienced as a part of them in exactly this way and as such, also entails an affective integration.²⁴ Cole and Montero describe how patients who struggle to incorporate their chairs into their body schematic functioning are those most likely to experience their condition as a frustrating disability.

During pregnancy, the inclusion into the body schematic functioning is not an object but another – and another that alters *my* body schema incrementally and in an ongoing manner. One of the most characteristic aspects of embodiment in pregnancy is the manner in which the body schema is constantly changing and shifting. During pregnancy my body ‘appears’ and must be constantly negotiated. This draws my attention toward the foetus and demands that I form new daily habits that incorporate this growing other into my own sense of self as a reformation of a spatially and situated sense of self-capability. My ability to achieve the bodily absence required for habitual movement will often be a struggle and my level of success will have implications for how I affectively experience my pregnant body.

Being pregnant, especially in the latter stages, is also not a situation where there is a loss or an inclusion that remains spatially or experientially static, such as having to learn a new movement that incorporates an artefact, but rather nine or so months of constant bodily adjustment that demand reflective attention. Previous bodily functioning is consistently disturbed. My body not only ‘appears’ in that it emerges out of prereflective ‘absence’, but appears in flux: I wake early in the morning because the child in my womb is moving and I cannot get comfortable in bed – my old habitual sleeping position is no longer available to me. I attempt to get out of bed only to find that I cannot sit up but must slide to the edge. I bend to put on my slippers and then remember that I cannot reach my feet and I walk through the narrow doorway into my bathroom and am surprised when I bump my stomach on the edge of the door – it wasn’t that big yesterday.

This constant bodily negotiation and renegotiation draws my attention inward, toward my body and to this other. My bodily movements are constricted into certain attainable patterns and this becomes increasingly so as my body and the child grow. This restriction is not the result of strong affect, illness or functional loss but rather my movement is restricted due to having to negotiate the living breathing physicality within me. We need to choreograph – he moves and then I shift to facilitate the pressure – I walk rhythmically and he lolls off to sleep.²⁵

My body must incorporate this other in order for movement to feel fluid. Movement must be negotiated like learning the steps of a dance – I must learn to ‘read’ his body movements. Only once each adjustment becomes a repetitive pattern can I begin to experience the situation as a smooth habitual flow; as what Maxine Sheets-Johnstone describes as a ‘kinetic melody’.²⁶ Only when I can choreograph am I allowed a small reprieve from having to learn the steps and in these moments my body can recede into the prereflective and I can forget for a moment that I am pregnant. As we shall see in the final section of this paper, this negotiation and the choreographed movement patterns are necessary to the development of the foetal body schema as it is just this ‘kinetic melody’ that will guide that development not only through a physical material engagement but also through an affective communication.

Affect, for Merleau-Ponty, is an intersubjective phenomenon that is communicated through bodily engagement. As we have seen, for Merleau-Ponty, this capacity to experience the affect of others is magnified during infancy but it nonetheless remains with us throughout our lives to varying degrees. In the *Phenomenology of Perception* Merleau-Ponty speaks of how we are able to “blindly apprehend” each other’s emotion through the sharing of our gestures;²⁷ a phenomenon that we now call emotional contagion.²⁸

For Merleau-Ponty, affect is what structures and stylises our behaviour and emotions through how it feels to move. Affects therefore are the vague feelings or the affective experience that we have of ourselves and others that will arise depending upon how we are bodily engaged within particular situations. Emotions at their most fundamental level are affective ‘habits’ that have solidified into set or culturally recognisable ways of responding.

Within the spatial confinement of late pregnancy, foetal movements can be affectively experienced as either easy to negotiate or difficult to handle to varying degrees. At times I felt that my child's activity was a relentless buffeting that was not always pleasant because the discomfort compelled me to respond, to attempt to regulate and synchronise the movement – to form a kinetic melody. Sometimes I would feel tired and so the call to respond or to adjust myself could be arduous. To experience difficulties in gaining a good synchronisation is exhausting and entails a degree of physical discomfort for both of us and my emotional or affective disposition would alter accordingly.

Sue Cataldi describes affect as, by definition, a crossing and remaking of boundaries between oneself and the world, “the deeper the emotional experience” she states, “the more blurred and de-bordered the world-body border becomes, the more we experience ourselves as belonging to or caught up in ... the world.”²⁹ Applied to the phenomenology of late pregnancy, this way of thinking about the style of affective engagement is interesting. Should I willingly participate in movements that facilitate a bodily synchronisation then the merging of bodily movements will precipitate this blurring of boundaries and the phenomenology is an experience of being taken up or becoming caught up in the world of another.

As I rocked in my rocking chair in order to soothe the frustrating nocturnal movements of my foetus, the repetitive smooth rocking structured a calming synchronisation between my foetus and I. Once both the movement and the affect were in line, my awareness of his presence would recede and in this example, we could then both finally fall to sleep. In the physical merger, the boundaries between he and I, my perception of him as other, dissipated.

However, should I resist my pregnant embodiment by fighting to hold stable my pre-pregnant bodily boundaries by sustaining my previous habits then I must structure my affective engagement with the foetus as resistant. Following the Bosnian Civil War (1992-1995), Croatian journalist Slavenka Drakulic in 2000 published *S: A novel about the Balkans* which she based upon interviews with women who had undergone systematic rape. The subsequent pregnancies are described in terms of embattlement and experiences of invasion and war, “S. fought this alien body, the sick cells that multiplied inside her against her will.”³⁰

The discourse is one of seizure and domination from inside by a disease or an enemy, a feeling of still being held captive and S would physically limit and constrain the movements of the foetus; when the foetus shifted position, S would not move. Thus how I move within my pregnant body prefaces my sense of my own personal boundaries; where I begin and end and through the affect inherent within that negotiation, how prepared or willing I am to succumb to the synchronisation that will blur quite literally who I am.

During my years of counselling practice I recall the heart-wrenching story of a woman who suffered months of a different form of body schematic disruption after the death of her two year old son who had been ill since birth. Just toward the end of meal times each night, around the time when for the past two years she had sat and nursed her child until he fell asleep, her arms would physically ache from his absence. It has often been suggested that there are correlations and even causation between the phantom phenomenon of phantom limbs, which is where a patient continues to experience an amputated limb, and grief, in that the pain is the result of grieving for the lost limb.³¹ In this instance, one could argue that the ill child had become so much a part of the mother's own daily functioning and identity that she experienced his death as akin to the loss of a part of herself, quite literally. It is interesting that this is not an uncommon analogy – that losing someone close is often compared to the experience of losing one's right arm and deep grief will impact upon our ability to habitually go about in the world in the same way as prior to the loss. Grief can disturb our body schematic functioning.

The similarities between the physical pain associated with a loss of habituated body schematic functioning and a loss of something or someone whom we have incorporated within our body schema is marked. As we shall see by the end of this paper, the implications of having our body schemas form *in utero* is that they are relational and intersubjective; affectively intertwined with our capacity for bodily functioning from the very start. Although

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beyond the scope of this paper to unpack fully, this way of thinking about our relationships as body schematic incorporations may well form the beginnings of an understanding of our emotional experiences of loss as physical pain. This is because what is felt as my body, Merleau-Ponty argues, can be both something more and something less than what we traditionally call its ‘materiality’ or ‘physicality.’

So, developmentally, for Merleau-Ponty it is through a functioning body schema that progressively and developmentally self-reflection emerges as an alterity, primarily through the specula image, as perception of objects, events, and things. Over time and guided through intersubjective encounters, the child comes to perceive her own body as an object, and thereby establishes her subjectivity self-reflectively.³²

The corporeal or body schema is thus an intrinsic aspect of my situated and meaningful engagements with the world and with myself. The body schema is what, through its absence, allows the body to be available to the subject in intentional action. Body schematic functioning comes into our conscious awareness when it is disrupted. While this most often occurs during pathologies, it is an important aspect of embodied pregnancy and how we negotiate this appearance and consequent disruption to our daily habitual functioning has affective implications.

In the next section I examine some problems for Merleau-Ponty’s account of infant development. In particular I challenge the timing of his developmental milestones and suggest some new parameters.

2. CRITIQUE AND MODIFICATION

In this section I identify two problems within Merleau-Ponty’s description of infant development and in the next section I modify his account. The first problem is the challenge presented to Merleau-Ponty’s conclusion that infant life begins as a chaotic maelstrom by Shaun Gallagher and Andrew Meltzoff, who draw upon recent empirical findings of neonatal imitation.³³ Should a newborn infant be capable of imitating adult actions, then it would seem unlikely that body schematic development in the neonate is as primitive as Merleau-Ponty suggests.

The second problem is somewhat similar. Here I draw upon critiques by Dorothea Olkowski and Claude Lefort who separately challenge the emphasis that Merleau-Ponty places upon vision as defining subjectivity. What both of these philosophers highlight is how the absence of a relationship between mother (or caretaker) and child leaves Merleau-Ponty’s account with questions concerning how, through spectral imagery alone, an infant is able to develop from within a state of chaotic syncretism to the degree of alterity required for self-recognition and subjectivity formation. As Olkowski identifies, if the affective relationship that begins *in utero*, and extends through the birthing and breastfeeding and/or nurturing process between mother and child, is nothing but undifferentiated chaos, then, “there is an unbridgeable gap between the experiences of the child and the experience of the adult, which vision does not close.”³⁴

In the next section I draw upon these issues in order to modify Merleau-Ponty’s theory of infant development by describing how body schematic development begins *in utero* rather than post-partum. The resulting maternal communion forms the basis for an intersubjective affect that is embodied and schematically structured in such a way as to guide infant subjectivity development. This is made possible within Merleau-Ponty’s understanding of infant development by simply acknowledging the maternal body and gestation as a time not only of growth but also of body schematic development for both the mother and foetus.

I argue that while Merleau-Ponty is correct to say that body schematic development requires an experiential environment he fails to understand how the maternal body provides for the foetus a primal interaction. This interaction, I argue in the final section, is what moulds and forms the foetal body schema as a kind of imprinting. The neonate is thus born into the world with a functioning body schema that is affectively linked with the mother (and potentially others) in such a way as to render the child open to adult direction and guidance. In

fact, as bonding theory has shown, this interaction is necessary for an infant's cognitive flourishing.³⁵

Regressing Merleau-Ponty's understanding of infant development into an account of foetal development not only solves the issues within his own phenomenology highlighted by the above theorists but, as we shall see in the next section, also provides an insightful basis to understanding many anomalies within current empirical research into foetal development. Most importantly, it acknowledges the developmentally interactive role of the mother in gestation. However, before I move into this argument let us look at the problems for Merleau-Ponty's philosophy that recent work on infant imitation has highlighted.

Merleau-Ponty's understanding of infant life as chaotically syncretic was strongly challenged in 1977 when Meltzoff and Moore, in a series of experiments into infant's capacities for imitation, found that newborn infants achieve invisible imitation (the capacity to set in motion a part of the body that an infant has no visual access to such as the face) within the first hour after birth.³⁶ From these results they conclude that a newborn infant must possess the capacity to have a visual awareness of someone else's face, which must be apprehended, represented, and then reproduced on one's own face haptically or through kinaesthesia.

In 1996, Gallagher and Meltzoff in their paper "The earliest sense of self and others: Merleau-Ponty and recent developmental studies" draw upon infant imitation studies in order to successfully challenge Merleau-Ponty's conclusions that the young infant lacks a body schema and a capacity for self-awareness.³⁷ Their conclusions are that infant imitation would not be possible without a functioning body schema and a level of self-awareness that entails a primitive body image.

For the purposes of this paper, rather than examining Gallagher and Meltzoff's arguments I will instead imagine how Merleau-Ponty might respond to infant imitation experiments and to Meltzoff and Moore's conclusions. I do this for two reasons. First, I think that Meltzoff and Moore overestimate an infant's cognitive capacity in their conclusions and seeing how neonatal imitation might be explained another way helps us to be cautious, particularly around the notion of an infant's capacity for mental representations.³⁸ Second, explaining the phenomenon of infant imitation through a Merleau-Pontian lens assists in pointing out the specific flaw in his description which is my aim.

Merleau-Ponty, (along with Piaget) did recognise that small infants display imitative gestures. However, he argued that this was not 'true' imitation but rather the result of an unconscious *participation* in an affective experience made possible through early syncretism. Within Merleau-Ponty's account of syncretism, "the experience of the body and the body of the other form a totality and constitute a form,"³⁹ as a "'postural impregnation' of my own body by the conducts I witness."⁴⁰ In an instance of 'imitation', the infant for Merleau-Ponty, does not perceive the *details* of the smiling face, construct a representation, and then consciously mimic the behaviour as Meltzoff and Moore claim. Rather, because of the intercorporeality, facilitated through syncretic sociability, the child experiences a mixing of emotions, intentions, and behaviours which facilitate an inclusion of the infant within the situation, not just affectively (i.e. the infant feels good to be smiling) but also physically (the infant smiles). Smiling, therefore, does not presuppose the awareness of a sense of self separate from the other, but as a felt participation in a shared meaningful situation (say, of smiling) and the infant does not need to 'know' she is smiling in order to do so.

Although Merleau-Ponty's account of syncretic participation is the more insightful explanation for infant imitation than Meltzoff and Moore's more mentalist conclusions—which tend to overestimate an infant's cognitive/representational capacity—it nonetheless raises the question of how it is that the felt sense of playfulness or happiness transposes to a smile on the infant's face without a functioning body schema. Even more problematic is tongue protrusion imitation. How can a newborn infant, even without any sense of representational thought, stick out their own tongue as participation within a situation of *felt* tongue protrusion? Should the infant experience chaotic affect through such an engaged situation then why not smile? Why not raise an arm or nod their head?

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While it is possible that the infant does not 'truly' imitate the behaviour of others in a representational sense, he or she is nonetheless using a corresponding body part in order to participate. Within Merleau-Ponty's theory of syncretism this would be impossible should the infant not possess a basic body schema. So, a newborn infant must possess a primitive body schema in order to use a corresponding body part and Merleau-Ponty's account requires revision to this degree.⁴¹ The challenge then is to explain how this could be and this I leave until the remaining section.

The second problem within Merleau-Ponty's philosophy is somewhat similar. While for him the infant experiences affect intersubjectively, this affective syncretism is too chaotic to provide any guiding sense to the infant. For Merleau-Ponty the role of affect within the process of differentiation required for subject development is an unstructured maelstrom and so cannot offer any meaningful information to the child.⁴²

In place of the role of affective intersubjectivity, Merleau-Ponty proposes that the structures required for the maturation of the body schema to develop are an outcome of situated and contextual behaviour that informs habitual gesture development.⁴³ Thus Merleau-Ponty negates the role of felt relationships between the gestating mother and/or primary caregiver and the infant's development, replacing it instead with the notion of gesture and behaviour, which consequently give a visual and individuated basis to subjectivity development.⁴⁴ While, within Merleau-Ponty's philosophy, the child requires intersubjectivity in order to develop a sense of self, the role that intersubjectivity plays is that it provides for the child a particular behavioural environment that child must negotiate through a behavioural response.

Such a position is in direct opposition to research into infant bonding and attachment such as that pioneered by Bowlby, and Klaus and Kennell who argue that bonding is an affectively structured relation that is a necessary condition for healthy subjectivity development and subsequent intersubjective relations.⁴⁵ For Bowlby, the emphasis is on a stable and affective engagement *with* a guiding adult rather than a response to whatever environment is present.

The key feature here that is problematic for Merleau-Ponty is the affective link to healthy cognitive development. Drawing upon his human case studies, Bowlby was able to show how an infant's capacity to developmentally and cognitively flourish was reliant upon an affectively bonded relation. This is to the degree that an infant's capacity to recover from prolonged affective social deprivation from a primary caregiver was severely compromised.⁴⁶ He also noted how it was the exposure to potential bonding figures that facilitated improvement in infants who had experienced early institutionalisation or severe affective isolation.

Bowlby's introduction of bonding theory in the 1950s sparked a body of research where it was found that children who survive and are very poorly bonded acquire a condition known as Pseudo-autism⁴⁷ or Isolation Syndrome.⁴⁸ The term Pseudo-autism is employed because the cognitive symptoms of poorly bonded children are akin to that of autism and some of the same behaviours are manifested.⁴⁹ The poorly bonded child, however, will often show improvement once placed within a stable social environment and some children even recover well. Thus it would seem that an affective bond is a necessary condition for the healthy development of infant subjectivity and this proves problematic for Merleau-Ponty's understanding of affect as chaotic.

Dorothea Olkowski, in her 2006 paper "Only Nature Is Mother to the Child", takes up this issue within the rationale of Merleau-Ponty's own philosophy.⁵⁰ The question she asks is if the child truly begins in an affectively chaotic world, is the specula image on its own sufficient to introduce differentiation between the affective syncretism of infancy and the adult? Olkowski argues that it is not.

The problem that she sees is twofold. Firstly, without a tactile felt separateness, vision alone does not guarantee that what is seen is understood as an other or something separate from oneself. Why would a child see an adult as separate to her if she continues to share affective experience with that adult? What developmentally clarifying

role is vision actually performing and how could it be sufficient to begin to limit the affective experience of the child to herself?

Also, by Merleau-Ponty's own account vision is alienation in that it is either knowledge of oneself for the child who has gained the developmental stage of mirror self-reflection, or not knowledge of herself at all for the child who hasn't. So, "Caught up in this image" without recourse to anything else, "the child is alienated from herself, from the world, and from others to the point where intersubjectivity *becomes* alienation."⁵¹ How then can this substrate self-awareness develop?

Lefort takes up a similar problem within Merleau-Ponty's theory of infant development, albeit via a different tack.⁵² Lefort does not see the issue in terms of affectivity but rather understands the absence of the mother as the absence of a mediator, of one who shows and so creates the world *for* the infant. Lefort argues the need for this 'third' person, as one who socializes the child, is a problem for Merleau-Ponty's theory of self-conscious development as reciprocity within the child's own experience. The ambiguity or conceptual tension that Lefort detects is between the notions of *reversibility* and *alterity*.

For the infant, the other is not originally an *alter ego* such that the perspective of the infant is reversible with that of the adult. Between the infant – and this is especially the case visually – and things in the world, is a *mediator* who names the child, the things, and the world; who introduces the child to his or her world. In doing so, the mediator forms or structures the child's conceptual world through linguistic representation. Therefore, Lefort argues, vision cannot be the original openness to the development of subjectivity because the relationship requires mediation by a third person. This third person mediator, who is originally the birth mother but may not remain so, is the fulcrum of representation that *is* the child's world. This mediator triangulates the relationship between child and the world and therefore their role in the infant's development cannot be ignored.

So in skipping both the affective and even the tactile maternal contribution to the differentiation required for an account of subjectivity development *within* syncretic infant life, Merleau-Ponty is left with a dualist notion of harmonised nature versus spectral alienation. As Merleau-Ponty has forgone the notion of the psyche (which Husserl employed here as mediator)⁵³, the question left unanswered is by what means does a child come to compare the body felt with the body seen?

Although Merleau-Ponty acknowledges that we respond to stimuli that the world presents to us without the requirement of reflexivity, and he acknowledges that for the child vision is insignificant in comparison to what is felt, he nonetheless, as Olkowski and Lefort separately identify, overlooks the conclusion that for the child, the world and others might therefore be given through a mediator who guides and structures the child's experience.

I will show in the next section that these critiques are not fatal flaws within Merleau-Ponty's philosophy as a whole but they do require adjustment. The issues can be addressed by showing how the cohesion Merleau-Ponty describes as a developmental stage begins *in utero* and not with 'others' but, with a mother, and it is this affectively structured embodied relation that guides the foetus, and possibly then the child, through the early stages of subjectivity development.

3. THE EMERGENCE OF THE FOETAL BODY SCHEMA

While the critiques by Olkowski and Lefort in combination with recent research into infant imitation prove problematic for Merleau-Ponty's theory of infant development, his work nonetheless remains insightful. His main error is to neglect the signs that show that a newborn infant has a functioning body schema and as such, cannot be born into syncretism. This functioning body schema provides the basis for a fundamental intersubjective communication which guides an infant's healthy psychological development.⁵⁴ In this section I will argue that the infant's body schema has developed through a developmental imprinting with the maternal body schema during gestation.

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The nature of the relation constitutive of the maternal-foetal communication that I propose is a correlation between maternal and foetal affective movement that forms a bond due to the integrated nature of the body schemas in gestation. The way that both the mother and foetus negotiate each other forms particular ways of moving, or styles of movement, that incorporate an affective expression. These movements establish the first foetal habituations that will, as gestation advances, become the foetal body schema. In this section I will describe how from the time of conception, foetal development requires as its precursor, a body schematic linking with and within the maternal body. I will do this by arguing that this way of understanding foetal development explains a current problem and inconsistency within contemporary theories of developmental embryology.

Within contemporary research into embryology there have been two major and related developments. The first is the manner in which advances in imaging technologies have allowed us to view and track foetal development in new ways, and the second and consequent research examines our growing understanding of the role of movement in foetal development.

In 1998, due to swift advances in the field, the National Institute of Child Health and Human Development (NICHD) held an interdisciplinary conference consisting of clinical and basic scientists to discuss the parameters and priorities to be undertaken in continuing foetal research.⁵⁵ This conference was aimed at consolidating recent research that had shown (among other things) that foetuses display structured bodily movements which they develop through habituation (the most common word employed was ‘practicing’) that begin to appear around the 9th week of gestation.⁵⁶

This phenomenon was earmarked for further research because this kind of movement is suggestive of an early foetal body schema, or what neurologists call a motor schema. Clearly this is curious because the required structures (the cortex, proprioception, perception) for body or motor schematic functioning are not formed within a foetus prior to around the 15th week of gestation, and even then cortical activity is minimal and intermittent. So to speak of, or even describe, a foetal body schema as appearing prior to even proprioceptive capacity suggests the need for a hypothesis as to exactly what these structured practised movement patterns might be.

The second area of growing research involves new ways of understanding the role of foetal movement in early neurological development. This stream of thought has been influenced by the evolutionary neurobiology of Gerard Edelman⁵⁷ and basically argues that the sequence of development of embryonic neural tissue is such that ‘movement influences morphology.’⁵⁸ In other words, bodily movement precedes and is necessary for, the nervous system development relevant to that function. What these theories are suggesting is that foetal movement elicits and nuances foetal neural function rather than the behaviour flowing out of the required *a priori* neurology.

Sheets-Johnston places this concept within a foetal developmental paradigm and discovers that the morphology does indeed appear to follow along this trajectory:

By the beginning of the fourth month ... reflexive behaviour appears, which means that the movement of the foetus is coordinated in response to stimulation ... [such that] neural development of the motor cortex is stimulated by the body movements of the foetus itself. In other words, form does not develop solely on its own. Movement influences morphology.⁵⁹

For Sheets-Johnstone, very early foetal movement is regulated by the initial emergence of the more primitive reflex structures which move in coordinated response to stimulation which then precipitate the development of further bodily anatomy and physiology. So physical development is a *response to movement* in a similar manner to the way working out at the gym elicits increases in muscle development.

However, there are two problems with theories of foetal development that begin with foetal reflexes as the starting movements. The first problem is to do with how a foetus as young as 9 weeks gestation is moving in *regulated* ways. The contemporary addition by the NICHD of movement regulation, and in particular the claim that regulatory movement is *practised*, suggest that something more than a mere reflexive response is involved, even at this very early stage. A reflexive movement pattern may logically be spontaneous and may be reliably repetitive should the presented stimulation be consistent and of equal intensity, but they are hardly regulated and one does not 'practice' reflexes.

Second is the question of how the reflexes initially developed? The suggestion that reflexes biologically unfold and develop to influence subsequent morphology is inconsistent because reflexes also have morphology and pathologies. So, one might expect that any account of movement development as *a priori* should in some way encompass reflex development as well, rather than taking reflex *existence* as a starting point.

The more logical claim is that what is providing the structuring and the basis for a movement appearing to be regulated and practiced is the maternal body schema. At this very early stage, as *Fig 1* shows, a foetus has lots of room to move and, situated as they are within a moving maternal body, it is likely that these earliest regulated movements, which are prior to proprioceptive capacity, are a response within and to, the maternal body in *her* regulated and habituated, body schematic movement.



Fig 1: 10 week old foetus photographed after hysterectomy (44 year old mother diagnosed with cervical cancer)⁶⁰

Thus, very early foetal movement is regulated or 'practiced' in a manner which is not initially of foetal origin. Rather, the habituated movement patterns of the mother are underpinning, and thus structuring and regulating these early movements by literally repeatedly moving the foetus in certain ways by her body moving in certain ways. Reflexes and proprioceptive structures will thus form as a kind of imprinting from this proprioceptive-like

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movement and as such, will be 'modelled' upon the mother's particular movement patterns. What this means is that foetal structure is born out of maternal body schema structuration and so will, from its very beginnings, emerge as an adaptive style of movement with his or her mother.

While physical maternal movement will no doubt play an important role in this process we should also add the regular maternal heart beat, breathing and digestion which together construct an intrauterine world that is not only moving but also rhythmic, regulated, and animate. What also aids particular foetal development at this early stage is foetal size in ratio to that of the amniotic sac and proportional to the amount of amniotic fluid surrounding the foetus. Overall, the situation of a 10 week old foetus within a fluid-filled womb within a moving body amidst rhythmic beatings and breathing would facilitate a continuously moving, flowingly rhythmic world. The growing buoyant weight of the foetus at this early stage would precipitate the rolling and rocking movements that are fundamental to develop capacities for basic homeostatic bodily positioning such as upright and sideways.

This notion of proprioceptive development as being situated and maternally facilitated is consistent with Merleau-Ponty's account that habitual behaviours are those that we have formed in relationship with meaningful contexts and the engagement within that context is likely to elicit a similar behaviour at a bodily, non-conscious level. Interestingly, these types of flowing and rhythmic movements are often employed in therapy for proprioceptive problems in older children (see The Dance-Movement Therapy Association of Australia).⁶¹

What I describe here is the syncretic beginnings of foetal development. At this early stage the foetus is much more an aspect of the maternal body rather than something that is divergent or independent. To say that a relation or communication has formed between the mother and foetus would require a reciprocal relation and so the foetus must be, in some primal way, a separate being from its mother before we could postulate a 'relationship' between entities. For this we must wait until the second trimester of gestation where research suggests foetal habituation and learning are indicative of an increase in foetal independence and suggestive of a foetal environment that begins to extend beyond maternal mediation in the gross physical manner of the first trimester.

Kinematic patterns within foetal movement consistent with intentional goal directed bodily action emerge around 22 week's gestation; actions that were previously only broadly directional up to 18 weeks.⁶² By 22 weeks, hand reaches become straighter and more accurately aimed with acceleration and deceleration phases of the movement predicated on the size and sensitivity of the target. These movements in particular are highly suggestive of independent action as their strength and trajectories are no longer maternally directed but rather cut across or in other words, go against, the flow of maternal movement. The mark, at 22 weeks of intentional action also suggests that the foetus has developed a sense of ipseity; a sense of self and not-self that is displaying sufficient consistency that the foetus can discern something as experientially not him or her.⁶³

Although not cited within the literature, the findings by Zoia *et al.* that by 22 weeks onwards, foetal action is much more deliberate and forceful will also be a factor in the level and response of the maternal sensation of movement both consciously and within her body schema. Thus this 22 week foetal transition also marks the beginning of a different level of maternal-foetal *engagement*. The maternal-foetal relationship begins to manifest *as a relationship or communication*, as reciprocity, when there is maternal engagement with intentional foetal movement.

This developmental trajectory is consistent with Merleau-Ponty's notion of body schematic intentionality as not requiring self-consciousness beyond the ipseitic, or self and non-self in Dennett's "don't eat thyself" kind of way.⁶⁴ Recall that consciousness for Merleau-Ponty originates *through* the body in the form of prereflective consciousness as the familiarity that I have with myself as I engage in the world.⁶⁵ What the maternal-foetal relation provides and structures for the foetus is just this engagement.

It is then relevant that foetal EEG readings begin concurrently at around 22 weeks gestation, at about the same time as the connection between the spinal cord and the thalamus completes. Following very closely afterwards, at 24-26 weeks thalamocortical connections will have begun to grow into the cortex.⁶⁶ Thus we can see the ‘movement influences morphology’ paradigm quite literally acting out developmentally and this whole process both requires the presence of, and is facilitated through, the maternal body.

In attempting to find some further empirical support for my thesis I came across some research by DiPietro *et al.* who, in 2004, set out to examine the possibility of maternal to foetal stress transfer and found something that they did not expect; foetal motor activity affected maternal functioning measured in terms of both heart rate and skin conductance.⁶⁷ The detected time lags indicated a heart rate response after 2 seconds and skin conductance after 3 seconds and remained consistent from mid to late gestation.⁶⁸ In other words, the foetus had a capacity to *affect* the maternal body.

This became more perplexing for the researchers when they realised that the women only detected as few as 16% of the movements suggesting that “the maternal sympathetic response is evoked in the absence of perception of movement.”⁶⁹ There was also no apparent association with maternal stress or arousal. Put simplistically, mothers’ bodies respond to foetal movement in a corresponding manner that occurs below the level of perception – that is, unconsciously. A mother does not need to consciously feel her baby move in order for her body to respond to changes in the foetus. This is consistent with the notion that a maternal-foetal communication operates at the level of the body schema.

DiPietro *et al.* suggest that an explanation might entail a mechanism “through which foetal movement may generate an autonomic response [which] involves the perturbations to the uterine wall. The normal response of the uterus to distension is contraction.”⁷⁰ They suggest that the sympathetic maternal response may be regulating or limiting the degree of contraction in relation to the foetal movement. Should a foetus experience anxiety it will move more and thus the uterine rebound contraction will increase. This rebound will stimulate the maternal sympathetic nervous system to tighten the uterine contraction and thus restrict the foetal movement which consequently calms the foetus in much the same way as swaddling an infant can soothe distress.

Even within such a mechanistic affectively free stimulus-response reading of the research as DiPietro *et al.* provide, there seems to be an undeniable link between foetus and mother that both surprised and perplexed the researchers. They suggest, “a distal, but intriguing question is whether maternal-foetal synchrony sets the stage for postnatal synchrony in maternal-child interactions. Are women who are more physiologically responsive to foetal movements more responsive to infant behaviour?”⁷¹ They leave the question open but perhaps we can now make some tentative conclusions.

4. CONCLUSION

In this paper I have applied the work of Merleau-Ponty and developed an understanding of the maternal-foetal relationship as an instance of affective communication that is consistently empirically supported.

In the previous sections I have described how the maternal-foetal communication is expressed as an affective *style* of engagement, as the *nature* of the interaction between mother and foetus. I have explained how the maternal body schema forms the basis of and for the foetal body schema and subsequent foetal development. Together, the manner in which the maternal and foetal body schemas merge and then diverge will form a communication that is born through situated, gestational embodied negotiations. This relationship is affectively structured through the negotiated movements themselves. Thus, by the time of our birth we have already, within our habituated repertoires, a way of moving and interrelating that may well set the foundations for affective intersubjective relations post-partum.

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The introduction of the maternal body schema as integral to foetal development also solves the problem of how the infant (foetus) moves from syncretism to individuation within Merleau-Ponty's phenomenology. Through the acknowledgement and inclusion of the phenomenology of gestation, I have opened an extra dimension into Merleau-Ponty's work that modifies, yet also preserves, the integrity of his philosophy.

However, the most important implication of this work is the acknowledgement of the role of maternity and the maternal body in the flourishing of foetal development.

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5. Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge & Kegan Paul, 1962) and "The Child's Relations with Others," in *The Primacy of Perception and Other Essays*, ed. James E. Edie, (Evanston: Northwestern University Press, 1968), 96-158.
6. Shaun Gallagher and Andrew Meltzoff, "The Earliest Sense of Self and Others: Merleau-Ponty and Recent Developmental Studies," *Philosophical Psychology* 9 (1996): 214.
7. Claude Lefort "Flesh and otherness," in *Ontology and alterity: Alterity in Merleau-Ponty*, eds. G. A. Johnson and M. B. Smith (Chicago: Northwestern University Press, 1990), 3-23; Dorothea Olkowski "Only Nature Is Mother to the Child," in *Feminist Interpretations of Maurice Merleau-Ponty*, eds. Dorothea Olkowski and Gail Weiss (Pennsylvania: The Pennsylvania State University Press, 2006), 49-70.
8. I will, throughout this paper, use the term body schema rather than body image as Shaun Gallagher recommends in "Body Image and Body Schema: A Conceptual Clarification," *Journal of Mind and Behavior* 7 (1986): 541-554.
9. Proprioception is the sense of the relative position of neighbouring parts of the body. It is the sense that indicates whether the body is moving with the required effort, as well as where the various parts of the body are located in relation to each other. From *Mosby's Medical, Nursing and Allied Health Dictionary, Fourth Edition* (St. Louis: Mosby-Year Book, 1994), 1285.
10. Shaun Gallagher, "Body Image and Body Schema,."
11. Gallagher and Meltzoff, "The Earliest Sense of Self and Others," 214.
12. Merleau-Ponty, "Child's Relations," 119.
13. Jean Piaget. *The Child's Conception of the World* (London: Routledge and Kegan Paul, 1928); Sigmund Freud. *The Freud Reader*, ed. Peter Gay (New York: W.W. Norton, 1984). During Merleau-Ponty's time, Piaget along with Freud understood the mental state of the child as 'autistic' in that it was closed in upon itself in an 'imaginary' reality which insulated the child from the world around it. In this view the socialisation of the child 'drew out' the child's subjectivity by opening their minds to others and the world. Child development was to do with the making of the child's social and intersubjective 'reality' and thus, the child.

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14. Merleau-Ponty, "Child's Relations."
15. Merleau-Ponty, "Child's Relations," 119.
16. William James, *The Principles of Psychology* (Cambridge, MA: Harvard University Press, 1890/1981), 462.
17. Gallagher and Meltzoff, "The Earliest Sense of Self and Others,."
18. Merleau-Ponty, *Phenomenology*, 117.
19. Merleau-Ponty, "Child's Relations," 135.
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22. Jonathon Cole and Barbara Montero, "Affective Proprioception," *Janus Head* 9 (2007): 299-317.
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32. Merleau-Ponty, "Child's Relations," 135.
33. Gallagher and Meltzoff, "The Earliest Sense of Self and Others,."
34. Olkowski, "Only Nature is Mother," 10.
35. See for example, John Bowlby, "The nature of the child's tie to his mother," *International Journal of Psycho-Analysis* XXXIX (1958): 1-23 and John Bowlby, *Attachment and Loss. Vol. I, Attachment* (New York: Basic Books, 1969).
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38. See for example Talia Welsh "Do Neonates Display Innate Self-Awareness? Why Neonatal Imitation Fails to Provide Sufficient Grounds for Innate Self and Other-Awareness," *Philosophical Psychology* 19 (2006): 221-238 and Susan Jones "The development of imitation in infancy," *Philosophical Transactions of the Royal Society B: Biological Sciences* 364 (2009): 2325-2335.
39. Merleau-Ponty, "Child's Relations," 120.
40. Merleau-Ponty, *Phenomenology*, 118.
41. See also Shaun Gallagher, "The Moral Significance of Primitive Self-Consciousness: A Response to Bermudez," *Ethics* 107 (1996): 129-140 for a supporting argument.
42. Olkowski, "Only Nature is Mother."
43. Merleau-Ponty, "Child's Relations," 108.
44. Olkowski, "Only Nature is Mother."
45. Bowlby, *Attachment and Loss*; M. H. Klaus and J. H. Kennell, *Bonding: The beginnings of parent-infant attachment*

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 53. Edmund Husserl *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy—Second Book: Studies in the Phenomenology of Constitution*, trans. R. Rojcewicz and A. Schuwer (Dordrecht: Kluwer, 1989).
 54. Bowlby, *Attachment and Loss*.
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 60. Photograph taken 27th November 2008 by drsuparna at <http://www.flickr.com/photos/74896762@N00>. This file is licensed under the Creative Commons Attribution-Share Alike 2.0 Generic.
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