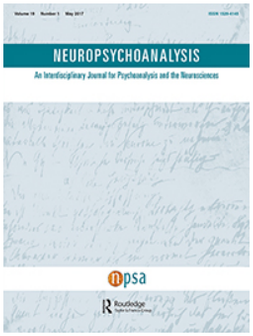

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COMMENTARY

Embodied mentalization and selfhood: Commentary on "Mentalizing homeostasis: The social origins of interoceptive inference" by Fotopoulou and Tsakiris

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In our brief comment, we discuss whether Fotopolou and Tsakiris' article pays sufficient attention to development and to the way in which self-awareness and intersubjectivity influence each other. We raise questions about whether their position is able to accommodate something akin to a Gibsonian ecological self, and finally point to some ambiguities in their proposed account of the relation between embodied interaction and subjectivity

Keywords: mentalization; interpersonal exchange; embodied interaction; selfhood; development; phenomenology; self-awareness

As might be expected from a commentary co-authored by a philosopher and a developmental psychologist, our comments divide into two parts, a philosophical and a developmental. Let us start with the latter.

From a developmental perspective, we see two major claims in the ambitious and radical model of Fotopoulou and Tsakiris (2017) regarding the origins of self-awareness. The first is the claim that the origin of mentalization (typically defined as "the ability to infer and understand the mental states of oneself and others" (p. 16), but here minimally defined as the fundamental process underlying the "organization and schematization of bodily signals," (p. 20) is to be found in embodied interactions with others. Accordingly, such interactions would represent, from the outset, the primary means by which infants become aware of themselves as distinct entities among other entities, each endowed with particular mental states and corresponding needs. The second major claim is that representations of embodied self and others find their roots in the Bayesian detection of invariant "amodal properties" (p. 28) organizing sensory inputs of "both personal and interpersonal origins" (p. 34). We will discuss these two claims in turn, briefly assessing the extent to which they could be false, probing their falsifiability, and pointing to crucial developmental questions left wide open.

Somehow at odd with the first radical claim, the authors suggest that infants deprived of caregivers would still be experiencing "an affective minimal self...prescribed by phylogenetic development" (p. 19). This gives rise to two questions: what might be prescribed by phylogeny (i.e. what is innate?), and what is novel about the content of embodied mentalization regarding the self developed in interaction with others (what develops?). As a matter of fact, fetal research demonstrates that by 20 weeks of gestation (half way through gestation), human fetuses show signs of pain experience. They display autonomic "avoidant" responses to averse stimuli. Furthermore, much learning occurs during the last trimester of gestation with traces of it enacted by newborns who, for example, immediately after birth prefer the smell of their own mother's amniotic fluid. Empirical data do indeed call for an affective minimal self that would pre-exist any interpersonal exchanges with caretakers. But more importantly, the well-established fact that fetuses learn in-utero suggests that active homeostasis of the fetus in relation to the world, inside and outside of the womb, occurs prior to interpersonal and reciprocal exchanges driven by active intuitive parenting. In fact, the kind of implicit embodied mentalization that is described in the article might already take place in the womb well before the infant interacts with others in proper intersubjective exchanges as they receive indispensable adult care.

Newborns are shown not to confound self-stimulation with others' stimulation prior to any interpersonal exchanges and before they learn volitionally to interact with others. They root and suck more with mouth wide open toward the fingers of another person touching one of their cheek compared to when their own fingers rub spontaneously against it. They are born with the embodied expectation (i.e. "schema") that a single-touch of their cheek corresponds to the presence of something external that

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could be a nutritious nipple. They are less prone to manifest such expectation with the double-touch of their own fingers touching their own cheek. This simple observation raises pointed questions regarding the proposed interpersonal origins of embodied mentalization and minimal self-awareness. An ecological sense of self that experientially specifies the biological boundary between self and environment seems to precede and enable interpersonal exchanges rather than the inverse.

The fact that learning occurs in the womb invites us to presume that the embodied schema (perhaps based on probable expectations) does not await reciprocal exchanges with others. Even if fetal learning might be accounted for within a Bayesian framework, it can also be accounted for in terms of the detection of 'amodal' or invariant properties of stimulations repeated over time. This is indeed a domain general model. Yet, such learning implies the co-determination of both the learner and what is learned. To quote J. J. Gibson: to perceive is to co-perceive oneself as perceiver or actor. It is therefore reasonable to think that any form of learning, whether in relation to people or physical objects, necessarily implies minimal self-awareness and ultimately self-learning, even if taken in a very thin, implicit and minimal sense. Learning with objects as well as people supports self-awareness in development. The crucial question, though, concerns the nature of the change that happens to self-awareness when infants by two months start to engage in the kind of reciprocal intersubjective exchanges Fotopoulou and Tsakiris are primarily referring to. The major and rapid transitions in degrees and levels of self-awareness accompanying intersubjective development until three years of age is not addressed by the article: from an implicit, minimal, ecological and interpersonal sense of self expressed around birth, to the conceptual sense of *Me* identified and recognized in a mirror or a photograph. The latter emerges by the second birthday, with blushing expressions and specifically human self-conscious emotions like shame and guilt. In short, it appears that the content of self-awareness changes dramatically in early development. That the nature of interpersonal exchange also changes as a result of the development of self-awareness is likewise something that the proposed model does not factor in. The development of self and the development of intersubjectivity go hand in hand and co-determine each other. This needs to be acknowledged and accounted for, especially by any interpersonal learning model like the one discussed here.

As for our philosophical input, one concern we have with Fotopoulou and Tsakiris' proposal is that we simply remain unsure about what exactly their core claim is.

Fotopoulou and Tsakiris initially declare a certain sympathy for the idea that phenomenal consciousness, subjectivity, and minimal selfhood are co-extensive terms. The easiest way to motivate this fundamental claim (which has been defended *in extenso* by one of us) is that phenomenal consciousness is characterized by what-it-is-likeness, and that what-it-is-likeness is properly speaking what-it-is-like-*for*-*me*-ness. The main aim of the article by Fotopoulou and Tsakiris, however, is to offer a social contextualization of this claim. But this is where we then detect some ambiguities and equivocations in their paper.

The first of these equivocations concerns the difference between arguing that (1) our qualitative experiences are sculpted and shaped by our embodied interactions with other people from early infancy and onwards and (2) arguing that our experiential life as such is enabled and constituted by our embodied interactions with others. These are two very different claims. In the first case, embodied interaction does not constitute experientiality and phenomenality per se, it simply affects its specific qualitative character. In the second case, the claim is far more radical. Embodied interaction is not simply taken to influence our qualitative life, it is what enables us to have one in the first place. If we look in the text, Fotopoulou and Tsakiris seem to waiver between these two claims. On p. 6 for instance, they write that the radicality of their proposal is to be found in the claim that

> social interactions do not shape *only* the reflective (narrative or extended) self and related notions of affect regulation and social cognition. Instead, *the most minimal aspects of selfhood*, namely the feeling of being an embodied, agentive subject, *are fundamentally shaped by embodied interactions with other people* in early infancy and beyond.

Notice that even this supposedly radical claim is presented as a claim about how the experience of being a self is (merely) shaped by social interaction. A couple of pages later, however, the authors rephrase the claim and then argue that "at least certain parts" of our "embodied, affective subjectivity are *interpersonally constituted*" (p. 7). We are now no longer dealing with a mere shaping, but with a constitution of subjectivity. At the same time, however, the authors refrain from claiming that our embodied affective subjectivity is *in toto* interpersonally constituted. Rather, the claim is only that this holds for "certain parts." One page later, the authors again vary their claim and now write that the "phenomenal quality of conscious states is interpersonally constituted". This certainly does sound like a quite radical claim, but the authors then immediately retract and argue that their claim should not be taken to entail that infants

without caregivers would not have an affective minimal self at all, since the capacity for minimal affective consciousness is prescribed by phylogenetic development, even though the particular quality of an infant's experiential states is determined in ontogenetic development.

Another – for us – confusing aspect of the proposal is the repeated jumps between claims regarding the personal and sub-personal levels in Fotopoulou and Tsakiris' discussion of embodied mentalization. On the one hand, the authors sometime argue that embodied interaction allows the organism to build mental models of its own physiological states, and that it is the progressive integration and organization of these sensory and motor signals that constitute the foundations of the minimal self. More specifically, the proposal seems to be that the transition between physiological reactions and subjective affects happen as a result of an interpersonally mediated process of mentalization. A claim like this certainly does read like a "rather reductionistic and mechanistic account" (p. 17). After all, the authors seem to be offering a rather controversial "solution" to the hard problem of consciousness: It is the integration of certain sub-personal sensorimotor signals and processes that give rise to phenomenal consciousness. On the other hand, however, the authors also write that the early ability of infants to bind together sensory information in time and space lies at the core of a process of progressive mentalization of their embodied experience and hence at the core of the minimal self. Likewise, they write that "experiences of proximal intercorporeality 'sculpt' the mentalization process and hence the constitution of the minimal self" (p. 19). Again, to sculpt is not the same as to constitute in the sense of enable, but more importantly, the authors are here referring not to subpersonal processes, but to experiences, that sculpt and constitute the minimal self. Not only is this a rather different claim than the former, but it is also hard to understand how this latter claim is compatible with the claim that phenomenality is interpersonally constituted, since experiences, according to the standard view, are per definition phenomenal.

One way to present the option is to say that the authors seem unsure or undecided about whether they want to defend the view (1) that it is an interpersonally mediated sub-personal integration of various physiological signals that gives rise to first-personal embodied experiences, or rather the view (2) that experiences are initially unowned and impersonal but that they come to acquire their first-personal character through a process of interpersonally mediated mentalization. We have strong reservations about both claims, but it remains unclear to us whether the authors uphold both or only one of them, and if so, which one.

We look forward to Fotopoulou and Tsakiris' reply. It will hopefully help us better understand the main claim of their article, and thereby allow us to better assess its veracity in relation to current empirical (developmental) and theoretical (philosophical) research on the nature of selfhood and the origin of self-awareness.