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Embodiment, sociality, and the life shaping thesis

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Abstract What Kyselo calls the "body-social problem" concerns whether to individuate the human self in terms of its bodily aspects or social aspects. In her view, either approach risks privileging one dimension while reducing the other to a mere contextual element. However, she proposes that principles from enactivism can help us to find a middle ground and solve the body-social problem. Here Kyselo looks to the notions of "needful freedom" and "individuation through and from a world" and extends them from the realm of biological individuation to an individuation in terms of social interactions. However, I will argue that because Kyselo's solution to the body-social problem downplays the role of the living body, it actually is in tension with the enactivist framework. First, while enactivism places the living body at the center of selfhood and subjectivity, Kyselo's account treats the living body as mere means and mediator. Second, her claim that the self is socially enacted and individuated is in tension with the enactivist conception of autonomous agency, which centers on the autonomous organization of the living body. However, suppose we grant Kyselo's claim that we are necessarily social beings, but claim that the mind of a minded human animal constitutively extends to the limits of its living organismic body, but no further. My proposed "life shaping" thesis says that the self is not just essentially embodied, but also partially causally determined or shaped by social interactions, and thoroughly influenced by social norms and values. The life shaping thesis can explain how the self is individuated biologically, in terms of the autonomous organization of the living body, but nonetheless deeply embedded in the social world.

Keywords Sociality · Body-social problem · Enactivism · Self · Embodiment · Socially embedded self

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1 Introduction

Two important advances in cognitive science, Kyselo (2014) rightly notes, are 1) the recognition that cognition is not brain-bound (the "embodied turn"); and 2) the recognition that cognition is not individualistic, but also social ("the interactive turn"). What she calls the "body-social problem" concerns whether to individuate the human self in terms of its bodily aspects or social aspects. In her view, either approach risks privileging one dimension while reducing the other to a mere contextual element. However, she proposes that principles from enactivism can help us to find a middle ground and solve the body-social problem. Here Kyselo looks to the notions of "needful freedom" and "individuation through and from a world" and extends them from the realm of biological individuation to an individuation in terms of social interactions. She maintains that insofar as the core self relies on social processes and could not be a self without them, the social is the primary source of individuation.

Before proceeding, it is important to clarify what sort of enactivist framework Kyselo enlists to solve the body-social problem. Varieties include '*sensorimotor enactivism*' (O'Regan and Noë 2001; Noë 2004), which centers on the way in which perception rests on knowledge of sensorimotor contingencies; '*radical enactivism*' (Hutto 2011; Hutto and Myin 2012), which characterizes basic cognition as non-representational and constituted by situated organismic activity; and 'computational enactivism,' which centers on predictive processing and the free energy principle (Kirchoff 2016; Kirchoff and Froese 2017; Ramstead et al. 2017). The focus of Kyselo's discussion, however, is so-called 'autopoietic' or 'autonomic enactivism' an account developed by theorists such as Weber and Varela (2002) and Thompson (2007), which centers on the notion of sense-making. This is the process whereby autopoietic, autonomous living systems create and maintain their own domain of meaningfulness through efforts to maintain and preserve their identity. Proponents now acknowledge that autopoietic conservation on its own is insufficient for sense-making, and that there must be "some particular way of realizing autopoiesis that admits of graded notions such as lacks and breakdowns" (Di Paolo 2005, p. 436). It is only by virtue of being *adaptive* that organisms can appreciate their encounters with their surroundings "in a graded and relational manner" (Di Paolo 2005, p. 439) and regulate their environmental engagement so as to best serve their needs.[1] This is to say that living systems do not passively undergo perturbations, but rather "respond selectively and the success of this response is normatively linked to the preservation of their way of life" (Kirchoff and Froese 2017, p. 15).[2]

Although Kyselo appeals to enactivism to make her case, I will argue that because Kyselo's solution to the body-social problem downplays the role of the living body, it actually is in tension with the enactivist framework. First, while autopoietic enactivism places the living body at the center of selfhood and subjectivity, Kyselo's account is in

[1] My aim is not to defend autopoietic enactivism, since that would be too ambitious a project to take on in this paper. For a discussion of some key objections that have been raised, see Thompson (2011).

[2] To be able to respond in a differential manner, detect potentially dangerous interactions, and fare well in its surroundings, the organism must have a history of generalized selection (understood as the outcome of interaction, development, and evolution). The account of autopoietic enactivism as classically formulated, which focuses on self-production, therefore needs to be supplemented with an account of adaptive agency and self-maintenance.

danger of treating the living body as mere means and mediator. Second, her claim that the self is socially enacted and individuated is in tension with the enactivist conception of autonomous agency, which centers on the autonomous organization of the living body. In order to make sense of the human capacity to navigate flexibly between a range of social interactions and to engage in forms of agency that defy social norms and expectations, we must treat biological individuation as primary.

But suppose that we take what Kyselo calls the 'embodied turn' quite seriously and claim that a) the mind is essentially embodied and b) the mind of a human animal constitutively extends to the limits of its living organismic body, but no further. Moreover, suppose we grant Kyselo's claim that we are necessarily *social beings*. My proposed "life shaping" thesis says that the self is not just fully embodied, but also partially causally determined or shaped by social interactions and thoroughly influenced by social norms and values. The life-shaping thesis can explain how the self is individuated biologically, in terms of the autonomous organization of the living body, but nonetheless deeply embedded in the social world.

According to the enactivist framework, the identity of an autonomous system is self-generated and lies in its dynamic internal organization. However, adaptive regulation of environmental engagement is not simply subordinated to viability constraints imposed by "survival conditions," but also is governed by the need to fare well in a particular sociocultural environment. I propose that the maintenance of adaptive neuro-dynamic and behavior patterns can be understood in terms of the formation of autonomous sensorimotor structures (i.e. *habits*), which develop over the course of learning and in response to social relations and norms. However, just as social norms causally contribute to individual sense-making, autonomous human agents may act so as to reinforce, defy, modify, and sometimes transform their sociocultural environment. From an enactivist perspective, the self is properly understood in terms of the form (i.e. the set of organized *habits*) of a living body. My proposed account builds upon the strengths of Kyselo's framework, avoids some of its problematic implications, and is more consistent with enactivism.

2 The body-social problem

One important advance in cognitive science has been the so-called "embodied turn," which emphasizes that cognition is not brain-bound; and a second important advance is the "interactive turn," which emphasizes that cognition is not simply individualistic, but also social (Kyselo 2014, p. 2). While both of these "turns" seem appealing, their corresponding claims about how to individuate the self appear to be incompatible. "Individuation," as Kyselo understands it, has to do with what makes something or someone "a coherent unity" (p. 2) that is differentiated from other people and things. What Kyselo calls the "body-social problem" concerns the question of "how bodily and social aspects figure in the individuation of the human individual self as a whole" (p. 2). In her view, "the self as a whole can be either embodied or social, but it cannot be both" (p. 3). While the "embodied turn" investigates the self as subjective and experiential and focuses on bodily process and sensorimotor structures, the "interactive turn" emphasizes that cognition involves the social and is intimately bound up with intersubjectivity. While one adopts the primacy of embodiment and treats the social

as context, the other treats the social as constitutive and claims that we need no strong statement about embodiment. And while on the embodied view, the self is equated with the body, on the interactive view, the social is the primary source of individuation. Thus, either approach is in danger of privileging one dimension while downplaying the other as a mere contextual element.

In order to resolve this problem surrounding the individuation of the self, Kyselo proposes that we look to enactivism. According to the enactive approach to cognition as developed by theorists such as Weber and Varela (2002) and Thompson (2007), an individual creates its identity as an organism by negotiating a permanent tension between a need for material resources from the world and the simultaneous drive to emancipate itself from some of these material processes. Jonas (1966) calls this tension between dependence and emancipation "needful freedom." According to Kyselo, the identity of an organism with this kind of "needful freedom" is *ontologically relational* and interactively constructed. Living beings should be understood as self-organized, autonomous networks that produce and sustain themselves as a systemic whole— "an identity within a particular domain" (p. 5).

Kyselo rightly notes that some enactivists use these ideas to understand not only biological, but also cognitive individuation. Cognitive systems then can be understood as autonomous systems whose identity is a network of processes that produces and maintains itself as a network. Because this identity is sustained under "precarious conditions" and the basic concern of this living system is to survive, it develops a unique perspective on the world. A cognitive system evaluates its interactions adaptively, flexibly regulating and changing them according to its basic goal of identity maintenance. Kyselo acknowledges that it may seem natural to conclude, on the basis of such insights, that the body is what grounds a cognitive system's identity and individuates it as a living entity. After all, it is because it is embodied that the cognitive system can have goals, and the body is what allows the autonomous system to differentiate itself from the environment. If bodily existence were not finite and precarious, then nothing would matter to a cognitive system. However, adaptive regulation of worldly interaction can be realized in various ways, through the appropriation of various tools; and human life is not merely biological, but also social.

To make sense of the social dimension of human life, some enactivist theorists have introduced the notion of 'participatory sense-making' (De Jaegher and Di Paolo 2007). The basic idea is that as two or more individuals interact, their intentional activity becomes dynamically coupled and a new relational system with its own autonomy and identity emerges. In short, a social form of autonomy ("interactive autonomy") is brought forth via the coordinated social interactions of participants. This account of participatory sense-making implies that there are individuals involved in social interaction, but what can be said about their nature as individual entities? According to Kyselo, it is unclear exactly how the autonomy of a human, who regularly interacts with other humans, persists during interactions. The question seems to be whether to individuate the interacting agents as bodily-organismic 'selves' who are constituting elements of the interaction process, or as social-relational 'selves' who are constituents of a 'group' autonomous structure. In other words, we face a version of the body-social problem.

If one defines identity as relational and understands the individual as a participant in social interaction, this runs the risk of dissolving the individual in the interaction

process and rendering it invisible as an individual entity (Kyselo 2014, p. 6). And if the intrinsic purpose of participatory sense-making is the maintenance of an overall interaction dynamics, then the individual is not governed by its own laws of self-organization, but rather by external norms associated with the group's identity. In that case, the individual would not be autonomous, but rather heteronomous (Kyselo 2014, p. 7). This is because the individual's intrinsic purpose would then be directed at the generation and maintenance of group dynamics, rather than her own goals, and she might be "dissolved" within the social process.

Because De Jaegher and Di Paolo (2007) do not want to say that identity is lost in interaction dynamics, they claim that a participant is individuated from others qua being embodied. The problem with this 'embodied approach,' according to Kyselo, is that it downplays the role of the social: "the body, while differentiating the individual from others, would be a locus of isolation, not a means of connection and engagement" (p. 7). One possible reply from the proponent of participatory sense-making, she says, is to admit that individuation of human identity is not fully determined in terms of bodies in isolation, but rather requires that the body be engaged in socially mediated interactions with the world. However, such a reply would suggest that the social matters only as context and that bodily individuals relate to each other as otherwise already-made entities. Kyselo's worry, in short, is that participatory sense-making is overly individualistic and risks trivializing the role of social interactions.

In order to avoid the tension between the role of bodily and social processes in cognitive individuation, and to flesh out the notion of individual autonomy, Kyselo looks to the logic of the enactive position. Her proposed account aims to navigate a middle way between the embodied and social views of the self, and rests on the logic of individuation of organismic identity entailed by Jonas' notion of "needful freedom." The basic idea is that an individual identity reflects the world from which it continuously emerges, but also emancipates itself from the world through those very same processes in order to exist as an individual. This means that there is not only needful interaction with the world, but also emancipation from it (freedom).

According to her proposed account of "social needful freedom," the self should be conceptualized as emerging "through and from a world" (p. 8). But what would it mean for a human social individual to be needful and free, Kyselo wonders? She views human individuation as a social process all the way down and aims "to define the human self organizationally as a whole in terms of social interactions and exchanges with the environment" (p. 8). Kyselo's proposed "individuation through and from a world" begins with Jonas' (1966) concept of needful freedom, which refers to biological individuation, and expands it to individuation in terms of social interactions. Biologically speaking, the organism is always dependent on organic matter, but what allows it to be an individual organism is that it is not always dependent on the same organic matter. Likewise, the socially organized individual cannot incorporate all social interactions or relations at the same time or throughout time, but instead relies on different social interactions and relations at different instances and to different degrees. Although the individual can engage or disengage from certain relations at different moments in time, it cannot free itself fully from social interactions and relations, since these are the general "relational material" out of which the self is made. Just as an organism is generated and maintained through the ongoing metabolic processing of physical matter, so a human self is co-generated and co-maintained through the ongoing organizational

processing of social interactions (of which it itself is a part). Human autonomy therefore is dependent not only on the metabolic preservation of the organismic body, but also on the interactive self-other preservation of a socially organized self-identity. Since the self emerges from our being-with-others and is co-constituted in a joint organizational process through interpersonal relations, "to be starved of social interactions in some way would be to lose the ongoing capacity to generate a self" (Higgins 2017).

In Kyselo's view, these insights can help us to understand individual autonomy and to define the self not simply as a metabolically self-generated identity, but also as a self-other generated network, one which relies at different moments on different instantiations of social interactions and relations. Without emancipation, there could be no identifiable entity, but this does not mean that the individual stands out, independently, against a vast and unchanging sea of social interactions. Without distinction, the individual would risk becoming heteronomously determined, but without participation, the individual would risk isolation and rigidity. According to Kyselo, "both kinds of network processes, those enabling distinction and those that enable participation, are required together to ensure social needful freedom and bring about the individual as a network of autonomous self-other organization" (p. 9). The stability of the social self is achieved through engaging with others and navigating between the extremes of total distinction and total participation, which both qualify as "social death." Kyselo maintains that social recognition is vital throughout life and is the nutrient required to co-construct the boundary of the self (p. 11). Because human autonomy is co-generated with others, it is inevitably vulnerable to disturbances and conflict, and others can fail or refuse to contribute to a person's identity affirmation. The social version of adaptive regulation requires that individuals "evaluate actions with regard to their contributions to a *socially defined* boundary" (p. 10).

This model of socially enacted autonomy offers an organizational principle for approaching the self as a co-generated and co-maintained whole. The self in its most minimal sense "escapes the body," but is never fully separable from the social environment (Kyselo 2014, p. 12). However, this is not to say that the self is essentially social and nothing more. According to Kyselo, the body plays more than a trivial role insofar as it serves as the self's means and mediator and is an interface for social connection. Bodily self-consciousness and embodied emotions should be viewed as means of informing an individual about its state of being in a world with others (p. 13).

3 Problems with the socially individuated self

In conceiving of the human self as a socially enacted phenomenon that is bodily mediated, Kyselo clearly emphasizes the social over the bodily. One worry about her account, then, is that rather than navigating a middle way between embodied and social views of the self, Kyselo ends up conceiving the self as" not a bodily, but socially enacted identity" (p. 12). She concludes that the self is "constitutively social," and that "the body's role is to mediate that social existence" (p. 14). But if the body serves merely as a contextual channel for social selfhood and plays no constitutive role in the individuation of the self, then it may seem to have relevance only "as a medium of social activity" (Higgins 2017) and a causally influential mediator. In an effort to avoid treating the individual as "an isolated being parachuted into the social world" (Kyselo

2014, p. 8), does Kyselo "[depict] the human self as a socially enacted being that is parachuted into a mediating body" (Higgins 2017)?

My central worry is that by downplaying the essential contribution of the body, Kyselo's account actually is tension with the enactivist framework that she enlists to solve the body-social problem. This is because autopoietic enactivism emphasizes that *mind is in life*, and that mindedness is intimately bound up with the dynamics of living organisms. It depicts cognition as a capacity of autonomous, adaptive living organisms, and asks us to trade in a Cartesian view of mind in favor of a more Aristotelian view that emphasizes the *biological* character of mentality (Hutto 2011, p. 45). Along these lines, Thompson (2007) has emphasized that the body which serves as a constituent in cognitive processes is a living body that dynamically engages with its environment via three central modes of bodily activity: self-regulation, sensorimotor coupling with the world, and intersubjective interaction. Likewise, Hanna and Maiese's (2009) "essential embodiment thesis" emphasizes the connection between sense-making and the living body and suggests that there is a natural affinity between autopoietic enactivism and the claim that cognition is fully embodied. Insofar as the biological foundations of subjectivity and selfhood occupy center stage in an enactivist account, it would be a mistake to suppose that the self in its most minimal form *escapes* the living body, as Kyselo suggests (p. 12); after all, this would be to deny that there is any strong continuity between mind and life. If we take seriously the enactivist idea that organisms intentionally engage with the surrounding world in and through their living bodies, then it is natural to suppose that living bodily processes take center stage when it comes to the individuation of the self.

Another worry about Kyselo's account concerns the claim that "social death" would result in the disappearance of the self. It seems that an individual could enter into the extreme of participation and suffer a loss of individual agency (e.g. if one immersed oneself completely in the interactive activity of a cult), and yet not "dissolve" as a self so long as bodily autonomy and phenomenal consciousness remain. Conversely, an individual could become isolated from social structures (e.g. in a case of social confinement and isolation) and yet persist as a self. As Higgins (2017) notes, it is not at all clear that a lack of social recognition or social death as Kyselo describes it entails the disappearance of the self, though obviously it would have a dramatic impact on someone's mindset. In cases of social death, one loses one's social autonomy and still survives, but one cannot lose one's biological autonomy and survive. Moreover, we can imagine an extreme sort of case in which surviving as an individual (as a living, human animal) actually requires some sort of social death. For example, consider the individual who refuses to participate in the mass starvation or suicide pledge undertaken by the cult to which she belongs. The biological autonomy of the organismic body therefore should be given primacy over social processes with regards to the individuation of the self.

Yet another worry is that Kyselo's account of agency and social interaction is not fully consistent with enactivism. Remember that on the enactivist view, the self is fundamentally an autonomous, embodied agent with a concerned point of view, i.e. one who constructs meaning in and through active engagement with the surrounding world. Agency comprises three interrelated, necessary aspects: i) individuality, ii) interactional asymmetry, and iii) normativity (Barandiaran et al.

2009). In short, an agent is an autonomous organization that adaptively regulates its coupling with its environment according to norms generated or sustained from within, and thereby contributes to its self-maintenance. However, if the social plays a primary and constitutive role in the individuation of the self, it becomes difficult to make sense of these core aspects of agency.

The first core aspect, individuality, centers on the autonomous, internal organization of the living organism. In order for a system to be an agent, there must be a distinction between the system and its environment; and for there to be distinguishable components or ensembles, we need to be able to determine which of these components belong to the system and which to the environment. Thus, "the first condition for the appearance of agency is the presence of a system capable of defining its own identity as an individual and thus distinguishing itself from its surroundings" (Barandiaran et al. 2009, p. 3). A living organism is an example of an agent that defines itself as an individual via the actions it generates. Thus, at a biological level, the living system's individuality is a matter of "continuously regenerating itself and its boundary," and thereby demarcating itself from its surroundings as a unified and integrated system (Barandiaran et al. 2009, p. 7). But it seems clear that more sophisticated sorts of agential engagement, such as the kind of sensorimotor agency found among creatures with central nervous systems, also require biologically-grounded individuality and some degree of differentiation and separation from the world. As Jonas (1966) notes, the animal form of life involves engagement with objects (and other people) that lie *at a distance* from the organism. If the self is individuated socially, however, will the distinction between the living organism and what lies "outside" it become blurred? Could the individual self, as Kyselo understands it, be spread out across a sea of social interactions or a wide range of "relational materials"? Arguably, the dynamics of "self-distinction" and "participation" associated with "socially enacted autonomy" (Kyselo 2014, p. 11) are possible only if there already exists a *biologically* individuated agent.

A similar point can be raised about interactional asymmetry, the second core aspect of agency. Once an individual is in place, exchanges of matter and energy are inevitable, but instead of being an equal partner in the mutual coupling with its environment, the living organism sometimes is the *source* of this activity. An agent is able to modulate its interactions and thus constrain its mode of environmental coupling, relating to its environment in different ways at different moments: "an agent as a whole drives itself, breaking the symmetry of its coupling with the environment so as to modulate it from within" (Barandiaran, Di Paolo, and Rohde, p. 3). At a biological level, the living system modulates its coupling and interactions with the environment in order to ensure its viability as a self-constructing organization (Moreno and Barandiaran 2004, p. 19). Likewise, at a higher level of sophistication, a human agent must navigate between a wide array of potential environmental couplings. This includes shifting between different kinds of social interaction and engaging with the world in different ways at different moments, with the overall goal of "faring well," both biologically as well as socioculturally. Agency rests on the ability to engage flexibly with the surrounding social world, and "derives from the ways in which we establish, lose, and re-establish meaningful interactions between ourselves and our environment" (Buhrmann and Di Paolo 2015).

For example, suppose that Nancy arrives at a party and initially encounters the social setting as one which affords a particular kind of action and affective stance: it draws her

into its vibe of celebration, and when she sees other people dancing, she feels inclined to dance, too. At one point, her movements become highly coordinated with those of other attendees at the party, and she even is able to participate in a line dance and execute a series of movements that she has never done before. But as the party goes on, Nancy becomes tired and several of her close friends leave. She no longer encounters the party as a setting which affords dancing and joke telling, and instead drifts off to the corner where she becomes more of a spectator. There is now a sense in which she is less "socially alive," and yet Nancy certainly persists over time, as a continuing self, throughout her various modes of engagement. What seems to be so striking about human organisms is their ability to move, fluidly and flexibly, between different sorts of social enactments, in different sorts of settings; this ability to engage or disengage gives them "a mobility that is social" (Kyselo 2014, p. 9).

But if we are to suppose that Nancy is socially individuated, how are we to make sense of this? For Nancy to persist as an agent, there must be an individual self that at one moment exhibits high levels of participation, and then later transitions to a greater degree of emancipation. And still later on that evening, as she lies down to sleep, she may disengage from the social world altogether. This is to say that Nancy not only serves as the source of engagement and disengagement from particular relations, but also has the capacity to disengage from social interaction altogether, at least temporarily. And just as whatever "self-stimulating loops of interaction with worldly materials" (Colombetti and Roberts 2015, p. 1248) take place must, on the enactivist view, be driven by a living body that is distinct from those materials, whatever social interaction takes place must be driven by a a living bodily agent that is distinct from what Kyselo calls "relational materials." According to the enactivist framework, such interactional asymmetry, which also makes possible the processes of participation and emancipation that Kyselo describes, presupposes the biological autonomy of the living body.

The third aspect of agency is normativity. Even if we have a well-identified system that actively modulates its relationship with the environment, one more ingredient is needed in order to call this system an agent. Normativity requires that a living organism adaptively regulate its coupling with the environment according to norms established by its own viability conditions (Barandiaran et al. 2009, p. 8). Agents have goals or norms according to which they are acting, and regulate their interactions in relation to these goals or norms. Whatever the living system is doing, there is something that it *ought* to be doing to ensure its continued existence. Importantly, it is the individual organism itself, given the nature of its receptors and bodily organs, which determines what stimuli in the environment have relevance (Merleau-Ponty 1962). An agent modulates and transforms its environmental coupling so as to satisfy a norm, and thus must be able to distinguish between the "value" of different physical outcomes of this environmental coupling. The authors are careful to note that is this the case regardless of whether the norms in question are linked to vital requirements (i.e. biological self-maintenance) or acquired and embodied in other self-sustained forms of life (e.g. psychological or cultural). What is crucial for adaptive and autonomous agency is that "good" and "bad" environmental states are defined in relation to an individual organism, depending on whether they pose possibilities or dangers for self-maintenance.

Normativity thus arises from the self-production and self-maintenance of a precarious system; and "through its ongoing individuation, the system intrinsically determines" which interactions support its continued existence, and which interactions

threaten its survival (Buhrmann and Di Paolo 2015). In a basic biological sense, then, norms are linked to vital requirements (i.e. biological self-maintenance); and such normativity could not arise in the absence of a biologically individuated system (Barandiaran et al. 2009, p. 6). Any concern that humans have about their existence as social beings (Kyselo 2014, p. 13) presupposes a living organism governed by norms of biological self-maintenance. Even if the origin of some norms (e.g. social norms), does not fully lie within the organism, it is always the organism who internalizes and acts according to them. Thus, normativity, like individuality and interactional asymmetry, presupposes a biologically individuated self.

Note that individuality, interactional asymmetry, and normativity are central not only to agency, but also to subjectivity. In addition to being autonomically differentiated from the surrounding world, living organisms are *phenomenologically differentiated.* Because a living organism "produces and sustains its own identity in precarious conditions," it develops "a perspective from which interactions with the world acquire a normative status" (Thompson and Stapleton 2009, p. 25). Processes of self-maintenance and self-regulation pave the way for a sense of *inner presence* (a rudimentary sense of self) that is separate from and yet dependent upon its surroundings. Living organisms transcend the material that realizes them, and "there is inwardness and subjectivity involved in this transcendence" (Jonas 1966, p. 84). Along these lines, Thompson (2005) describes subjectivity in terms of a phenomenal feeling of bodily selfhood linked to a correlative feeling of *otherness* (p. 419). This sense of distinction and otherness also is at play during social interactions, when subjects experience themselves as separate from, yet deeply enmeshed in the surrounding social world. Even in cases where someone experiences herself as immersed in a social setting, her living body is phenomenally transparent to her in a way that other people and objects are not.

To see this, suppose that Martha and Molly arrive together at a conference reception. While Molly chats with multiple people, Martha feels uncomfortable, drifts off to the side, and takes out her cell phone. Martha's feelings of social anxiety and discomfort are experienced in and through her living body; these feelings are not experienced in and through Molly's body, nor in and through the conference reception that they are both attending. It is true that we cannot explain the overall phenomenal character of Martha's self-experience without pointing to the social dynamics associated with the reception. However, although the social setting plays a crucial *causal role*, and both her mental life and her understanding of herself would not be what they are without the contribution of this social setting, Martha feels uncomfortable in and through her quickened heart rate, her increased blood pressure, her flushed cheeks, and her strained smile. Likewise, any "sequences of experiences of being more or less separated" and "more or less connected" (Kyselo 2014, p. 11) are felt in and through the body. Enactivism's commitment to the idea that the living body is phenomenally transparent and phenomenologically differentiated from the surrounding world is in tension with Kyselo's claim that the self is *constitutively social* and that it escapes the body.

One final tension concerns the enactivist account of participatory sense-making. In order to understand how such sense-making occurs, it is important to be able to individuate and differentiate each participant. As De Jaegher and Di Paolo (2007) describe it, participatory sense-making involves "the coordination of intentional activity in interaction, whereby individual sense-making processes are affected

and new domains of social sense-making can be generated that were not available to each individual on her own" (p. 497). And what they call "coordination" is the non-accidental correlation between two or more coupled systems, so that their behavior matches to a degree far beyond what is expected given their capabilities. On this view, social understanding is something that interactors co-construct during the interaction, in part by way of coordinating their utterances and movements. One striking example is how interaction partners mirror each other's movements and adjust their behavior in accordance with how the interaction unfolds (De Jaegher 2009, p. 539).

As the behavior of interaction partners becomes coordinated in the way De Jaegher and Di Paolo (2007) describe, the nature of the interaction process as a whole influences the subsequent behavior of each individual participant (p. 293). While the individuals involved do remain autonomous, separate participants, the relationship that arises between them has its own properties that constrain and modulate their behavior. On the one hand, now that they are "components" of a larger system, individual participants are extremely unlikely to do certain things (such as abruptly disengage without explanation). On the other hand, because the relational whole has a qualitatively different repertoire of states and behaviors, it has greater potential than the previously uncorrelated "parts." To see this, consider how, during a game of charades, all of the participants must adjust their sense-making so that it converges towards the 'right' gesture and the 'right' interpretation. The meaning of gestures is jointly constructed over the course of the game, and each player's "understanding of the other person is constituted within the perception-action loops that define the various things that [she] is doing with or in response to others" (Gallagher 2008, p. 168). However, for this mutual influence to occur, it must be possible to individuate each of the participants and differentiate them from the social interaction that is unfolding; indeed, participatory sense-making presupposes and requires bodily-organismic "selves" who can partake in the interaction process. Moreover, for each of these "selves" to remain an autonomous interactor, it must be possible (even if unlikely) for her to defy social expectations, or even disengage from the social interaction if she feels so inclined. In the case of charades, for example, it must remain possible (however unlikely) for each individual participant to leave the room and refuse to continue playing the game. This suggests, once again, that selves are first and foremost biologically rather than socially constituted.

4 The life shaping thesis

In her discussion of "needful freedom," Kyselo suggests that although a living organism is always dependent on organic matter, what allows it to be an individual organism is that it is not always dependent on the *same* organic matter. However, it should be emphasized that on the enactivist view, what allows it to be an individual organism is its *form* or *organization*: "metabolism defines the organism as an individual that escapes the determination of its constituent parts by renewing them continuously, leaving the form or organization of the system as the persistent reference identity" (Egbert and Barandiaran 2014, p. 9). Autonomy and autopoietic organization are characterized by "a peculiar circular interdependency between an

interconnected web of self-generating processes and the self-production of a boundary, such that the whole system persists in continuous self-production as a spatially distinct individual" (Thompson 2007, p. 101). The constituent processes in living systems a) recursively depend on each other for their generation and realization as a network, b) constitute the system as a unity, and c) determine a possible range of interactions with the environment (Thompson 2007, p. 44). By virtue of "operational closure," autopoiesis establishes a pole of internal identity in relation to a pole of an outside world. Because the generative activity of the living system "demarks what is to count as part of the system and what belongs to the environment" (Froese and Di Paolo 2011, p. 6), it has an essentially self-constituted identity that it affirms by *differentiating itself from its surroundings*. This distinction between components that *constitute* the living system and elements that form *its environment* grounds not only biological identity, but also the identity of the self. Indeed, just as a living system should be individuated according to this form or organization, the self (or what might described as the human mode of life) should be individuated according to its characteristic form or organization, rather than the energetic or "relational material" that ensures its continued existence. Although the living organism depends on its own continuous action of metabolic renewal and resource seeking for its ongoing existence as a particular life form, it is differentiated from the material world. Likewise, although the self depends on continuous interaction and social engagement, it is differentiated from the social world.

I have suggested that the identity of the self, as a coherent unity, is rooted in biological autonomy rather than "socially enacted autonomy." Still, Kyselo is correct that the autonomous network that constitutes the self is not only a metabolically self-generated identity, but also an identity that remains open to structural change generated in interaction with others. Is there some way to acknowledge the importance of social relations and interactions, and to treat them as more than mere context, and yet resist the claim that the self is socially extended? In order to accommodate Kyselo's important insights about sociality in a way that is truly consistent with enactivism, we need an account that treats the self as *socially embedded*, but emphasizes the normative influence of social forces. My proposed '*life shaping thesis*' says that the self is fully embodied, and that the various dimensions of mindednesss—that is to say, our desires, feelings, emotions, sense perceptions, memories, thoughts, intentional actions, etc.—are all *partially determined*, or *shaped*, by the social world.

By a "partial determination" or "shaping" of our embodied minds by something *X*, I mean that *X* affects us, and thereby has an influence on us, as minded human animals, in a salient, significant way that is at once

(i) causal,
(ii) itself partially determined or shaped by means of self-reflexive feedback-loops, and
(iii) normative

First, what is *causal influence*? I hold that *X* has a *causal influence* upon *Y* just in case:

(i) *X* has some sort of necessary, efficacious role to play in the production, at a time, or over time, of some mental or physical properties of or facts about *Y*,

(ii) there is some sort of iterable or general, distinctively rule-like or lawlike connection governing the production of *Y*-properties or *Y*-facts by *X*, and
(iii) had X not existed, then those Y-properties or Y-facts would not have existed.

Thus, to suppose that social interactions and forces have a causal influence on the self is to suppose that these social factors have a necessary, efficacious role to play in the production of some of the self's mental and physical properties, and that without the contribution of these social factors, these mental and physical properties would not have existed.

Second, I hold that something *X* is itself partially determined or shaped *by means of self-reflexive feedback-loops* just in case

> *X*'s characteristic properties and facts are partially determined or shaped reciprocally by our own active and reactive contributions and responses to *X*.

The self is not only shaped by the social world, but also helps to shape the social environment through its active and reactive contributions and responses. People sanction or encourage particular kinds of actions, shape others' behavior, and thereby reinforce the kinds of practices that they endorse. The self can either reinforce particular social practices and norms, or work to defy and undermine them, and in a range of different ways and to varying degrees. Sometimes these feedback loops may result in a modification of the social world, so that norms that once were dominant begin to fade away and new sociocultural practices, norms, and values begin to take their place.

So far, this account of "partial determination" or "shaping" is quite similar to Rupert's (2004) hypothesis of "embedded cognition," which says that "cognitive processes depend very heavily, in hitherto unexpected ways, on organismically external props and devices and on the structure of the external environment in which cognition takes place" (p. 393). To suppose that cognitive and affective processes are socially embedded is to regard dependence on the social environment as "*immediate* and *active*" (Stephan et al. 2014, p. 7), and as crucial for the continuation of those processes. Rupert's account rightly emphasizes that there are "complex, cognition-sustaining interactions between organism and environment" (2004, p. 396) and that the environment can play a crucial role in supporting certain kinds of cognitive processes.

However, one important limitation is that Rupert does not examine the *normative* aspect of the causal contribution made by surrounding world, and in particular, the social environment. Remember that on the enactivist view, normativity arises at a basic biological level: norms are linked to vital requirements associated with biological self-maintenance. A living organism is directed outward toward the world and must continue to exchange matter and energy with the environment in order to regulate and sustain itself. Thanks to the living system's internal organization, interactive processes can be disrupted and recovered, and new interactive processes can be initiated to maintain the internal organization and thereby satisfy norms of self-maintenance.

However, social norms are underdetermined by biology and their source does not lie fully within the individual; instead these norms are acquired in other self-sustained, psychological or cultural modes of life. This is to say that adaptive agency in a complex social world such as ours goes well beyond mere survival

and self-maintenance, and concerns faring well in a particular socio-cultural context. Social norms provide a framework within which we form values, attitudes, and desires, think thoughts, and execute intentions; and social settings enhance specific patterns of thought, feeling, and behavior by providing a normative framework that rewards, reinforces, or discourages certain kinds of stances and behaviors. The concrete material and discursive arrangements of a social domain, which include physical layout, explicit rules, informal codes of conduct, and favored styles of interaction, "exert formative pressures on individuals to habituate in line with the dynamic patterns prevalent in the domain" (Slaby 2016, p. 19). Some interactions are good for the self and some are bad; some regulations and modulations of coupling with the sociocultural world are adequate and adaptive insofar as they enable the individual to fare well in that social environment (to gain status and social recognition, for example), and some are maladaptive (insofar as they involve heavy penalties, sanctions, or social disapproval). Insofar as individuals begin to comport themselves in ways that are conducive to the smooth operation of the social domain in question, the social environment comes to serve as the "the organizing plane" on which the cognitive and affective lives of individuals unfold (Slaby 2016, p. 21).

But as noted earlier, even if the origin of social norms does not lie fully within the individual, it is always the individual who internalizes them, acts according to them, and either succeeds or fails in doing so (Barandiaran et al. 2009, p. 6). As Kyselo notes, to succeed is to gain social recognition, whereas a persistent failure to adhere to social norms may very well lead to a kind of "social death." But what is crucial for autonomous agency, on the enactivist view, is the *inner organization* of the agent: the system is defined by itself, it is active, and it regulates its interactions according to norms that are either a) generated or sustained from within (in the case of biological self-maintenance), or b) derived from the social world and *internalized* (in the case of social self-maintenance). I will say more, in the next section, about what it means to internalize social norms. What I want to emphasize here is that this enactivist conception of autonomous agency, which is central to the life-shaping thesis, "requires that we look inside," and that we explain normativity "in terms of how the system is organized and organizes its interactions with the environment" (Barandiaran et al. 2009, p. 6). Thus, while it is true that the self relies on social processes and is partially determined and shaped by social norms, it is the autonomous organization of the living body that should be treated as the primary source of self-individuation.

However, the life shaping thesis does not entail that the social world is merely a contextual backdrop. Instead, this thesis says that the self is *socially embedded,* and would not have the same characteristics or behaviorally function in the way that it does without the causal contribution of the social environment. Indeed, it is important to acknowledge the extent to which human biology itself is deeply embedded in the social world and fully bound up with culture. By virtue of being tightly coupled with the environment, living beings "come with cellular, social, ecological, and cultural legacies bequeathed to them from earlier generations," and their actions, in turn, "substantially influence the evolutionary process" (Stotz 2014, p. 2). About two million years ago, cultural evolution became the primary driver of our species' genetic evolution. Henrich's (2015) work examines how culture has driven the expansion of our brains, honed our cognitive abilities, and

modified our social motivations. He points out that "once cultural information began to accumulate and produce cultural adaptations, the main selection pressure on genes revolved around improving our abilities to acquire, store, process, and organize" the skills, practices, and information provided by others in one's cultural group (p. 57). My proposed life shaping account builds on these insights from cognitive anthropology by emphasizing that life and human biology are deeply embedded in the sociocultural world and cannot be understood apart from that world. This account treats the living human body not as a "locus of isolation," but rather as "a means of connection and engagement." As I will discuss in the next section, social interaction makes a significant causal contribution to the development of various bodily *habits*. Thus, while Kyselo is correct that the self cannot free itself fully from social interactions and relations, this does not entail that the self is socially constructed or individuated. Instead, the self is causally dependent on, and shaped by, the social world, and should be individuated in terms of the *form* or autonomous organization of the living body.

Given that a thing's form can persist even as its material composition undergoes continuous change, the life shaping thesis does not simply equate the self with the body. In fact, in the case of living systems, if material constitution remains identical at two different moments in time, we are dealing with a *dead organism* (Barbaras 2010, p. 90). Moreover, it is not as if losing a body part results in a loss of self. What individuates a living organism is not the material out of which it is made (neither the energetic nor "relational material" that Kyselo posits), but rather its form or principle of organization. What I am proposing is that we approach the self in a neo-Aristotelian way, in terms of a hylomorphic, matter/form relation (Maiese 2015). Aristotle says that the soul is the form of a person, that the soul requires a body, and that the soul is present in "this sort of body" (De Anima, 414a.22), namely, a living body. The Latin word for 'mind' or 'soul' is *anima*, and this beautifully captures the sense in which a self is that which *animates* a suitably neurobiologically complex living organism. To animate something in this sense is to channel its natural forces and causal powers by providing its otherwise unstable dynamic processes and disparate moving parts with an inherent, *dominant* organization or pattern.

Insofar as this inherent, dominant organization or pattern gradually comes into existence and establishes a new dynamic regime for that system, then that living body is not merely alive, but also *has a life of its own*, and begins to exhibit more sophisticated modes of autonomous agency. Viewing the self as a form or principle of organization allows us to account for the varied, interactive, and yet persistent nature of self-existence, and to explain how some sort of cohesive unity or continuity can be preserved despite (and because of) ongoing change. In the next section, I will argue that this is made possible via the formation and ongoing development of *habits*.

5 An Enactivist conceptualization of habits

In this section, I unpack the idea that the self can be understood as a *form of life* that centers on the entrainment of brain and bodily dynamics and the formation of organizational and structural properties (habits of attention and behavior). This

account helps to specify the sense in which an individual self *internalizes* social influences and norms.

According to enactivism, the identity of an autonomous system is somehow self-generated and lies in its dynamic organization. This identity can be understood as a "pattern which, given the adequate initial and boundary conditions, recursively contributes to its own maintenance" (Moreno and Barandiaran 2004, p. 13). However, discussions of autonomous agency should not be limited to basic biological organization or metabolic self-maintenance. Adaptive regulation of behavior among humans unfolds in a particular socio-cultural context and is not simply subordinated to viability constraints imposed by "survival conditions," but also governed by the need to maintain neuro-dynamic and behavior organization. A new form of autonomy and agency, one not fully determined by biological constraints, may arise at the behavioral level via the self-maintenance of coherent behavior patterns (Barandiaran et al. 2009, p. 11). Along these lines, Buhrmann and Di Paolo (2015) propose that the "behavioral analogue to biological agency is a network of precarious but interactively self-sustaining sensorimotor schemes," or a "sensorimotor repertoire." The adaptive regulation of this network is directed at the preservation of internal coherence and consistency.

Among human animals with sophisticated nervous systems that are capable of coordinated and complex movement sequences, recurring modes of engagement and response begin to develop. Orderly pattern and structure appear where previously absent and bodily dynamics come to exhibit certain characteristic patterns. Along these lines, Di Paolo (2005) describes a kind of self-sustaining, self-generating dynamic form in animal behavior that is reflected in characteristic patterns of bodily expressivity and response. Likewise, Froese and Di Paolo (2011) hold that cognition involves "the adaptive preservation of a dynamical network of autonomous sensorimotor structures sustained by continuous interactions with the environment" (p. 18). These autonomous structures involve parts of the nervous system, physiological and structural systems of the body, and patterns of behavior. Similarly, Sheets-Johnstone (2011) describes how brushing one's teeth, tying a knot, and writing one's name all become woven into our bodies as familiar dynamics. Such movement patterns comprise habitual behavioral dynamics, including facial expression, gesture, posture, and vocalization.

Over time, various elements of the musculoskeletal system become "entrained," and the whole human body behaves as a "pattern-forming, self-organized system governed by nonlinear dynamical laws" (Kelso 1995, p. 6). This is to say that the top-down constrains of "habits of mind" are selectionist, and reduce the number of ways in which component aspects of our lived bodily dynamics—including brain activity, heart rate, metabolic processes, circulation, respiratory processes, sensorimotor processes, etc.—can operate. Brain and body are interdependent and mutually regulating, and as the animal interacts with the environment a global pattern of distributed, coherent bodily activity comes to govern its sense-making activities. In addition to characteristic patterns of movement, a subject develops characteristic ways of attending to and interpreting the surrounding world. Such patterns come to constitute a subject's particular temperament and the "form or structure of comportment" (Thompson 2007, p. 80) whereby she gauges the relevance of objects, actions, and events. Among creatures that are sufficiently neurobiologically complex, these integrated patterns of behavior and attention become quite extensive, giving rise to a characteristically *human form of life*.

I propose that we look to ecological psychology and the notion of affordances to help flesh out the notion of habit. According to Gibson (1979), "the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill" (p. 127). Krueger (2014) further describes affordances as "action possibilities in a perceiver's environment that are specified relationally, that is, both by (1) the particular structural features of the environment and things in it, as well as (2) the repertoire of sensorimotor capacities the perceiver employs to detect and respond to these structural features" (p. 2). Building on these ideas, Ramstead et al. (2016) introduce an expanded concept of 'affordance' that applies to sociocultural forms of life. What they call "natural affordances" are possibilities for action that depend on an organism or agent leveraging reliable correlations in the environment with its set of abilities (p. 2); and what they call "conventional affordances" are possibilities for action, the engagement of which depends on agents' skillfully leveraging explicit or implicit expectations, norms, conventions, and cooperative social practices (p. 2). The landscape (or "total ensemble") of available affordances can be understood as a "niche" (Sterelny 2012), which is comprised of "the entire set of affordances that are available, in a given environment at a given time" to organisms occupying a particular social world (Ramstead et al. 2016).

Engagement with these affordances requires that agents have the ability to correctly infer the cultural expectations associated with the settings in which they are immersed. Affordances are prescriptive in the sense that "they specify the kinds of action and perception that are available, situationally appropriate, and, in the case of social niches, expected by others" (Ramstead et al. 2016, p. 5). By virtue of being embedded in a particular sociocultural context, humans develop unique embodied skills and practices, in part by way of what Gibson calls "education of attention" (1979, p. 254). Skilled practitioners selectively introduce novices to affordances offered by particular aspects of the environment, and caregivers help children to learn what to notice and how to engage effectively with their surroundings (Rietveld and Kiverstein 2014, p. 331). Some affordances that are offered by the environment will be irrelevant to the agent because they have no bearing on the individual's concerns at the time, while others will stand out on the horizon as potentially relevant.

For an affordance to have relevance is for it to "solicit" the individual and beckon certain forms of perceptual-emotional appraisal and bodily engagement (Ramstead et al. 2016, pp. 4–5). An affordance becomes a solicitation, Rietveld and Kiverstein (2014) maintain, "when it is relevant to our dynamically changing concerns," takes on a "demand character" and becomes manifest at the bodily level in a state of "action readiness." What sorts of affordances a context provides, and which become solicitations, depends in part on cultural norms and expectations. Human conventions and shared expectations solicit certain kinds of action and modulate the specific kinds of worldly engagement that are effective in a given community. Thus, culture not only provides a rich landscape of affordances, but also calls forth particular sorts of action rather than others. Of course, which available affordances become solicitations is not just a result of shared cultural expectations, but also a matter of that particular agent's skills, needs, and concerns. Over time, human beings acquire characteristic, stereotypical ways of doing and being in response to these solicitations, and these characteristic modes of engagement can be understood as habits.

Together, biology, developmental factors, and environmental influences help to shape a subject's neurobiological patterns, interpretive tendencies, characteristic bodily

responses, and habits of mind. Learning plays a significant role, and over time an individual develops specific behavioral tendencies and becomes selectively attuned to particular aspects of her surroundings. The development of such habits is adaptive in the sense that it equips human subjects to meet the demands of the sociocultural sphere in which they are situated and behave in a situationally appropriate manner. As an individual interacts with her social environment and modifies her behavior in accordance with norms, social expectations, and cultural values, her habitual modes of engaging with available affordances are formed and modulated. To see how habits are developed and reinforced through our social interactions, consider family members who share the habit of interrupting others in conversation, or the way in which surrounding yourself with kind, honest people may strengthen your tendency to be kind and honest. Other habits (e.g. holding open the door for others, or leaving a tip at a restaurant) are thoroughly bound up with broader cultural norms. By virtue of developing integrated patterns of behavior and attention, the living body becomes "socially saturated" and "normatively laden by societal expectations and mores" (Higgins 2017).

Habits develop in part because social domains and institutions encourage the adoption of certain patterns of engagement while discouraging and sanctioning others. Higgins (2017) points to gender as an example. Due to expectations and norms regarding the enactment of "feminine" and "masculine" activity, individuals routinely adopt gendered mannerisms and habitually come to regard and experience their bodies in particular ways. Building on these ideas, I maintain that "internalizing" norms of "masculinity" and "femininity" centrally involves the adoption of specific habits of interpretation, movement, expressivity, and response. There are characteristic modes of speaking, walking, gesturing, dressing, and interacting with others associated with "femininity" and "masculinity," and boys and girls begin to develop these habits from an early age. Of course, gender norms are just one example. Multiple norms and expectations "combine and channel the bodily activity of each biosocial agent into a unique pattern" (Higgins 2017), one which can be understood in terms of habits, bodily comportment, and an overall cognitive-affective orientation.

There is a sense in which the development of these habits of mind enable social expectations and norms to become sedimented in the body. In the case of gender, there are serious penalties associated with displaying habits of mind and behavior that run counter to socially prescribed gender norms. Another example is the way in which many workplace settings enhance particular tendencies and habits by providing a normative framework that rewards or discourages certain kinds of stances and behaviors. In response to these pressures and in an effort to socially adapt, subjects may develop what Burhmann and Di Paolo (2015) call 'sensorimotor strategies' or 'schemes.' These 'schemes' can be understood as organizations of several sensorimotor coordinations (i.e. habits), which typically are deployed against the backdrop of some normative framework (e.g., considerations of efficiency) and used repeatedly to perform specific tasks. Once habits form and become engrained, the continuation of these patterns of engagement can become goals in themselves (Froese and Di Paolo 2011, p. 19) and an individual can get "locked into" particular modes of movement and response. Of course, these patterns are not fixed or static, but rather *loosely assembled* (Colombetti 2014) and susceptible to ongoing change as a result of continued learning and development. This means that there is always the potential to shift one's modes of engagement and develop new habits of movement, thought, and feeling.

Since our bodily habits are causally dependent on social relations and norms, and since we make sense of the world in and through our living bodies, the social world thereby brings about "life shaping." What is shaped is the self's form or structure (its principle of organization), which I have suggested should be understood in terms of the entrainment of various bodily dynamics that correspond to the formation of habits. The idea that the self can be understood as a particular form or structure builds on the idea that the identity of a living system consists in its autonomous organization (i.e. its self-generating and self-maintaining internal organization). Remember that in the case of biological self-maintenance, the non-trivial self-assertion of individuality requires that without the system's activity its component processes will cease to exist. This also applies to sensorimotor organizations insofar as many of our behaviors are habitual in nature, and reinforced through their repeated exercise. Habits that are not repeatedly exercised "tend to decay in the absence of frequent enough enactments" and thus are in danger of being extinguished (Buhrmann and Di Paolo 2015). As part of a greater network, particular habits may depend on other behaviors and habitual expressions as conditions for their exercise. Interaction between various habits increases their number and variety, and also tends to link them together, so that the sensorimotor agent is "individuated as a complex network of interdependent [sensorimotor] schemes, each helping to sustain the others by avoiding both decay and over-rigidity" (Buhrmann and Di Paolo 2015). Here we can speak of "sensorimotor identity," which is distinct from organic identity. However, both sorts of identity have to do with a system's internal organization and its ability to distinguish itself from its surroundings via its own activity.

On this view, the foundation for the self is indeed the living body, but the autonomous organization of the living body is deeply causally dependent on sociocultural norms and processes. There is a sense in which the influence of social norms becomes sedimented in the body, by way of socioculturally-mediated habit formation, so that the living bodies of human animals are thoroughly socially embedded and partially determined by the surrounding social world. This account helps to make sense of the way in which a new form of life is born in animality (Di Paolo 2005), in particular among sophisticated animals capable of sensorimotor coordination. This form of life is not contrary or indifferent to metabolism, but rather appears to *build upon it*. Via a process of adaptive closure analogous to metabolism, an animal system is able to generate its own set of values, ones not fully determined by survival needs; and animal action has its own organization, "a specific preference out of many metabolically compatible options" (Di Paolo 2005, p. 446). Insofar as social normativity and complex modes of social interaction allow for the formation of various complex habits, human existence is significantly different from the existence of many non-human animals and other living organisms.

6 Conclusion

Because social influences and norms play such a significant role in the formation of an individual's habits, it is true that selfhood has an integral socio-cultural dimension. Through sustained and reciprocal causal interaction with the social environment, the self develops various habits of movement and attention. And yet from an enactivist perspective, it appears that the biological foundations of subjectivity will remain

essential even as the socio-cultural dimensions of human existence begin to play a significant role (Stapleton and Froese 2016, p. 125). Acknowledging that "there can be no self without others" (Stapleton and Froese, p. 125), at least not a flourishing human self, does not require that we claim that the self extends beyond the boundaries of the living body. Instead, the self should be individuated in terms of the autonomous organization of the living body and understood as a socially embedded *form of life* (Maiese 2015).[3] Via the development and sedimentation of various bodily habits, formed partly via interaction with the social environment, social norms exert a powerful causal influence. In my view, the metaphysical framework associated with the life-shaping thesis allows us to accommodate Kyselo's key insights in a way that is more consistent with enactivism.

There certainly is more to say, neurobiologically speaking, about how the social environment shapes individuals' habits of mind. Recent work on predictive processing and the free energy principle examines how the neural mechanisms associated with self-organizing systems can help us to understand the influence of culture. Kirmayer and Ramstead (2017), for example, describe how cultural norms are internalized and enacted not only as individual habits, but also as forms of coordinated social interaction and institutional routines. In these interactions, there is a reliable expectation that others will respond to, complement, or complete one's own actions. These shared expectations allow each participant to play a particular part in social interaction and to act in situationally appropriate ways. For those operating within a social practice, "certain models of expectancy come to be established, and the patterns, which over time emerge from these practices, guide perception as well as action" (Roepstorff et al. 2010, p. 1056). Predictive processing models suggest that culturally specific expectations and affordances might be implemented by sets of predictions encoded in neural generative models implemented in the brain. On this view, having one's internal dynamics be attuned to environmental dynamics, by way of action and perception, is central to minimizing free energy (entropy).

Elsewhere I (Maiese 2015) have argued that that it is the whole human body, not just the brain, that should be understood as a dynamic, self-organizing system. Living bodily processes which entrain and form integrated patterns include neural-somatic systems, sensorimotor processes, metabolic processes, the circulatory system, and the respiratory system. By way of overall bodily attunement and the "habits of mind" that we have cultivated, we are able to be adequately responsive to relevant solicitations (affordances) that are in line with our current situation and concerns. In my view, so long as predictive processing is not understood in exclusively neural terms, work that weaves together the free energy principle with autopoietic enactivism, as Kirchoff and Froese (2017) recommend, may offer a fruitful avenue for further understanding the influence of the social world.

The life shaping thesis allows us to preserve enactivism's emphasis on self-production, self-distinction, and self-maintenance while acknowledging the crucial contribution made by the social world. This is to say that the self would not survive or function in the way it does without the causal contribution of elements of the surrounding social

[3] Elsewhere I have described the self as *a dynamic structure of an essentially embodied process* – in effect, *a life-form* with a particular patterning and structure, comprised by habits. This means that the self is metaphysically real, in that it is *empirically* real, but not "really real" in the way that Realists about the Self might think.

world; and yet these elements of the social world are not constitutive parts of the self. Holding that mindedness is socially "embedded" therefore more adequately respects the dual insights that 1) the human agent is an individual, and 2) that the development of habits and the exercise of agency is deeply bound up with the social environment, and inextricable from it. A human subject's habits are formed over the course of her interactions with the world, and the development of these habits of mind and behavior is ongoing, largely socially driven, and guided by shared normative practices. However, although she is shaped and modulated by these social forces, she is not fully determined by them. As an autonomous agent, she has some power to resist customary ways of behaving and develop counter-cultural habits of mind. Even if she encounters some sort of "social death" and becomes alienated from those around her, she survives as a self (and arguably an autonomous and authentic one, at that).

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