

Nothing to it: The perceptual zero-point

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The concept of a “zero-point” (*Nullpunkt*) is pervasive in phenomenological accounts of perception.¹ The zero-point is meant to signify the bodily origin of the first-person perspective or the egocentric spatial frame of reference through which we encounter the world. Although it is meant to be a very embodied concept, since the zero-point is said to be located in or at the body, I’ll suggest that it is a complete abstraction that misleads the analysis of perception and action. Specifically, I’ll argue that body-schematic processes involved in perception and action are “thick,” multi-dimensional, or complex with varying perspectives running along axes relative to different parts of the body, and are complicated by temporal and intermodal factors. Perception is better characterized as involving multiple trajectories rather than a zero-point.

I’ll start by indicating how the zero-point has been characterized in phenomenology, as well as in analytic philosophy of mind. I’ll leave aside several different characterizations of the zero-point as an objective physiological point, or as a geometrical point, and I’ll focus on the phenomenological conception as a structural factor in one’s experience. I’ll introduce evidence from studies of vision, examine the concept of ‘zero-point aspects’ as outlined by Horgan and Nichols (2016) and then look more generally at sensory-motor processes, action, and intersubjective interaction. I’ll show that in all these cases a zero-point is not to be found. Finally, I’ll briefly outline an alternative notion that better captures what the zero-point was meant to capture.

Phenomenological accounts of the zero-point

William James, in his *Essays in Radical Empiricism*, suggests that our experience of the world is accompanied “at all times with our body as its center, center of vision, center of action, center of interest. Where the body is is ‘here’; when the body acts is ‘now’; what the body touches is ‘this’; all other things are ‘theres’ and ‘thens’ and ‘thats’” (1976, p. 86n). This implies that the worldly things in one’s environment fit into a pervasive organization that refers back to an origin of perception, action, and interest located in the subject’s body, and

¹ E.g., Husserl, 1989; Merleau-Ponty (1964); Morley (2001); Parnas et al. (2005); Stein (2012).

that this orders all of one's experiences, including thoughts and feelings, which "terminate in the activity of the body.... The body is the storm center, the origin of coordinates, the constant place of stress in all that experience-train" (1976, 86n).

Around the same time as James's essays, Husserl tries to capture the same idea with the concept of the zero-point in his discussions of the lived body, and in a variety of contexts. For example, in his posthumously published *Ideas II* he writes:

[A]ll spatial being necessarily appears in such a way that it appears either nearer or farther, above or below, right or left ... The lived body then has ... the distinction of bearing in itself the zero point (*Nullpunkt*) of all these orientations. (Husserl 1989, §41a; also see Husserl 2006, §5)

Accordingly, Husserl describes the zero-point as belonging to the lived body, and as involved in spatial perception, and specifically as providing the origin point of spatial orientation. He elaborates further about both our sense of orientation and direction in spatial experience, the zero-point's relation to the body, and its connection to a persistent lawfulness in behavior.

The body then has ... the unique distinction of bearing in itself the zero point of all these orientations. One of its spatial points, even if not an actually seen one, is always characterized in the mode of the ultimate central here: that is, a here which has no other here outside of itself, in relation to which it would be a 'there'. It is thus that all things of the surrounding world possess an orientation to the body, just as, accordingly, all expressions of orientation imply this relation. (1989, §41).²

It's clear that Husserl takes the zero-point to be an intrinsic feature of one's bodily and spatial experience, such that it has a phenomenological sense. This does not mean that it is experienced as such – something I am conscious of – but rather that it is part of the structure of perception which organizes that which I do experience.

The notion of the zero-point is not a minor issue, since it seemingly characterizes the first-person perspective and is relevant not just to spatial experience, but to notions of the self (or ego), is referenced in analyses of psychiatric disorders (e.g., Henriksen et al, 2019; Parnas et al. 2005), and is also involved in characterizations of intersubjective empathy. As Edith Stein (2012, 63), for example, put it, "I experience the other as having another 'zero point of orientation' (*Null-Punkt der Orientierung*)."² One also finds the notion in Sartre: "[T]he perceptive field refers to a center objectively defined by that reference and located in the very field which is oriented around it. Only we do not see this center as the structure of the

² He also writes: "[One's momentary focus] is necessarily related to the zero-point of orientation, to the absolute 'here', and to the concomitant system of the depth dimension (forward-back), and of the breadth and height dimensions (right-left, above-below)" (1989, §32). Or again, "The lived body is, in the first place, the medium of all perception.... [O]bviously connected with this is the distinction the body acquires as the bearer of the zero point of orientation, the bearer of the here and the now, out of which the pure Ego intuits space and the whole world of the senses" (Husserl, 1989, §18)

perceptive field considered; we are the center” (1956, 365). More generally it can be found as part of the phenomenological analyses that involve the character of memory or imagination insofar as these cognitive acts involve a kind of re-presentation (*Vergegenwärtigung*) of what has been or could be presented in perception (see, e.g., Morley 2001).

A similar phenomenological account can be found in analytic philosophy of mind. I’ll briefly point to two examples, the first one a very clear example that references Husserl’s concept directly; the second, a more ambiguous example centered around Gareth Evan’s work, and some issues that relate in some regard to developments in phenomenology, especially in the work of Merleau-Ponty (more of which later).

The first example is an article by Terry Horgan and Shaun Nichols (2016), entitled “The zero point and I.” I’ll discuss this article in more detail later, but here let me just note that Horgan and Nichols point in two directions: back to Husserl, who they explicitly cite as the origin of this idea, and forward to a set of conceptual issues to which they think this idea has relevance. As they put it, “An enormously fruitful idea we will draw upon from the continental tradition is the one expressed by Husserl’s expression ‘*der Nullpunkt*’ (the zero point)” (2016, 148). They consider it a fruitful idea precisely because it has relevance to a number of problems, including the problem of phenomenal intentionality and non-reflective self-awareness; sensory-perceptual experience; voluntary-action experience – including self-agency/self as origin; the temporal structure of experience; and a variety of cognitive processes that involve desire, intention formation, and belief formation. I’ll return to the issue of whether they remain faithful to Husserl’s specific interpretation of the zero-point.

Another ongoing discussion of the zero-point in analytic philosophy of mind can be seen in Christopher Peacocke’s (1992) notion of ‘scenario content’ which involves a point of origin, which he locates in the middle of the chest. Peacocke draws this idea from Gareth Evans’s concept of the egocentric spatial frame of reference. There is, however, some debate in the literature about whether the egocentric spatial frame of reference actually involves a zero-point. On the one hand, Quassim Cassam (1997) explicitly links Evans’ analysis of the egocentric spatial frame of reference to Husserl’s zero-point and writes that “the Body ... is the zero point or point of origin of egocentric spatial perception” (1997, p. 53). Lilian Alweiss (2018) made the same link defending Husserl’s notion of the lived body as the zero-point in contrast to what she takes to be Evans and Cassam’s reference to a material, objective body (see Evans 1982; 1985; Grush 2005)

Evans’ analysis does highlight some complications involving the fact that our mobile eyes are set within a head that can turn, which is attached to a body that can turn, bend, assume different postures, and move from place to place. The concept of a zero-point tends to be modeled on a stationary point of view, the ‘here’ and ‘now’ which is only the limiting case of a mobile point of view. Perception and movement are always intertwined. I touch something by moving my arm. I see something by moving my head and eyes. What is perceived is perceived as nearby and perhaps reachable, or further way, as something that can be approached and explored. Our perceptual organs (eyes, hands, ears, etc.) function in ways that

are intertwined with our body's kinesthetic experience. I'll argue that these are factors that complicate claims about a zero-point.

Here I set aside the idea that the zero-point is a real *physical* (physiological) point where visual information is processed, and the idea that the zero-point is an abstract *geometrical* (ideal) point, the intersection of a set of lines that we might draw from objects back to our perceiving body. I'll focus on the understanding of the zero-point as plays some phenomenological role in or for our experience. This seems to be what Husserl means by the zero-point – something that is structuring for our experience.³

What could count as a lived-embodied-experiential zero-point? There are several candidates that we can consider. For example, could the zero-point correspond with the blind spot? It seems not, since that point is outside the body and in some sense localized within one's field of vision (ascertainable by experiment), even if invisible. Could it be at the experienced focal point of our attention? This would seem to be on the wrong side of the intentional relation. That is, Husserl describes the zero-point as something pertaining to the subjective noetic aspect of consciousness (the focusing), the more *proximal* end of any line of sight, rather than pertaining to the noematic side – the intentional (focused-upon) object in the perceptual field. Moreover, with respect to the perceptual field, the phenomenology of vision is more complex than what's in focus or in focusing. It is never just perception of a focal point, but always includes a periphery, a horizon – a visual landscape arrayed in front of us. The important question is whether that visual landscape refers us back to some structuring feature of the lived body? Even if a positive answer recommends itself, is that structuring feature ever a zero-point? Philosophers like Dorothee Legrand (2011) and Helena De Preester (2007) contend that this feature is not of a bare orientation point but a lived volume, a kind of substantial thickness of one's "deep" body. In this regard, the experiencing subject is more than a perspectival zero-point; phenomenologically, it is something > 0 .

Also, vision is never just bare vision; vision always involves cross-modal connections with other senses. Husserl (2013) indicates that it involves kinaesthesia. For example, ocular muscles operate such that they allow us to focus, providing an implicit sense of movement that is part of visual experience. Perception more generally is intermodal – vision, for example, registers in other sense modalities, in the same way that taste is not strictly on the tongue. Hearing is in stereo since we typically listen with two ears, and it's the position and distance between our ears that define our sense of where the source of the sound is. Likewise, if we are moving or if the object is moving, we might think that a trajectory rather than a zero point is involved.

³ The idea that the zero-point is part of what structures our experience is also defended by Barry Dainton who proposes that "in any perceiving, experiential contents of whatever type can only seem to be presented to a subject if the subject itself has the impression of being itself spatially related to what it is perceiving. Ordinary human phenomenal fields are thus centred rather than centreless" (Dainton, 2016, 130). More than perception is included in human phenomenal fields, however. There are obviously other experiences that are also characterized by first-personal phenomenality. Consider feelings of joy, despair, or shame. Does it seem that their phenomenality is more centered than distributed?

The sensorium moves

I suggest that having *two* ears is like having two eyes and, accordingly, the auditory sensorium also operates with complex disparities. Taste is no simpler; there are (at least) *three* areas of the palate and tongue (as wine connoisseurs know well), with taste also a distributed process that involves at least *one* nose with two nostrils. It's difficult to find any 0s in the accounts of any of these senses.

In touch there are multiple lines of orientation since touch potentially involves not only two haptically oriented hands but can also involve different parts of the body as well as proprioception and kinaesthesia. This becomes clear when we consider haptic movement.

Indeed, one might suspect that the zero-point as a standard of orientation is better conceived in motoric terms, or in terms of enactive sensory-motor contingencies. In this regard, Merleau-Ponty weighs in. Like Gareth Evans (at least on one interpretation), he is not in favor of the zero-point.⁴ Rather than the zero-point Merleau-Ponty discusses a more holistic body schema as the organizer of the perceptual field. There is, first, the postural schema; and more generally there is “an intersensorial system of equivalences that functions as a whole,” and that takes account of my movements (2010, 217).

Visual perception involves not just eyes but bodily position, hands and the degrees of freedom that define whether I can reach the object or not. This involves a thick and articulated schema, rather than a zero-point. Merleau-Ponty characterizes movement in a way that undercuts anything like a zero-point:

The movements of one's own body ... form a [*well-articulated*] system with external phenomena so tightly woven that perception “takes account” of the movements of the perceptual organs, and it finds in them, if not the explicit explanation, then at least the motive for the intervening changes in the spectacle and can thereby understand these changes immediately (Merleau-Ponty, 2012, p. 49; emphasis added).

Charles Taylor draws on Merleau-Ponty and explains this perhaps more clearly:

Our perceptual field has an *orientational structure*.... [T]ake the up-down directionality of the field. What is it based on? Up and down are not simply related to my body; up is not just where my head is and down where my feet are. For I can be lying down, or bending over, or upside down . . . I have to maintain myself upright to act, or in some way align my posture with gravity. Without a sense of ‘which way is up’, I falter into confusion. (Taylor, 1995, 23)

⁴ Merleau-Ponty discusses, but never takes up Husserl's notion of the zero-point of orientation. In his Sorbonne lectures (2010), in a running commentary on Husserl, he summarizes Husserl's idea of the zero-point without endorsing it (2010, 75); he later uses it to describes von Uexküll's view of the *Umwelt*.

This kind of confusion seems unlikely if we carry around a zero-point that anchors our perspective.

In contrast to up and down, left and right may be more firmly anchored to one's body, in terms of the right always being on one's right (to the right of one's body) and the left being on one's left, and this doesn't change if we turn around, or are upside down. If we are more anchored by our body in these lateral directions, that fact can only establish a centered axis. We would need to have a similar arrangement with up and down (which we don't, as Taylor indicates) to establish something like the reticle or crosshair of a zero-point.

José Bermúdez (2005) also gives us reason to move away from the idea of a single zero-point, or single egocentric spatial frame of reference. He suggests three frames of reference.

1. **The object-relative spatial frame of reference.** For example, when reaching one's hand to grasp an object there is a trajectory from the initial position of the hand to the position of the relevant object. That trajectory links hand and object in the same "object relative" spatial framework, which is equivalent (following Evans) to what is standardly called the *ego- [or body-] centric spatial frame of reference*.

The important point is that in the object-relative spatial frame of reference the orientation is centered on the hand that is reaching. If the other hand was doing the reaching, there would be a different hand-centric frame of reference. Likewise in the case of kicking with my left versus right foot, etc.

In addition, however, Bermúdez identifies two more spatial frames of reference.

2. **The internal spatial framework:** in some kinds of actions, one has to calibrate between the object/body-centric framework and an internal organization (keeping track of one limb's relative to other limbs). His example is returning a volleyball – we need to keep track of the ball in egocentric space, but also we need to keep track of how our hands relate to one another.
3. **The orientation frame of reference.** This is equivalent to what Charles Taylor describes in reference to gravity and orientation, (involving vision, kinaesthesia, and vestibular processes for position and balance).

These three spatial frameworks need to be integrated in our experienced action. Accordingly, we get a three-fold, more complex gestalt structure rather than anything as simple as a zero-point. A good example of this is something we do everyday: dressing. Putting on your clothes involves a complex set of movements that require coordination in all three spatial frames of reference.

Even if we focus on just the first, object-relative or egocentric frame of reference, there is a complication. When I reach to grab an object I usually do so as I visually focus on it, or at least make a quick glance to determine its location. So, simultaneously it seems I have a

visual zero-point seemingly centered in the neighborhood of my eyes, plus a zero-point centered at my hand. Imagine the act of punting in a game of American football where you are preparing to catch and then kick the ball that is coming toward you – there would be three object-relative zero-points involving eyes, hands, and foot– all coordinated by an articulated and dynamically changing body schema rather than any one stationary zero-point. Mathematically, of course, $0(n) = 0$; or $0+0+0 = 0$. But that's not the rule here. A plurality of zero-points is not equivalent to a zero-point; $0+0+0 =$ a bodily configuration.

The above-zero complexity increases when we fold in the other spatial frameworks identified by Bermúdez. When I reach to grab an object, as he indicates,

it is natural to suggest that the axes that determine particular proprioceptive frames of reference are centered on particular body-parts, just as are the axes determining the frames of reference for perceptual content and basic intentions. The picture that emerges, therefore, is of a number of different representations of space, within each of which we find representations both of bodily and of non-bodily location. So, for example, we might imagine reaching behavior to be controlled by an egocentric frame of reference centered at some location on the hand.... Despite its appealing economy, however, this account is ultimately unacceptable, because of a fundamental disanalogy between the bodily space of proprioception and the egocentric space of perception and action. (2005, 309).

According to Merleau-Ponty, “the spatiality of the body must descend from the whole to the parts, my left hand and its position must be implicated in an overall bodily plan and must have their origin there” (2012, 101). The spatiality of the body “is not, like the spatiality of external objects or of ‘spatial sensations’, a positional spatiality; rather, it is a situational spatiality” (2012, 102). One can say, as Merleau-Ponty does, that perception is indexed to the body as a center. But given how bodily space is organized, this is different from saying that it is indexed to a zero-point. A zero-point defined in objective, Cartesian or geometrical terms, cannot be found in the perceiving or acting body given the complexities mentioned above. As Bermúdez points out, the proprioceptive organization of the body is not equivalent to an objective geometry that one might associate with the egocentric frame of reference (1998, 152-153). If, as he indicates, proprioception does not organize the differential spatial order of the body around an origin, this means that whereas one can say that this book is closer to me (my body) than that book over there, one cannot say that my foot is closer to me than my hand. As Merleau-Ponty puts it, “When the word 'here' is applied to my body it does not designate a determinate position in relation to other positions or in relation to external coordinates ...” it expresses “the situation of the body confronted with its tasks” (2012, 102-103).

There are some nice complications involved in thinking about cases of joint attention and joint action. In most joint actions one needs to coordinate one's movements with others. For example, as two people engage in moving a bookcase through a doorframe all three spatial frames of reference identified by Bermúdez are involved, *times two*. The coordination of my own two-handed grip, together with my general balance, together with my perception of the doorframe through which we need to navigate, and whatever ongoing movements we might

have to make to adjust the angle of the bookcase to ease it through, must be coordinated with your movements which in some instances may throw me off balance. In joint actions that involve two-person synchronic, correlated movement patterns, one's lived body schema meshes with the other person's body schema to form a "joint body schema" – which involves an integration of one's peripersonal space with the other's (Soliman & Glenberg 2014). This involves a complex gestalt of 3x2 spatial frames of reference rather than two individual or one collective zero-point(s). Similar things can be said with respect to communicative interactions.⁵

The alternative: The agentive situation

Let's consider one more attempt to make sense of the notion of a zero-point and then turn to an alternative proposal. Horgan and Nichols (2016) attempt to stay with the notion of zero-point (drawing from Husserl), but they almost immediately start to use the phrase 'zero-point aspects'. For example, under this heading they include two of Bermúdez's three spatial frameworks, allowing for (1) a plurality of zero-points (e.g., associated with hands in haptic exploration, and (2) the orientation framework (ala Taylor and Bermúdez).⁶ As noted by Taylor, the up-down axis involves not just bodily directionality, but also environmental constraints, such as gravity. Whatever this axis is, it experientially extends into the environment. This is what Horgan and Nichols call a zero-point aspect.⁷

⁵ Jürgen Habermas makes a related suggestion, describing an organization of space surrounding two or more speakers. He suggests that it is the speech situation, encompassing two or more speakers, rather than the body of the individual subject, that is the center around which the context is ordered. In such situations, the first-person standpoint is really taken up into a second-person standpoint, in both an experiential and spatial sense, as we are speakers and actors *alongside others*.

The common speech situation constitutes the center – and not, for instance, my body, as an anthropologizing phenomenology has claimed – in which social spaces (staggered concentrically according to depth and width) and historical times (arranged three-dimensionally) converge prior to any objectivation through measuring operations.... I, in my body, and I, as my body, find myself always already occupying an intersubjectively shared world, whereby these collectively inhabited lifeworlds telescope into each other, overlap, and entwine like text and context. (Habermas, 1998, 244).

⁶ "For instance, the up/down axis of one's visual-presentational experience seems heavily dependent upon certain aspects of tactile and kinesthetic sensory-perceptual experience: roughly, down is the direction of the surface to which one's body at rest is attached, and toward which one's body moves when unattached to any surface. This up/down axis [is involved in perception of] objects in the ambient environment as located within an implicit reference frame that includes the directions of up and down. The up/down axis also is a zero-point aspect of visual-perceptual experience" (Horgan & Nichols, 2016, 149).

⁷ "Some aspects of external-world-representing tactile experience seem *centered on one or several zero points* that coincide with certain specific body parts that themselves are also explicitly represented tactilely; for instance my tactile experience of the dumbbell's shape seems centered on my two hands, one of which feels (via gripping) the cylindrical shaft and the other of which feels the shape of one of the weight-plates to which the shaft is attached. Other aspects of external-world-representing tactile experience—for instance, my tactile experience of the dumbbell's heaviness, and my tactile experience of the balance of this heaviness on its two ends—seems centered upon *a zero point that coincides with my entire body*" (Horgan & Nichols, 2016, 149; emphasis added).

Although they suggest that “[o]ne experiences being located at a specific sensory-perceptual zero point ...” -- it doesn’t seem that a zero-point aspect is a zero-point if it’s a *linear axis* or a trajectory in movement, or if it coincides with the *whole body*. It is not clear what the concept ‘zero-point’ *per se* adds to their analysis, and it does not seem equivalent to their starting point in Husserl’s use of the term. Accordingly, I suggest that there is zero point to using the term ‘zero-point’ in such cases.

How then should we think of these specific aspects of spatial experience in perception and action? Should we take the various objections against the zero-point to be a mere terminological issue? I think it is more than a terminological issue. The point of questioning the zero-point concerns the role of the first-person embodied perspective and its phenomenology. The first-person perspective seems not to be reducible to a zero-point, and the lived body is more than a collection of zero-points. It involves a structural “thickness,” an ambiguity, as well as temporally attuned motor-control processes and situated affective processes that enable and delimit perception, and action. In contrast to an abstract origin-point anchoring the “thin” lines of a geometrical mapping of directional attention in perception or action, experience is structured across a multitude of intersecting dimensions that include affective and interoceptive processes as well as multiple affordances that configure the agent’s situation (for example, what the agent can reach and grasp while keeping an eye on what she can’t yet reach and at the same time attending to what her partner can or can’t reach and grasp). Such aspects get lost in an analysis that focuses on the abstract concept of zero-point.

What such an analysis and the notion of a zero-point itself overlook is what I’ll call, drawing on Merleau-Ponty’s notion of a “situational spatiality,” the notion of an *agentive situation*.⁸ The situation of an agent is not equivalent to the external environment; rather, the situation includes the agent *and* environment or the agent-in-environment. It’s defined in relation to the performance of actions structured by varying affordances and characterized by different time scales and degrees of and kinds of intentionality (Pacherie 2008). Consider the example of initiating a tennis serve. In setting up the serve I may be marginally aware that I’m swaying back and forth on my feet which habitually transitions into a posture where the action of my throwing hand moves in close synchrony with the swing of my racket which is gripped in my other hand. My visual attention is on a specific zone located on the other side of the net while at the same time I’m aware of my opponent’s position and am anticipating my subsequent response to his return. Some interoceptive processes may be distracting me if my stomach is upset, or I have a painful injury that requires that I adjust my movements. Where should we locate the zero-point in this situation which spans subpersonal processes of motor intentionality measured in elementary time scales of msecs, integrative processes of present conscious intentions-in-action measured in seconds, as well as longer-term distal intentions that define it in terms of playing tennis to win? Even if we considered a postural snapshot of some moment of the action, unless we equate the zero-point with the agent’s abstract center of gravity at that time-point, there is no one point on which to center the action; there is at the very least a complex set of co-ordinations – one foot in relation to the other, two hands in

⁸ For a fuller explanation of this concept, drawing from John Dewey’s concept of situation, see Gallagher (2020, 1.2).

relation to each other while being in relation to ball and racket, respectively, while the agent is perceptually attending to a targeted zone and the other player. On this conception we should not think of the origin of the action as a zero-point; rather, experience originates in a relational system, the structure of which includes elements of the environment (and in this case social/intersubjective elements), and where a valanced world of affordances is already pushing and pulling a “thick and deep” embodied subject/agent characterized generally by affectivity, its own past history and future interests, and specifically by its ongoing material engagement, all of which figure into structuring perception and action.⁹

The intertwinement of multiple dimensions – cognitive, affective, motoric, perceptual, interoceptive, to name these factors in the most general terms – constitutes a situation that has no synchronic center but is rather a matter of dynamical trajectories that intersect as a set of processes that involve *zero* zero-points. This is not to deny that there is a subject of perception or an agent of action, or that they are one and the same. The perceiving agent’s first-person perspective is constituted by a set of active dynamical coordinates.

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⁹ This idea of the agentive situation is partially captured in three statements that we have already seen, from Merleau-Ponty, Taylor, and Habermas, respectively.

The movements of one’s own body are naturally invested with a certain perceptual signification, they form *with the external phenomena a [well-articulated] system*. (Merleau-Ponty 2012, 49)

Our perceptual field has an *orientational structure* . . . It is not just that the field’s perspective centers on where I am bodily—this by itself doesn’t show that I am essentially an agent. . . . I have to maintain myself upright to act, or in some way align my posture with gravity. (Taylor 1978, 23)

I, as my body, find myself always already occupying an intersubjectively *shared world*, whereby these collectively inhabited lifeworlds telescope into each other, overlap, and entwine like text and context” (Habermas 1998, 244).

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