Philosophy Today
DOI: 10.5840/philtoday2020124306

Morphogenesis

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Abstract: This article explores the ways new materialism centers the problem of morphogenesis—and de-centers language and culture—in philosophical accounts of corporeality. Attention to organic structures gives insight into the entanglement of nature and culture obscured by tendencies to think matter as lacking agential features. I suggest, in conclusion, that new materialism may operate with a notion of "entanglement" or "intra-activity" that is too productive. New materialisms may require a more pliable set of distinctions to capture the relations between morphogenetic forces.

Key words: intra-activity, entanglement, plasticity

As Darwin said, considering the mutable nature of species, "one sometimes has the impression that the whole organization has become plastic."
(Malabou 2016)

In this article I explore some of the ways that new materialists center their thought on the problem of morphogenesis—what Catherine Malabou has called the "formation of form"—shifting contemporary Continental philosophy towards questions about the nature of matter and the relations between biology and culture and away from the constitutive role of language and culture.

In new materialist projects, data, models, and schemas from biology (Wilson 2015; Haraway 2016), physics (Barad 2007), forensics (Kirby 2011), and neuroscience (Malabou 2012; Wilson 2004, 2015) take the place of linguistic and semiological schemas as intuitive models for how to conceive of bodies and their relations. Indeed, Malabou (2012) argues, models gleaned from the natural sciences can so effectively critique inherited modes of thinking materiality precisely because they prompt us to think morphogenesis as *immanent* to matter. By contrast, the notion of sign, or the closely associated "code" and "program," lead to thinking

 Volume 63, Issue 4 (Fall 2019).
ISSN 0031-8256 999–1012

morphogenesis in *transcendental* terms.[1] At the same time, attention to organic and biological structures offers insight into the entangled nature of nature and culture, object and representation, experimental observer and observed, usually obscured by tendencies to think matter as "dull," "indifferent," and "unresponsive"—as lacking the agential features taken to be the exclusive preserve of human actors and their projects (Wilson 2015).

Though I cover some of the positive, speculative dimensions of new materialist projects, I will focus mainly on their critical, diagnostic dimensions, reconstructing critiques of what I call *continental materialisms* (CM). I do so mainly because I take the critique of CM—particularly how the latter have thought morphogenesis—to be a shared feature uniting the disparate projects, methods, and perspectives going under the name "new materialism." Characteristically, new materialists claim that inherited philosophical modes of thinking materiality 1) overemphasize the constitutive, morphogenetic role of culture while failing to adequately think the morphogenetic properties of matter, and 2) fail to consider that biological, physical, and organic processes may be inter- or intra-active[2] with cultural processes (and vice versa).

Several new materialists have pursued the positive, speculative side of thinking morphogenesis in non-oppositional, intra-active terms by extending and generalizing the morphogenetic relationship continental and feminist theorists have referred to as discursive construction or "performativity." If feminist theorists, notably Judith Butler (1993, 2015), have claimed that forms of gender representation do not merely represent the body they reference, but shape the body in systematic ways, new materialists argue that such morphogenetic responses to representation, observation, and categorization are not a priori limited to human activity, nor to the relatively superficial corporeal effects related to the gendering of bodies. Discursive construction may extend to both organic and even inorganic material transactions. In the concluding section, I argue that while the model of a generalized discursivity—or what Karen Barad calls a "posthumanist performativity"—would allow us to reconceive matter in the terms usually reserved exclusively for human activity, some new materialists may be too quick to think of biology and culture as *generally* "intra-active" or mutually constitutive, without giving adequate consideration to the ways they may be mutually closed-off, resistant, or *indifferent*.

The first part of this article details the specificity of new materialist claims regarding the relation between morphogenesis and materialism, particularly their insistence that a philosophical materialism worthy of the name implies the non-transcendental character of morphogenesis. The second part of this article examines how new materialists have both critiqued and (at least in part) endorsed feminist accounts of discursive construction or performativity—motivating projects to generalize discursivity beyond the human. In the final section, I argue that some new materialists problematically equate thinking morphogenesis in

non-transcendental terms with thinking of culture as "internal" to biology. However, to be morphogenetic, cultural forces need not be conceptualized as internal to the biological body, nor as constitutive of the body's essential features. With respect to the body, morphogenetic forces may be internal or external, constitutive (productive) or negative (destructive). For example, cultural forces may act "repressively"—precisely in the sense that Michel Foucault sought to dispel in *History of Sexuality* (more of which below)—inhibiting or constraining certain biological processes. Such "repressive" forces may, nonetheless, also be constitutive or productive (while being exterior to that which they constitute) as when organic matter creatively responds to such constraints. New materialists, then, may require a more pliable set of distinctions than the ones currently employed to capture specific forms of cultural and biological inter- and intra-activity. As my critical considerations indicate, we have only begun to grapple with the sorts of questions the new materialist project raises, and the kinds of relations that characterize morphogenetic processes.

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In a recent article, Malabou argues that a philosophical materialism worthy of the name is concerned with the self-forming and self-organizing features of matter:

> Materialism names the non-transcendental quality of form in general. Matter is that which forms itself all while producing the conditions of possibility of this [self-]formation. Every transcendental instance is necessarily located in a position of exteriority with respect to that which it organizes. By their very nature, conditions of possibility differ with respect to that which they make possible. Materialism affirms the opposite: that the process of formation is not outside. That the self-formation and self-information of matter are consequently, systematically non-transcendental. (Malabou 2016: 36; my translation)[3]

Philosophical materialism—wherever we find it—challenges approaches that repeat the traditional metaphysical opposition between matter and form by treating the latter as a transcendental instance.

Malabou's definition resonates with and sharpens Manuel DeLanda's earlier definition of "neo-materialism" as "based on the idea that matter has morphogenetic capacities of its own and does not need to be commanded into generating form" (in Dolphijn and Van der Tuin 2012: 43). DeLanda's claim may sound so uncontroversial as to go without saying: who today would insist that biological matter is intrinsically passive? However, if contemporary philosophers no longer appeal to metaphysical notions of form, *eidos*, essence, and entelechy, we may find their philosophical successors in notions of programs, structures, and codes.[4] As a consequence, many of our philosophical and scientific theories—wittingly

or not—endorse traditional metaphysical oppositions between form and matter, insofar as they treat form in terms of what Malabou calls a "transcendental instance" (Malabou 2016: 38).

While not usually conceived in transcendental terms, the sort of morphogenetic role feminist theory assigns culture in theories of gendered embodiment may present yet another instance of theory depriving matter of its morphogenetic due. In these accounts, it sometimes appears that the body's material substance is passively "commanded" into generating form. The one-sided nature of such exchanges ought to be replaced, Barad among others have argued, with a notion of intra-action: entangled, morphogenetic agencies. Here, biological and cultural forces—and their apparent ontological distinctiveness—emerge through intra-action. And this intra-activity is, for Barad, the source of endless transformative potential.

If a genuine materialism contrasts with any view that would see form imposed on a passive matter as if from without, such a materialism is nonetheless compatible with the view that not all morphogenetic forces are "intrinsic" or "internal" to matter. While Malabou observes that "the transcendental necessarily finds itself in a position of exteriority with respect to that which it organizes," it is worth emphasizing that not all instances of morphogenetic "exteriority" are "transcendental instances" in the relevant sense—depriving matter of its intrinsic morphogenetic properties (Malabou 2016: 38). This point deserves underlining because the force of new materialist critiques is directed at accounts of cultural morphogenesis that fail to factor the auto-morphogenetic properties of material substance. But "culture" here does not—at least it does not always—name a transcendental structure, but a material force distinct from biological morphogenesis. That culture can "command" matter from "without" is compatible—as is not always sufficiently acknowledged—with the claim that matter is also self-forming. Further, the claim that cultural morphogenesis is exterior to matter does not imply that it may not also be (indirectly) constitutive of that which it shapes. As will become clearer below, these points tend to get conflated in the literature in a way that can cause considerable philosophical confusion. The aims and assumptions of new materialist projects would be more accessible if the difference between transcendent and transcendental morphogenetic forces were clarified.

Following Malabou's and DeLanda's guiding thread, then, I want now to develop the claim that what makes new materialism *new*, is not simply its insistence on questions related to material morphogenesis, nor its diagnosis of the remarkable tenacity of the form/matter dualism in philosophical thinking, but the way it re-centers the question of morphogenesis through critiques of inherited philosophical tendencies that inhibit thinking morphogenesis in non-transcendental, immanent terms and in particular inhibit thinking of matter as "literate," "responsive," "vital," "lively," and "vibrant."[5] These tendencies include but are not limited to: idealism/correlationism—the tendency to see the problem

of matter through the lens of the epistemological problem of access—linguistic formalism[6] ("inscriptivism")—the tendency to view all morphogenesis on the model of graphic writing with matter as substrate—"representationalism"—the tendency to limit representational capacities to intentional (human) agents—and, relatedly, the limitation of discursive or performative morphogenetic processes to the role that culture plays in producing the bodies it interpellates. Diagnosing the philosophical problems generated by these positions motivates the positive or speculative project of re-thinking morphogenesis.

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New materialists have a complex relationship with what we might call, following Rosi Braidotti's (2002) suggestion, "continental materialism":

> The notion of the embodied or enfleshed subject is central to . . . the kind of philosophical *materialism* which I support. Historically I see it as one of the most fruitful aspects of Continental philosophy, namely the extent to which it highlights the *bodily* structure of subjectivity and consequently also issues of sexuality and sexual difference. The embodiedness of the subject is a form of bodily materiality *not of the natural biological kind* . . . but the complex interplay of highly constructed social and symbolic forces. (20; my emphasis)[7]

Braidotti highlights the extent to which continental philosophy has insisted on theorizing subjectivity in material terms, as embodied (and in particular as sexed). Such an embodied subject implies, as she specifies, a form of materiality distinct from—indeed, apparently opposed to—a biological or natural kind of materiality. This bodily materiality is apparently wholly the effect of a "complex interplay of . . . social and symbolic forces" (Braidotti 2002: 20). Here cultural and social forces are "internal" and constitutive of bodily materiality, but the latter remains distinguished from and opposed to a biological or natural materiality. Hence, it seems, we are left with two bodies and two forms of materiality with no way to conceive of their relation.

However productive CM may have been for thinking through the question of embodied *subjectivity*, the oppositional logic reinscribed in its notion of bodily materiality marks the decisive limits of this productivity. This limit is perhaps best attested to by Braidotti's own approach to morphogenesis and bodily becoming. She grounds the latter in a "vital neomaterialism"—drawing on Spinozistic views of matter as "intelligent and self-organizing"—that explicitly breaks with the sort of dualisms animating CM (Braidotti 2018: 4). Other new materialists have specifically criticized CM as unjustifiably excluding the biological and organic from consideration. One such influential critic, Elizabeth Wilson, commenting on the prominent role of such accounts in feminist theorizing of the body, argues:

> Problematically, much of the feminist work on embodiment seems to gesture towards a flat organic realm *elsewhere* as a way of securing a more valuable or dynamic account of the body closer to home. The organic—conceptually dull and politically dangerous—lurks at the periphery of these texts, *underwriting the claims about embodiment that are made*. . . . [T]oo often, it is only when anatomy or physiology or biochemistry are removed from the analytic scene (or, in what amounts to much the same gesture, these domains are considered to be too reductive to be analytically interesting) that it has been possible to generate a recognizably feminist account of the body. (Wilson 2015: 58; my emphasis)

For theorists like Wilson, what is problematic about such accounts, is not that they insist on non-biological forms of morphogenesis—or that "symbolic and social" forces have morphogenetic force—but rather that they think cultural morphogenesis at the expense of thinking the nature or status of the very matter that is central to their accounts.

Notice, for instance, that the "complex *interplay*" at the center of Braidotti's description of cultural morphogenesis (2002: 20)—productive of the bodily materiality in question—is between apparently heterogeneous *cultural* forces, not between cultural *and* biological forces. Whatever produces bodily subjectivity, then, is not immanent to organic matter but external to it, and the relation between the latter and the affirmed bodily materiality remains enigmatic. Theorists have argued that such accounts—which focus on the constitutive role of culture forces—are "underwritten" by assumptions of a passive material substrate ready to be formed/inscribed by active cultural forces.[8]

Continental materialisms characteristically reject "essentialist" views of the body—including biologistic ones—that allow us to see the body as a stable entity located outside the vicissitudes of culture and history. Their aim, by contrast, is to think the ways in which cultural and historical forces may be constitutive of the body, and of its "essential" or "intrinsic" features. (If the latter terms are in scare quotes, it is precisely to the extent that these accounts challenge intuitions that the bodily features [e.g., sexual difference] are intrinsic or essential).

For example, according to Foucault, genealogical approaches to the body would reveal the body as "the inscribed surface of the events . . . totally imprinted by history and history as the destruction of the body" (Foucault 1991: 83).[9] Relatedly, his critique of the "repressive hypothesis" in *History of Sexuality* (volume I, 1980) challenges the view that culture acts primarily as a mechanism suppressing the body's "essential" or "biological" functions or urges. The opposite of the repressive hypothesis, Braidotti (2006) notes elsewhere, invoking the distinction in ancient Roman Law between *potestas* (repression) and *potentia* (productivity), is the idea that cultural forces are both constitutive of the body and its potentials or capacities (250). In this way, we have no way of knowing in advance what the body is capable of, or as Deleuze's Spinoza says, "we don't know what a body can

do." Nonetheless, in these accounts the production of the body's *potentia* (possibilities) is most often attributed one-sidedly as "history," "power," or "culture."

In contrast to the genealogical approach, Derridean deconstruction argues that the distinction between culture and nature ought to be understood as a relation of difference and deferral—*différance*. Or, alternatively, in terms of a relationship of essential supplementarity or original prosthesis, wherein "nature" would turn out to be always already culture and vice versa (Kirby 2010). Moreover, in *Of Grammatology* Derrida (1998) famously claimed that the structure of writing and textuality included not only literary texts and language but life at large—writing was absolutely general, where writing and trace would be presumably morphogenetic principles.[10] However, as Vicki Kirby (2010) argues, the claim Derrida makes, that culture ought to be understood as nature different and differing, has most often been heard as a *de dicto* claim about the conceptual terms "nature"/"culture" and not as a *de re* (realist) claim about the metaphysics of nature and culture. Instead of thinking, as Elizabeth Grosz (1994) suggests, of how nature may be open to culture, we think of the "entangled" or "constructed" nature of our *ideas* about nature/culture. In this way, as DeLanda has argued, deconstruction, which seemed to promise a kind of novel form of philosophical materialism, turns, at least in the hands of its inheritors, into a form of idealism where we purportedly gain an understanding of the principles producing our categories rather than the morphogenetic principles producing things themselves.

Barad and Kirby claim that what is missing from continental materialisms are *realist* accounts of how nature and culture/history come to be entangled, or again the thought of *différance* and supplementarity as ontological relations. Interestingly, as Barad (2003) notes, Foucault did aim for and even articulate such a realist project, seeking an account of the body where the biological and cultural could be understood as an interchange of vital energies. She founds such an interpretation on textual material such as the following:

> The purpose of [a 'history of bodies'] is . . . to show how deployments of power are directly connected to the body—to bodies, functions, physiological processes, sensations, and pleasures; far from the body having to be effaced, what is needed is to *make it visible* through an analysis in which *the biological and the historical are not consecutive to one another . . . but are bound together in an increasingly complex fashion* in accordance with the development of the modern technologies of power that take life as their objective. Hence I [envisage] . . . a 'history of bodies' and the manner in which what is most material and most vital in them has been invested. (Foucault 1980: 151–52; my emphasis)

Yet, according to Barad, in the absence of a specific accounting of the body as biological and the relation of this body to power, Foucault's account of the body assumes the very *consecutive* relation between biology and history that he sought

to avoid. "Biology" names the pre-history of history's perpetual displacements and investments (Barad 2003: 809). A more plausible account of the relation between biology and the history of *cultural* investments, then, is what a new materialism would achieve.[11]

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Feminist accounts of embodiment have been strongly influenced by continental materialism, most obviously via the work of Butler. Such accounts usually begin with the rather narrow question of the role of culture in producing *gendered* bodies, and as Braidotti (2002) highlights, with/in the (necessarily) bodily structure of gender. *Gendered* bodies are morphologically distinguished in ways that permit us to sort and classify bodies according to gender schemes. Yet, feminists have argued that gendered morphologies are actually the effects—rather than the causes—of the classificatory conditions. Gendered bodies are the effects of a kind of interactive loop. As philosopher Sally Haslanger writes:

> Our classificatory schemes . . . do more than just map pre-existing groups of individuals; rather our attributions have the power to both establish and reinforce groupings which may eventually come to 'fit' the classifications. This works in several ways. Forms of description or classification provide for kinds of intentions. . . . But also, such classifications can function in justifying behavior . . . and such justification, in turn, can reinforce the distinction. (2000: 44–46)

Barad (2003) argues that such accounts of the body's discursive construction have the resources for challenging continental materialisms' constitutive exclusion of matter but end up preserving it instead by specifying discursivity in terms of human forms of intentionality (801). Feminist accounts do not deny that the body is *material*, but at the same time they have no way of talking about how the body's materiality might "actively matter" in the morphogenetic processes they specify. Biology is constitutively excluded in order, as Wilson (2004) argued, to produce a "recognizably feminist account of the body" (70). If the body is thought as discursively constructed, as responsive to the cultural claims made on it, the body's "own" morphogenetic capacities fail to figure. Barad asks:

> If discursive practices constitute a productive social or cultural field, then how much of the very matter of bodies, both human and nonhuman, can be accounted for? . . . Are we to understand matter as a purely cultural phenomenon, as the end result of human activity? . . . And if not, then how can we explain what nature is in relation to this cultural field? Are there significant ways in which matter matters to the very process of materialization [that Butler describes]? (2007: 64)

Both Wilson and Barad suggest that discourse can be constituted as a "creative" and "productive" field only by uncritically excluding or bracketing the biological. In these accounts, "biology" refers, negatively, to that which is not the effect or product of discourse—making the biological and the non-discursive co-extensive. Yet such an assumption acts as a *petitio principi*: we have no warrant to assume that "biology" actually is extra-discursive, or outside the "creative" or "productive field" that Culture names, rather than referring to the effect of a complex entanglement of forces, as Barad argues it ought to be understood.

The exclusion of the biological in accounts of discursive construction *begs the question* of the status of the biological. We never get nor are asked to consider any justifications for thinking that biological bodies are *actually* "indifferent," unresponsive, and inert *vis-à-vis* cultural forces. Rather, following the traditional dualism, we assume that organic matter is extra-discursive because we assume that culture and nature do no communicate, do not relate, do not, in short, speak the same language. Wilson (2015) argues that if feminist accounts of the body typically bracket questions about the status of biological matter, it is because they confound the claim that the features of gendered bodies cannot be *reduced* to biological forces with the claim that biology is too reductive (or indifferent) to *matter* to cultural morphogenesis.

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According to Barad (2003) one of the problems with feminist theory is its failure to capitalize on its theoretical strengths. It offers only an incomplete critique of "Representationalism"—the view that representation is a second-order, morphogenetically inert process vis-à-vis a first-order reality essentially indifferent to it. While it specifies the discursive or performative construction of gendered bodies as a case of representations producing their material referents, these cases remain, ontologically speaking, exceptional, leaving in place the rule of an indifferent material nature. In the final instance, as philosopher Ian Hacking (1999) has affirmed, discursively produced kinds are coextensive with human kinds. Matter, Hacking insists, can be formed or shaped from without—exhibit morphogenetic responses—but this is not due to any awareness on its part (34).

New materialists, on the other hand, aim to challenge such assumptions about the non-generalizability of discursivity to non-human processes, widespread as they are in both scientific and philosophical discourses, in order to affirm (without scare quotes) the possibilities that "matter feels, converses, suffers, desires, yearns and remembers" (in Dolphijn and Van der Tuin 2012: 48); or, as Kirby writes, "[t]he very features that are ascribed to culture—literacy and numeracy—can be observed in nature" and in bodily processes (e.g., dermotographia) marginalized in medical literature (Kirby 1999: 20).

Wilson is a leading thinker of "intra-active" materiality in feminist theory and medical (psychological) practice, and her work is productively read as an important step in refuting the supposition that discursive effects are limited to "human" kinds. Wilson (2004) argues that engaging with biological data (if not always biologists' interpretations of this data) allows feminist theory to conceive of organic materiality as entangled with psychic representation. Reconstructing a debate between Freud, who brackets the physical body in his discussion of hysteria, and his younger interlocutor, Sandor Ferenczi, who sought to understand hysteria in terms of the relation between the psychic and the physical, Wilson retrieves from the latter a notion of "a primitive kind of psychic action (motivation, deliberation) [that] is nonetheless native to biological substance" (2004: 77). If there were "primitive psychic action" in the body, this would require that we rethink the dualistic relation between the body and the psyche, developing concepts of "agential" biological matter. According to Wilson (2004), until we develop an account of biological matter that allows us to understand how the body "materializes" and "somatizes"—Wilson writes "knows about"—psychic life, we will have impoverished accounts of the body and of "mental" health.

In addition to developing schemas for thinking the discursivity or intra-activity of non-human material processes, new materialists also challenge the assumption that biological processes are not interactive with cultural morphogenesis. An adequate theory of cultural morphogenesis and—even more narrowly—of gender's discursive construction may challenge what turns out to be, in light of new materialist critiques, a surprisingly strong biological essentialism at the heart of theories of discursive construction, namely the view that the body's *biological* possibilities or capacities—whatever these turn out to be—are established independently of cultural conditions.

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We have seen, with some specificity, what it means to think of material process in terms of discursivity of performativity, and how this might allow us to devolve the "agential" or "intentional" properties we often take to uniquely define the human to material and biological processes. It is, however, less clear that new materialist critiques of inherited ways of theorizing cultural morphogenesis always hit their marks. It is true, as Malabou (2016) writes, that materialism involves thinking of morphogenetic forces in non-transcendental terms, but substantially less clear that materialism implies thinking of all morphogenetic forces as "internal" to (productive of) the matter it shapes. Nor is it clear that in order to be "constitutive" or "productive" of the body's morphological features it is necessary to think of cultural forces as intra-active or producing the bodies' *biological* potentials and capacities.

With the goal of thinking, as Grosz (1994: x) writes, the senses in which nature is always already *open* to culture, displaced and co-constituted by it, we may inadvertently fail to think the ways in which culture and nature actively maintain themselves in their difference and distinction, as mutually excluding domains.[12] Adopting the intra-activist perspective, we may now find it difficult to think the possibility of closure and its meaning. Cultural forces may be exterior to the biological bodies they form, acting in repressive ways that are, as feminist theorists of the body have long suggested, *destructive* of the body's potential and capacities.[13] At the same time, as Malabou's work on plasticity and Wilson's work on biological "repression" establish, repressive forces need not be thought of as uniquely destructive or negative. In the case that the bodily organization these confront is itself plastic—sensitive if not necessarily to how it is represented, then to the economic costs of resisting certain constraints versus finding "work-arounds." Creative responses to repressive forces may produce novel corporeal and subjective possibilities.

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Notes

1. Pointing to Saussure's inability to dislocate or abstract the sign from the material reality with which it is articulated, and diagnosing this "failure" as potentially the most radical and productive aspect of his linguistic reflections, Vicki Kirby's *Telling Flesh* (1997) argues (*avant la lettre*) against Malabou's insistence on the necessarily transcendental nature of the sign. In this return to Saussure, Kirby's analysis can be read as an attempt to ground some of the materialist promises of "archi-writing" in Derrida's *Of Grammatology*, which also hinges on a reading of Saussure. If Kirby is right about the entanglement of sign and "flesh," as I think she is, then her account in *Telling Flesh* also resists Malabou's diagnosis of Derridean "writing" as insufficiently materialist. See Goldgaber (2017) for a development of this interpretation.
2. For Barad, "intra-action," as opposed to inter-action, "[s]ignifies the mutual constitution of entangled agencies. That is, in contrast to the usual 'interaction,' which assumes that there are separate individual agencies that precede their interaction, the notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action. . . . [A]gencies are only distinct in relation to their mutual entanglement; they do not exist as individual elements" (Barad 2007: 33; emphasis in original). Baradian intra-activity has an exceedingly wide ontological purview: it describes a kind of meta-relation that encompasses all manners of specifiable morphogenetic relations. Generally speaking, intra-activity refers to any relation constitutive of its relata: "On an agential realist account, matter does not refer to a fixed sub-stance; rather, *matter is substance in its intra-active becoming—not a thing, but a doing, a congealing of agency. Matter is a stabilizing and destabilizing process of iterative intra-activity*. Phenomena—the smallest material units (relational

'atoms')—come to matter through this process of ongoing intra-activity" (Barad 2007: 33; emphasis in original).

3. The original, French text reads: "Avant de commencer la démonstration, permettez-moi de proposer quelques définitions. Le matérialisme nomme la qualité non-transcendantale de la forme en général. La matière est ce qui se forme tout en produisant les conditions de possibilité de cette même formation. Toute instance transcendantale se trouve nécessairement en position d'extériorité par rapport à ce qu'elle organise. Par sa nature, la condition de possibilité diffère de ce qu'elle rend possible. Le matérialisme affirme le contraire: que le processus de formation n'a pas de dehors. L'auto-formation et l'auto-information de la matière sont par conséquent systématiquement non-transcendantales" (Malabou 2016: 36).
4. Andres Vaccari finds, in his reconstruction of the notion of "program" in the work of Bernard Stiegler, precisely such a transcendental notion of form. See Vaccari (2009).
5. On the language of vibrancy and vitality see especially Jane Bennett (2010) and Barad's interview in Rick Dolphijn and Iris van der Tuin (2012). There Barad writes: "Along with other new materialist feminists—Vicki Kirby is notable in this regard—feeling, desiring and experiencing are not singular characteristics or capacities of human consciousness. Matter feels, converses, suffers, desires, yearns and remembers" (59).
6. See Malabou's critique of Derrida's grammatological project in Malabou (2007), and Butler's critique of Michel Foucault's inscriptivist model of cultural morphogenesis in Butler (1989).
7. Interestingly, in the most recent edition of *Metamorphosis* (2013), Braidotti alters her description non-trivially. On the basis of this change, one might reasonably infer that Braidotti, a key figure in the neo-materialist tradition, has come to see more clearly the problems inherent in CM (as I suggest in the paragraph following). In any case, my main point in emphasizing this passage from the original edition is not to make a case for the limitations of *Braidotti's* philosophical positions on embodiment and morphogenesis, but rather the limitations of the inherited view of the body and materiality we get from continental theory. Braidotti's work is notable for the way in which it departs from this tradition, while productively transforming some of its key insights.
8. Here in particular see Wilson (2015), but also Grosz (1994) and her critique of inscriptivist metaphors in *Volatile Bodies*.
9. Butler famously critiqued Foucault's genealogical account of the body for its inscriptive metaphor. She argues that for Foucault, culture is figured as a kind of relentless writing-machine. In this case, Butler argues, the very body that is meant to be historicized or the very historical materialism that Foucault's genealogical project promises to inaugurate is (after all) positioned as external to culture, with culture as a kind of exterior or transcendental morphogenetic force. In *Bodies that Matter*, by contrast, Butler (2015) promises to explain how "morphogenesis is historically contingent" (91) and how cultural morphogenesis causes a "materialization of the norm in bodily formation" (ibid: 16)—but the question of morphogenetic processes is indefinitely deferred in favor of the question of our knowledge and interpretation of such processes, and in particular how a "heterosexual [conceptual] matrix" (ibid.: 11) may determine or condition such knowledge. If Foucault leaves matter ontologically "outside" the cultural text, Butler's matter is "always already" culturally informed.

In many respects, Butler's philosophical materialism attempts to incorporate the insights of both Derrida and Foucault, and ends up revealing the weakness of both approaches in establishing a coherent philosophical materialism.

10. Malabou, for her part, argues forcefully that writing can never be a genuinely materialist principle, precisely because the image of graphic writing involves us again in the kind of form/matter distinction that always leaves matter out, as the passive substrate of inscription, or else, as the notion of code or programme would be another "transcendental instance" she identifies as anti-materialist.
11. For an excellent account of Barad's critique of Foucault that also attempts a revisionary, new materialist-inflected reading of Foucault's notion of "government of things," see Lemke (2015).
12. In *Volatile Bodies*, Grosz (1994) insists on the *biological* materiality of the body, but her account suggests that the biological body is limitlessly open to cultural displacements: "I will deny that there is the 'real,' material body on one hand and its various cultural and historical representations and cultural inscription on the other. It is my claim . . . that these representations and cultural inscriptions quite literally constitute bodies and help produce them as such" (x).
13. See especially Iris Marion Young's (2005) seminal essay "Throwing Like a Girl" for such an account of cultural morphogenesis as destructive of the body's capacities.

References

Barad, Karen. 2003. "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter." *Signs* 28(3): 801–31. https://doi.org/10.1086/345321

Barad, Karen. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham, NC: Duke University Press. https://doi.org/10.1215/9780822388128

Bennett, Jane. 2010. *Vibrant Matter: A Political Ecology of Things*. Durham, NC: Duke University Press. https://doi.org/10.1215/9780822391623

Braidotti, Rosi. 2002. *Metamorphoses: Towards a Materialist Theory of Becoming*. Cambridge: Polity Press.

Butler, Judith.1989. "Foucault and the Paradox of Bodily Inscriptions." *Journal of Philosophy* 86(11): 601–07. https://doi.org/10.5840/jphil198986117

Butler, Judith. 1993. *Bodies That Matter: On the Discursive Limits of "Sex."* New York: Routledge.

Butler, Judith. 2015. *Gender Trouble: Feminism and the Subversion of Identity*. New York: Routledge.

Derrida, Jacques. 1998. *Of Grammatology*. Translated by Gayatri Chakravorty Spivak. Baltimore: Johns Hopkins University Press.

Dolphijn, Rick, and Iris van der Tuin. 2012. *New Materialism: Interviews and Cartographies*. Ann Arbor, MI: Open Humanities Press. https://doi.org/10.3998/ohp.11515701.0001.001

Foucault, Michel. 1980. *The History of Sexuality. Volume One: An Introduction*. Translated by Robert Hurley. Vintage Books.

Foucault, Michel. 1991. "Nietzsche, Genealogy, History." In *The Foucault Reader*, edited by Paul Rabinow. London: Penguin.

Goldgaber, Deborah. 2017. "Programmed to Fail?: On the Limits of Inscription and the Generality of Writing." *Journal of Speculative Philosophy* 31(3): 444–56. https://doi.org/10.5325/jspecphil.31.3.0444

Grosz, Elizabeth. 1994. *Volatile Bodies: Toward a Corporeal Feminism*. Bloomington: Indiana University Press.

Grosz, Elizabeth. 2012. "The Nature of Sexual Difference." *Angelaki* 17(2): 69–93. https://doi.org/10.1080/0969725X.2012.701049

Hacking, Ian. 1999. *The Social Construction of What?* Cambridge, MA: Harvard University Press.

Kirby, Vicki. 1997. *Telling Flesh: The Substance of the Corporeal*. New York: Routledge.

Kirby, Vicki. 1999. "Human Nature." *Australian Feminist Studies* 14(29): 19–29. https://doi.org/10.1080/08164649993308

Kirby, Vicki. 2010. "Original Science: Nature Deconstructing Itself." *Derrida Today* 3(2): 201–20. https://doi.org/10.3366/drt.2010.0204

Lemke, Thomas. 2015. "New Materialisms: Foucault and the 'Government of Things.'" *Theory, Culture & Society* 32(4): 3–25. https://doi.org/10.1177/0263276413519340

Malabou, Catherine. 2007. "The End of Writing? Grammatology and Plasticity." *The European Legacy* 12(4): 431–41. https://doi.org/10.1080/10848770701396254

Malabou, Catherine. 2016. "Où va le matérialisme? Althusser/Darwin." *Lignes* 3(51): 36–51. https://doi.org/10.3917/lignes.051.0036

Vaccari, Andrés. 2009. "Unweaving the Program: Stiegler and the Hegemony of Technics." *Transformations* 17. http://www.transformationsjournal.org/wp-content/uploads/2017/01/Vaccari_Trans17.pdf.

Wilson, Elizabeth. 2004. *Psychosomatic: Feminism and the Neurological Body*. Durham, NC: Duke University Press. https://doi.org/10.1215/9780822386384

Wilson, Elizabeth. 2015. *Gut Feminism*. Durham, NC: Duke University Press.

Young, Iris Marion. 2005. *On Female Body Experience: "Throwing Like a Girl" and Other Essays*. Oxford: Oxford University Press. https://doi.org/10.1093/0195161920.003.0003