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## Phenomenon and Thing: Barad's Performative Ontology

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### Abstract

This paper considers Karen Barad's conceptions of 'phenomena' and 'intra-action', arguing that beings and phenomena are *plastic*. 'Plasticity' is not itself a term used by Barad, yet everything in her critique of things, individuals, or pre-existent determinate properties points to the presence of this concept as being operative in her ontology even if the signifier is absent. In conceiving things as plastic, we open up a possibility of approaching phenomena as fields of capacities and powers that can be creatively actualized in a *variety of ways* under different interactions. Bodies, things, are not defined by their properties but by their *capacities* or powers, and we never have a fully or fixed inventory of those capacities.

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### Phenomenon and Thing: Barad's Performative Ontology

[1] *An old man, with a chest like a steel barrel and arms and legs like strong gnarled trees, walks along the docks in the summer heat. Waves crash and lazy gusts of wind blow in from the ocean, while seagulls sing their songs to one another as they announce the presence of various bits of food left about by beach tourists. His skin is creased and craggy, ravaged by psoriasis. His gait is peculiar. His feet somewhat far apart like the wishbone of a chicken, he strolls along with his shoulders square. Like an ancient sequoia or a mountain, there's something about his movement that seems absolutely solid, immovable, beyond all disruption. How does one come to walk this way?*

[2] *An astronaut's pulse pounds as she climbs down from the vessel within which she's been imprisoned for so long and places her boot, the first in human history, on the fine, sandy surface of Mars. Within her helmet she hears only the beating of her heart and the labored excitement of her breath. It's an eerie ecology of sound, as if the sonic signatures of her body were the only things that exist. Tentatively she begins to stroll across the landscape of the planet. She's surprised at how strange her body feels, at how it seems to be governed by an entirely new mechanics. While the 300 day voyage had accustomed her to weightlessness, this was something different. Normally a strong and athletic 125 lbs, here she is 47.1 lbs. and feels positively Herculean. As she tries to walk as she would on Earth, she finds that she keeps stumbling and falling as she seems to fly off the ground. After trial and error, she begins to get the hang of things. The trick is to combine the galloping of a horse with the sideways walk of a crab. On*

Mars, she thinks, with a gleeful smile to herself, you do not 'walk', but 'crallup'.

[3] In Prosper, Texas, a man smiles to himself as he prepares to wash dishes following a barbecue he threw for beloved friends. He's pleased with the food he cooked, with the enjoyment he saw in the faces of his guests, and a happy warmth fills his chest as he listens to the chatter of his friends as they sip beer while the cool night approaches. He had worried about whether anyone would be able to bear the godawful heat that had held his small town under siege for the last week. 107 °F (42 °C). What were people thinking when they settled in this place? Still the fans on the patio seemed to make the outside tolerable. He goes to pull off his ring, an inheritance from a departed uncle that taught him so much while growing up, so he won't scratch it while cleaning, but it won't budge. His knuckle chafes painfully as the edge of the ring catches against it. "But I've lost weight!", he exclaims to himself in surprise.

[4] As magnificent as they are, it does not seem to us that her reflections on quantum mechanics mark the core of Karen Barad's extraordinary thought. Rather, her engagement with Niels Bohr and quantum mechanics instead serve as an exemplary instance to illustrate something far more fundamental and pervasive. With Barad, ontology and epistemology become *performative*. It is the concept of performance—and its companion, phenomenon—that lies at the heart of Barad's thought. Being, existence, is performative and there are only phenomena.

[5] However, the moment this is claimed, it becomes necessary to introduce qualifications. The term 'performance' is likely to evoke connotations of *theatrical* performances where an actor on a stage plays the role of a character. Here performance is thought of as the *fictional* enactment of a role, where humans don identities like so many outfits. Likewise, within the discipline of philosophy, the term 'phenomenon' all too readily suggests something given to and restricted to human *consciousness*. For Kant, for example, our knowledge is restricted to phenomena, to how things are given *to us* in experience, and we are forbidden from attributing the features of the phenomena as given in experience to things-as-they-are-in-themselves. For Kant, we can never know whether causality is actually operative in things themselves, apart from us, or whether this is only true of things as they *appear* to us.

[6] If 'performance' and 'phenomenon' are understood in these ways, then all that Barad is striving to accomplish is aborted from the outset; for Barad is both a realist and a materialist. As a realist, Barad is highly critical of the *social* constructivisms and linguistic turn that have dominated theory for the last few decades. As Barad observes,

Language has been granted too much power. The linguistic turn, the semiotic turn, the interpretive turn, the cultural turn: it seems that at every turn lately every "thing"—even materiality—is turned into a matter of language or some other form of cultural representation. The ubiquitous puns on "matter" do not, alas, mark a rethinking of the key concepts (materiality and signification) and the relationship between them. Rather, they seem to be symptomatic of the extent to which matters of "fact" (so to speak) have been replaced with matters of signification (no scare quotes here). Language matters. Discourse matters. Culture matters. There is an important sense in which the only thing that doesn't seem to matter anymore is matter. (Barad, 132)

[7] In fact, Barad sees the assumption of representations as a mediator between a subject and the world

as the *shared* assumption of both *epistemological* realism and the antirealism of the linguistic turn and *social* constructivism (Barad, 48). In both of these cases, the question is one of whether or not our representations mirror the world as it exists apart from us. The epistemological realist holds that our representations map on to a reality independent of us, while the antirealist holds that our representations construct that 'reality' such that there is no adequation or correspondence between representation and world. Barad sees both forms of representationalism—all positions that draw a sharp distinction between word and world—as dead ends that are fundamentally mistaken in their basic premises.

[8] If Barad's concept of performance were that of 'playing or animating a role', she would still be in the orbit of representationalism. Her performativity would be that of Nietzsche's, where beings wear a mask (a representation) without any identity behind the mask. Barad indeed rejects identity. As she will say:

The world is not populated with things that are more or less the same or different from one another. Relations do not follow *relata*, but the other way around. Matter is neither fixed and given nor the mere end result of different processes. Matter is produced and productive, generated and generative. Matter is agentive, *not a fixed essence or property of things*. (Barad, 136-7, my italics)

[9] Elsewhere in the same text she will criticize "...the belief that the world is populated with individual things with their own independent sets of determinate properties" (Barad, 19). However, her rejection of self-identical entities with determinate properties will not be motivated by an antirealist project of demonstrating that there is no real, that there is no culture independent of materiality, but only different ways in which cultures represent or signify the world. What Barad calls 'phenomena' are both *real* and material. They are not *idealist* constructions and they have an objectivity proper to them.

[10] The thesis is not that phenomena lack identity due to the differential play of language that carves up the world, nor that there is no being of beings because different cultures signify the world differently. Rather, the thesis is that beings, phenomena, are *plastic*. 'Plasticity' is not itself a term used by Barad, yet everything in her critique of things, individuals, or pre-existent determinate properties points to the presence of this concept as being operative in her ontology even if the signifier is absent. A being is plastic if it is characterized as fundamentally alterable in form, qualities, and capacities. It is here that we get a sense of what Barad is after with her concept of performativity. While 'performativity' can denote theatrical performances such as playing the role of a character, it can also denote actions or activities. For example, when a chemical reaction occurs, such as something burning, a series of performances or operations take place whereby one set of entities is transformed into another set of entities. Understood in this sense, performance is not the *representation of* something through language or concepts, but rather consists of material beings really and truly acting upon one another. Sometimes these performances will involve human beings or other living beings, while at other times humans and the living will be entirely absent. The process of oxidation that produces rust in iron takes place regardless of whether or not humans witness it or know about it, and is no less a performance for Barad than cooking a meal. There is no representation here, only beings acting upon one another and modifying each other.

[11]

[11] Having clarified the sense of performance Barad deploys, it is nonetheless necessary to proceed with caution; for the term 'performance' tends to harbor a particular conceptual grammar. When we think of performances our tendency is to think of a performer or performers behind the performance. We thus think something like the following:

P acts on y producing q

[12] Here P would stand for 'performer' or 'agent', y for another entity, and q for a quality. For example: the cook sautés the vegetables making them tender. However, this formulation would fall back into the representationalism that Barad wishes to avoid. 'Representation' does not simply entail a theoretical framework within which words or concepts stand for things, but also denotes a form of thought in which there are pre-existent entities with determinate and abiding qualities. The formulation above presupposes such an ontological framework insofar as it assumes pre-existent, self-identical entities in the form of performers that act on other entities.

[13] Yet Barad is quite clear in rejecting the existence of things or performers in this sense. As she remarks,

...the primary unit is not independent objects with independently determinate boundaries and properties but rather... "phenomena." In my agential realist elaboration, phenomena do not merely mark the epistemological inseparability of observer and observed, or the results of measurements; rather, *phenomena* are the *ontological*, inseparability of agentially intra-acting components. (Barad, 33, original italics)

[14] It is difficult to put these things into words as we have an inherently 'thing-centric' language; however, Barad's point is that individual entities do not *precede* intra-actions between components. "[T]he notion of intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action...[T]he 'distinct' agencies are only distinct in a relational, not an absolute, sense, that is, *agencies are only distinct in relation to their mutual entanglement; they don't exist as individual elements*" (Barad, 33, original italics). It is this commitment to entities arising *from* intra-actions rather than preceding intra-actions that motivates Barad's use of the unusual term 'intra-action'. The concept of *interaction* suggests pre-existent entities that then enter into interaction with one another, whereas 'intra' signifies 'within' or 'inside of', and therefore captures the sense of a unitary event or process in which the components do not possess discrete existence. A performance, in Barad's sense, is just such an intra-action among internally related components.

[15] A phenomenon, then, would be the unity of intra-acting components produced in a performance. A more accurate formalization of Barad's concept of performance would look something like the following:

$p \leftrightarrow ((x \leftrightarrow y) \leftrightarrow (x \& y))$

[16] Here x and y signify unspecified components, the biconditional sign ( $\leftrightarrow$ ) indicates x acting on y, and y acting on x, and p signifies 'phenomenon'. We might read this formula as: there is a phenomenon if and only if there is an intra-action between x and y, if and only if x and y exist together. In other words, Barad's point is that the being of entities x and y is unspecified independent of their intra-action. Indeed,

for Barad  $x$  and  $y$  do not exist at all independent of one another.  $X$  and  $y$  might be *precipitated* as distinct and discrete things as a result of their intra-action, yet they were not there prior to that intra-action. We will raise some questions about potential problems with this thesis in a bit.

[17] Each of the vignettes at the beginning of this essay illustrates Barad's concepts of performance as intra-action and phenomena with respect to human bodies in a different way. In the case of the gait of the old man—my grandfather, in fact—we witness the *result* of a lifetime spent at sea. Having worked on barges and tugboats for most of his life, my grandfather developed a particular way of walking and standing in response to the wave action of the Atlantic Ocean. His way of standing and walking is a sort of muscle memory, a disposition to hold and move himself in a particular way, that optimizes stability on an ever moving surface. It is as if the waves had been made flesh, though this is not quite accurate insofar as his particular way of walking and standing results *neither* from the waves *nor* his body, but rather from the *collaboration* of the two. It is the intra-action of the muscles and bones of his body, the waves, and the shifting surface of boats and barges that produced this phenomenon or unique way of standing and walking.

[18] The case is similar with the weight of the astronaut on Mars. Because Mars is a little less than half the mass of Earth, the astronaut weighs about half of what she would on Earth. In short, her weight is not a *fixed* property of her body—it is not what thinkers like Locke called a 'primary quality'—but rather properties or phenomena such as weight arise from intra-action between entities. Insofar as the astronaut's body evolved for locomotion on a planet with a mass such as that of Earth, she finds that she must significantly adjust how she walks on this alien planet. As she moves about the landscape a bit she gradually adjusts, developing a new form of walking—the 'crallop'—that gets her about most efficiently and with the least amount of falling in this very different gravitational space. The 'crallop' does not simply entail learning about the special properties of Mars, but also involves learning how to use her own body in new and unfamiliar ways, and over time, would very likely entail significant changes to her neurology, musculature, and bone structure. We know, for example, that astronauts orbiting the planet lose significant bone and muscle mass. Similarly, it goes without saying that movement in such spaces generates new neurological schema. There is no reason to suppose that what holds for the zero gravity environments of the international space station would not also hold, in its own way, for different gravitational environments like Mars. Finally, in the case of the man from Texas, he is unable to remove his ring because his fingers are swollen from the unrelenting heat of Texas in August. The shape of his body is not an intrinsic feature or quality of his body, but rather arises from an intra-action between his body and the world about him.

[19] While each one of these instances is a case of the human body responding to other entities in the world about it, what holds here holds for other entities as well. Surprised, we can imagine someone incredulously responding: But what of rocks? Certainly their shape, their color, their other properties are *determinate* features of rocks *independent* of their relations to other entities? Yet this 'phenomenal' nature is true even of rocks. There is, of course, the obvious example of the weight of a rock differing depending on whether it is on the moon or Earth due to differences in gravity. However, the plasticity and intra-active nature of the rock is true of its other properties too. The color of the rock arises from how

it intra-acts with different wavelengths of light raining down upon it. As I have argued elsewhere, entities do not *have* a color, but *color* (Bryant 3.1). Here 'color' should be understood as a *verb* in the sense 'to color'. The brittleness of a rock will be a function of things such as temperature, humidity, the amount of moisture within it, and so on. At extremely cold temperatures, rocks will be liable to flaking and shattering, while at very high temperatures they undergo a phase transition, becoming molten. The properties or features of rocks are the result of intra-actions with the world around them.

[20] We are now in a better position to understand why performance, as Barad understands it, cannot be equated with theatrical performances and why phenomena cannot be understood as what is given to consciousness. In a theatrical performance the actor represents someone else and goes back to being themselves once they are off the stage. While they are certainly changed as a result of their performances, we nonetheless draw a distinction between the actor and the role that the actor plays. Bruce Willis is not John McClane. In the case of an ontological performance, the being *is* the result of this performance or intra-action. The gait of the old man that spent his life at sea is not merely a role that he plays for a few hours, but is a material reality inscribed in his flesh. The weight of the astronaut on Mars is a real feature of her being, so long as she is on that planet. The redness of rocks with high iron content is a real feature of their being in oxygen rich environments. Far from denoting *fiction* or *representation*, performance denotes a series of material intra-actions that produce real and material qualities in things.

[21] The same holds true of Barad's concept of phenomena. In a Kantian tradition, 'phenomena' denotes the manner in which consciousness encounters the world such that our knowledge-claims about the nature of the world and things are *restricted* to how they are given to *us*. This Kantian thesis is *not* the claim that we must observe something in some way or other in order to know it. Every realist, in one way or another, holds this view. Rather, the anti-realist claim is far more radical. It is the claim that we can never know whether the world itself, apart from us, behaves in the way that it is given to us as phenomena. In other words, all our observations indicate that rocks become brittle when very cold. However, whether this is true of reality *apart from humans* is something we can never know as we can never observe the world apart from ourselves; outside our own perspective. As Kant famously said, we "...have to deny knowledge [of things-in-themselves] in order to make room for faith..." (Kant, bxxx). If it could be shown that knowledge claims about the world are restricted to appearances or phenomena, then it would be possible to leave room for faith as reality-in-itself could be quite different than how we experience it. For example, while experience or phenomena might indicate that everything, including our own neurology, is mechanistically determined, this would hold only for the domain of appearances or phenomena. At the level of things-in-themselves, humans might indeed have *free will*. Answering this question would, for Kant, forever be beyond *knowledge* because knowledge is restricted to appearances. However, in showing that knowledge is limited to appearances we are authorized to have *faith* in things such as god or free will.

[22] Barad uses the term 'phenomenon' in an entirely different way. Phenomena take place regardless of whether or not anyone is there to witness them. For example, the phase transition of methane from a gas to liquid takes place just fine without an observer. Titan rains methane whether or not anyone knows

it. The phenomenality of methane lies not in its givenness to consciousness, but rather in its properties—in this case, becoming a liquid—resulting from a network of relations between various agents or entities, generating an entity with these particular qualities. 'Phenomenon' denotes dynamically intra-acting components that are inseparably related to one another.

[23] Profound consequences follow from Barad's relational metaphysics for ontology, epistemology, and ethics. If Barad is right—and I believe she is with a few qualifications—then it follows that what beings are is a result of their dynamic intra-relations with other entities. I will have more to say about how I think this thesis needs to be tempered somewhat further down; however, at the ontological level it follows that properties are not determinate features that exist *in* entities, but rather are the result of causal relations *between* entities. To be sure, the man's swollen fingers are a feature of his body, but this feature results from how his body intra-acts with the world about him. As a consequence, it follows that we cannot think of properties or qualities as *fixed features* of individual entities that they possess inherently independent of their relations to other things. Rather, the properties of an entity are the result of a *dynamic genesis*, a becoming, in tandem with the world about them that produces these properties.

[24] Take the example of how the impact of genes on the phenotype are generally studied today. Genes are treated as a *blueprint* for particular features of the phenotype or developed organism: given genes x, y, and z, blue eyes and brown hair. The *code* that presides over what the organism will become is treated as being there *in* the individual, *independent* of its environment. It conditions everything else, guiding all development, without itself being conditioned. There will be those features of the phenotype contributed by the environment and those features contributed by the genes. Environmental features will be *contingent* in the sense that they are the result of an accidental encounter between the developing organism and some feature of its environment such as a particular chemical or radioactive material. The genes, by contrast, will be treated as 'necessary' in the sense that the features of the phenotype they code for will be said to develop in *all* habitable environments so long as some sort of chemical does not prevent them from doing so. For example, if there are genes that code for eye color or sex, then an organism with this particular genome will necessarily have that particular eye color or sex in all possible environments, while lung capacity, by contrast, might be the result of environment, e.g., someone born in the Andes mountains will likely develop greater lung capacity as a result of the altitude, while the same person born in Amsterdam might have lower lung capacity because the city is below sea level.

[25] However, if Barad is right, then this sort of genetic determinism would be implausible because genes themselves, and the subsequent way in which they assemble proteins (that in turn assemble different types of cells) involve intra-actions all the way down. The point here is nuanced and difficult to miss. The thesis is not that 'genes'—whatever they might be<sup>[21]</sup>—are not causal contributors to developmental processes, but rather that genes, like anything else that exists, are *phenomena* that are the result of all sorts of performances or intra-actions with *extra-genetic* components. When people speak of gene coding for certain features of the phenotype, they are treating genes as if they were *outside* intra-actions with other components, and thereby able to encode information transcendentally without themselves being affected by other components. Yet if Barad is right, this could not be the case as genes are not fixed

entities independent of other entities, but rather are themselves products of intra-actions. This would entail that genes could follow many *different* pathways depending on the intra-actions they enter into over the course of an organism's development. This is not simply a *speculative* conclusion that follows from Barad's ontology. There is a growing body of biological research known as 'developmental systems theory' that forcefully critiques gene-centric accounts of development based on *empirical* evidence and that argues we cannot understand either development or evolution outside the developmental *system* in which the organism becomes. These developmental systems are composed of *both* the environment and the organism, and are essentially what we might call 'intra-active fields'.<sup>[3]</sup>

[26] Now in response to this critique of gene-centrism in biology one might wonder why biologists in the *lab* are able to 'turn genes off and on' producing changes in the phenotype. For example, the laboratory biologist might turn on certain genes in developing fruit flies, leading them to develop an extra set of wings or, grotesquely, to develop a set of legs on their back where their wings would normally be. This question leads to the epistemological consequences of Barad's ontology. What is easily missed here is that in these circumstances the laboratory scientist is specifying an *environment* or an intra-active field. The point is not that the phenomena produced in intra-action are not objective—they are—but rather that they are restricted to the particular intra-active field in which they take place. The error of the laboratory biologist lies not in claiming that when he switches a particular gene off and on such and such an effect is produced, but rather in treating these correlations between genes and features of the phenotype as ranging over *all* environments (or as being independent of environments). However, as biologist Richard Lewontin points out, matters are very different for the *applied biologist* involved in the breeding of plants and animals. Their genetic strains of plants, for example, are grown in a variety of different locations and tracked over the course of a few years. The seed that is eventually chosen for sale to farmers is not necessarily the one that produces the greatest yield, but the one that grows most *consistently* across environments and from year to year (Lewontin, 55-6).<sup>[4]</sup> The lesson of the applied biologist, the agricultural researcher, is that *one and the same* genetic strain can produce *different* phenotypal qualities, and that sameness of the phenotype—in *this* instance—is produced through the selective activity of the scientists through their selection of a particular consistent strain to be marketed to farmers. With respect to the first point, we can therefore conclude that even genes are intra-active in the production of phenomena and therefore cannot be treated as causal hegemony somehow outside the influence of environments.

[27] At the level of epistemology, three consequences thus follow from Barad's agential realism, all of which get at the core of her critique of representation. First, if it is true that all beings are phenomena produced through intra-action then it follows that observer and observed cannot be separated in the way proposed by classical epistemology. Classical epistemology treats the object of knowledge as something independent of the observer that possesses the features it has regardless of whether or not they are observed. As can be seen from the examples of the applied and laboratory biologists above, as well as the copious examples Barad gives from quantum mechanics, the observer is a part of the intra-active field of the observed and plays a role in producing or activating the phenomenon. Here it is important to be cautious. Barad's claim is not that the phenomena produced in these intra-active fields

are only true *for us*. Were that the case she would be yet another Kantian anti-realist in a long line of anti-realists. Presumably they have the characteristic of what philosopher of science Roy Bhaskar calls "transfactuality", where such phenomena are capable of occurring in contexts independent of the observer so long as the proper intra-active fields take place (Bhaskar, 14). The point is that the observer takes an active role in producing the phenomenon rather than simply observing it from afar. Consequently, the phenomena produced are absolutely real and objective, while the scientist, through her instruments and experiments plays a role in the production of that phenomenon. Different actions upon entities would, likewise, produce different phenomena.

[28] Second, it would follow that because phenomena are a product of intra-actions, knowledge requires an analysis of things *in relation* to the broader world in which they occur. There is an unfortunate tendency to treat properties and qualities as originating from *within* things themselves, taken in isolation. For example, we might explain depression with reference to the genetics of a person or a chemical imbalance. Now clearly if, as it increasingly looks to be the case, all thought is grounded in the brain there will be chemical signatures for anything that takes place in our cognitive and affective life. Reference to a chemical imbalance would thus be tautologous, rather than giving us a causal account of depression. What is potentially missed in focus on the internal and isolated being of an entity is the intra-active field out of which the phenomenon emerges. Why does it seem that the incidence of depressive and anxiety disorders have increased in the last century? Is it simply that we did not have these *concepts* before and were therefore unable to diagnose depression in the past? This seems unlikely given that melancholia, at least, was a widespread concept. Is there something about our new social world that is toxic to our affective and cognitive life? Has there been a change in diet that produces this phenomenon? Have the chemicals that we have dumped in oceans and that fill the soil played a role in producing these phenomena? Is there something about the information demands of new media on cognition that produces these states? Is it all these things, or a combination of them, that generates these phenomena? An agential realist, not to mention onticological<sup>[5]</sup>, approach to phenomena would recommend these sorts of questions. From the foregoing it can also be seen how matters such as depression and anxiety that we often think of as having nothing to do with politics might, in fact, have a deep social and political dimension.

[29] Finally third, it becomes clear that knowledge production is never simply a matter of the simple gaze, of a spectator observing beings from afar. Knowledge, in short, is not a mere representation that ticks off the qualities or properties of things as in the old botanical taxonomies. At most, these lists of properties are a provisional step in coming to know something. Properties do not explain but are the very thing to be explained; and we shall only ever know that upon which we *act*. Insofar as phenomena are only produced through intra-actions, we only discover the 'what' of things through acting upon them or through the investigation of how they are acted upon by other entities. For example, we discover what sodium atoms 'are' by stimulating them electrically, heating and cooling them, combining them with other atoms to see what happens, etc. Through all of these encounters we discover new phenomena. These phenomena only erupt through intra-actions.

[30] From the foregoing, we glimpse the ethical and political implications of Barad's thought. Insofar as the observer is not independent of the observed but is a component in the phenomenon generated in knowledge production, there is a dimension of ethical responsibility in inquiry. The manner in which we choose to 'actualize' phenomena involves a dimension of choice in which we are complicit. After all, we could always choose to actualize phenomena *differently*. Take the example of the applied, agricultural biologist discussed earlier. She chooses a strain of corn seed to be marketed based on the *consistency* with which it grows across environments and at different times. The genetic strain chosen might not produce the *largest* yield of corn per plant, but it does produce the most *reliable* yield. Here, the applied biologist is literally *constructing* a 'universal' species of corn insofar as the strain selected comes to dominate the agricultural market. However, this construction is not a semiotic or linguistic construction, but an absolutely real and material entity. It is the biologists' activity that constructs this agent or corn, and that strain, in its turn, constructs us through, among other things, its effects on our diet or the construction of our bodies.

[31] Where are the ethical issues in all of this? Well, on the one hand, when we construct corn in this way we are choosing to diminish genetic variation and diversity. We can see the potential dangers in these sorts of practices through comparison to the Irish Potato Famine between 1845 and 1852, where reliance on a single strain of potatoes opened the way to a massive blight that in turn led to widespread famine. Are we not opening ourselves to similar dangers with contemporary reductions in biodiversity? Barad refers to these types of decisions in the production of phenomena as 'agential cuts'. Whenever we engage in knowledge production we engage in an agential cut that relates some components to other components, excludes yet other components, and contributes to the vectors of becoming along certain channels. These agential cuts do not simply affect the entities upon which we act, but also play a role in our own becoming. As we saw above, the corn we produce recoils back on us through our diet, playing a role in the construction of our own diet. In this regard, we have a duty to reflect upon the sorts of becomings and phenomena we are contributing to in our knowledge production.

[32] However, Barad's relational approach to being also draws our attention to unexpected ethical and political dimensions of phenomena. Our tendency is to treat as isolated what is, in fact, related. As we saw above, phenomena such as depression can appear to be *personal* problems and matters, pertaining only to the individual that suffers from it; however, these phenomena might open the door to a much broader material and social field that allows us to discern depression as a site of political struggle. If this is the case, therapists and psychological researchers that obscure this causal dimension of oppression potentially suffer from an ethical lapse by erasing the broader dimension contributing to depression and therefore foreclosing avenues of both research and activism or political struggle. Might the person suffering from depression not find struggling against those social and material conditions that contribute to depression far more 'therapeutic' than taking a pill? Examples such as this could be multiplied endlessly. Within an agential realist framework, much that appears apolitical and completely unrelated to ethical questions is revealed as a site of political and ethical questioning when the intra-active field within which the phenomenon is generated is disclosed.

[33] I close this essay with a mild criticism and provocation for friendly and productive dialogue between

Barad's relationism and those diverse and often internally opposed ontological orientations which, for lack of a better term, are referred to as object-oriented ontology. Before getting to that, it is important to note that the signifier 'object-oriented ontology' does not refer to any particular ontology or position. For example, it is not a synonym for Graham Harman's object-oriented *philosophy*. Rather, object-oriented ontology is a term like 'empiricism' or 'rationalism', denoting a broad array of positions, often in debate with one another, that argue that being is composed of discrete units or entities (objects). Whether these units exist independent of their relations or only in relation to one another is a matter of dispute among object-oriented ontologists. Likewise, what the being of these units consists of is a matter of debate among object-oriented ontologists. For example, Graham Harman holds that all objects have unchanging withdrawn essences that they possess in all situations, whereas I hold that objects are processes or activities through and through, and that their only identity arises from ongoing activities, such as the way our bodies perpetually produce new cells to replace cells that have died. In other words, we must take care not to attribute the claims of one 'object-oriented ontology' to all object-oriented ontologies. It might be that the term ought to be abandoned altogether because of its tendency to be equated with Harman's ontology *tout court*.

[34] Now, I find much to commend in Barad's agential realism and share many of her motivations and commitments. Like Barad, it is above all what takes place when entities enter into *relation* or *interaction* with one another that interests me. Units, or objects in isolation do not do a whole lot. What is interesting is the phenomena they produce when they interact. With Barad, I am particularly interested in drawing attention to 'intra-active fields'—though I would call them *inter-active*—because I wish to draw attention to the role of environment or other entities in the production of phenomena (what I call 'local manifestations'). Local manifestations are manifestations because they are the event of a property, quality, or activity under specific conditions. Local manifestations are local because those qualities, properties, or activities only occur within a specific set of relations (counter-factually, different sets of relations to other entities would produce different manifestations). Finally, with Barad, I think this attentiveness to relations, networks, interactions, and so on raises important ethical and political questions and also increases our sense of responsibility with respect to the world about us.

[35] However, I cannot help but worry that Barad is perhaps overly hasty in rejecting the existence of things or discrete units. Throughout her work, Barad tirelessly argues that things do not exist, that there are no *relata* (entities) that precede relations, that there are no discrete beings. Her motivations are fairly clear: belief in the existence of entities or things helps to promote political and ethical attitudes that deny our complicity in phenomena and entanglement with the world around us. Emphasis on the related nature of entities, however, helps to cultivate a greater sense of responsibility and perhaps greater caution with respect to how we engage the world. These are commitments I share as well.

[36] Yet, might there not be a converse danger in rejecting the existence of independent, individual beings? Barad seems to talk as if the being of beings is exhausted in the phenomena produced through intra-actions. In this she brilliantly draws attention to the importance of interactions in producing effects, but also risks falling into a sort of neo-positivism. As described by Ian Hacking, the positivist holds that only the *given* exists, that there is nothing behind or beyond phenomena (Hacking, ch 3). Moreover, the

positivist rejects any theory that posits the existence of non-given (non-phenomenal) theoretical entities behind what is given. For example, for the positivist, it would be nonsense on stilts to suggest that behind the given qualities of an orange there is a 'substance' in which these qualities inhere. The orange literally *is* the qualities of which it is composed. In this way the positivist hopes to provide a secure foundation for knowledge that restricts knowledge claims to what can be observed. Barad seems to come exceedingly close to such a position in her rejection of independent things.

[37] Are there, however, good reasons for admitting things into one's ontology? Does the concept of thing do valuable work at the level of epistemology, politics, and ethics? I believe that it does. The concept of things in excess of their given qualities or phenomena teaches us *caution*. It tells us that we can never fully know a thing simply from its given qualities, from phenomena, because when that entity enters into a *different* context, a different set of relations, it might behave in very *different* ways. Here the pesticide DDT provides a nice example. In the laboratory setting, DDT looked like a promising pesticide for fighting various pests, including typhus and malaria. However, when it was released into the environment it had a devastating impact on birds and contributed to the development of cancer. Here DDT passed from one set of relations, the laboratory, to another, the broader environment. And in entering into this new set of relations it produced a very different set of phenomena or local manifestations. Ontologically, we can only understand how something like this is possible if entities like DDT enjoy some minimal autonomy from their relations, enabling them to migrate or enter into another set of relations.

[38] We might suspect that the hubris of the scientists that released DDT into the broader environment arose from their positivism. Because they reduced DDT to its given behaviors in the lab, they assumed that it would behave in the *same* way when released into the environment. An ontology cognizant that substances or things differ from their given properties, that things always harbor the possibility of surprise when entering into new environments, is also one that encourages caution. It teaches us that what is given in a phenomenon is not necessarily the entire story. Such a view seems to complement the ethics of relational responsibility that Barad proposes with an ethics of caution premised on the thesis that we never fully comprehend what bodies can do, that they always harbor furtive powers and might behave in very surprising and unexpected ways in new intra-active fields.

[39] Everything, I think, spins on a critique of the traditional concept of 'thing'. Barad rightfully critiques the traditional concepts of individuals, things, or substances as beings with fixed and determinate essences. However, why should philosophy bow to the prejudices and assumptions of ordinary language, opting to throw out the concept of thing altogether, rather than to throw out the idea of thing *as composed of fixed and determinate qualities*. It seems that we need the concept of something that is able to sever itself from one set of relations and enter into another, while we also need to abandon the idea of these nomads as having fixed and determinate identities; if for no other reason than that engagement with things shows just how mistaken this notion is. Might we not get further in conceiving things as plastic, as fields of capacities and powers that can be creatively actualized in a *variety of ways* under different interactions? Would this not provide us with the means of both embracing the central motives and insights of Barad's relational intra-activism, while also capturing the sense of excess and promise

contained in every entity over and above whatever phenomena it happens to manifest at a particular point in time? As Spinoza famously said, "we never know what a body can do" (Deleuze, 226). Bodies, things, are not defined by their properties but by their *capacities* or powers, and we never have a fully or fixed inventory of those capacities.

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## Notes

1. Barad is not always consistent in the application of her posthumanism. As she writes at the very beginning of *Meeting the Universe Halfway*, "[m]atter and meaning are not separate elements. They are inextricably fused together, and no event, no matter how energetic, can tear them asunder. ...[M]atter and meaning cannot be dissociated, not by chemical processing, or centrifuge, or nuclear blast" (Barad, 3). It seems to us that the phenomenon of meaning is restricted to living beings of a suitable level of complexity. In this regard, it is unclear why we should hold that the interaction of gas particles on Saturn involves anything like meaning, rather than simply being a causal interaction. We can readily agree with the proposition that "all meaning is fused with matter", while we cannot concede the thesis that "all matter is fused with meaning".
2. There is actually a great deal of debate and controversy in biology over just what a gene is. For a survey of these debates, cf. Neumann-Held, pp. 69-84.
3. For a discussion of the significance of developmental systems theory for relational ontology, see Bryant, 5.1.

4. Lewontin points out that even in the case of the laboratory biologist there's variation in the development of the phenotype because there's always "developmental noise" that leads the genes along different paths.
  5. "Onticology" is the name for my own particular ontological position.
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