Performing Matter

An Ontological Exploration of Matter and Meaning in Henri Bergson and Karen Barad

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Abstract

In this paper I elaborate on how matter is thought of in the work of Henri Bergson and Karen Barad, thus challenging the Cartesian split between body and mind.

On the one hand, I disclose Bergson's envisagement of matter not as a thing but as a process, and stress how matter plays a central role in the experience of duration, therefore shaping reality as a process of becoming-with. Although Bergson's diagrams are usually figured as static, I argue that they are actually imbued with movement and should be seen as moving. This bond of matter to duration and transformation blurs common distinctions between matter and language and proves especially useful when thinking of dance and performance as arts of mattering.

On the other hand, I follow Barad's description of quantum mechanics in order to highlight that matter cannot be torn apart from meaning, since knowledge cannot be produced out of matter but is always constructed from within matter. Barad's insistence on the production of knowledge as an embodied practice reveals a strong political commitment to the world as an ongoing open process of mattering that asks us to rethink the meaning of agency from a posthumanist point of view.

I argue that, for both Bergson and Barad, matter can be said to perform. I eventually raise the question of how such an approach can help us think about and practise dance and performance beyond the Cartesian framework of the primacy of language.

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Setting the Problem[1]

"Language has been granted too much power." I would like to start by echoing this opening line from the famous essay "Posthumanist Performativity. Toward an Understanding of How Matter Comes to Matter" by Karen Barad (2003). I would especially like to highlight the sense of urgency that resonates in the act of writing such a short and clear-cut statement to open an academic paper; even more, if we consider that that paper is not dealing (at least not directly) with language but with physics; and even more if we note that this blunt sentence is preluding an otherwise extremely complex and nuanced essay. The surprise that may arise from these remarks might make us wonder why the author found such a heading to be the most proper way to set the problem she wants to deal with. As is often the case, the surprise that forces us to rub our eyes in front of an unexpected sign (or emergence) of an overtly direct reaction comes as a result of the existence of a hegemonic power position in front of which, precisely due to its very hegemony, we tend to keep our eyes shut. The elephant in the room that Barad is pointing at, and towards which I would also like to turn my attention, is the Cartesian ontology that separates between matter and mind (*res extensa* and *res cogitans*) alongside object and subject. The excess of power that language "has been granted" can be rooted to the Cartesian distinction that over centuries has privileged the mind over the body, thus producing a specific framework for the selection, production and distribution of knowledge in Western culture. Language belongs to the mind, and its primacy as an epistemological tool to access the world has systematically foreclosed any other form of knowledge based on the body or, more generally, on the realm of matter. But as Isabelle Stengers warns us, a tool "is not an instrument to be used at will, [but] co-produces the thinker" (2005: 196), and so is language not merely an instrument of thought but an entire set of preconditions and exclusions that

has heavily imprinted a series of epistemological and ontological assumptions on our perception of reality — a series of assumptions, as we will see, with deep political implications. In order to break up with the Cartesian cuts and hierarchies, the entire set of assumptions upon which they rely (which include mainstream notions of space, time, meaning or agency, to name just a few) must be radically called into question. It is in this sense that we can understand Barad's opening statement as a necessary precondition for any critique of hegemony to unfold.

This very outcry — that language has been granted too much power — can also be directed to the main theoretical shifts in the humanities during the 20th century, which mostly worked out their perspectives from a rethinking of the notions of language and discourse. From the new understanding of the conventional nature of language that arose from Saussure's insights and the so-called "linguistic turn" to post-structuralism, language appears to conceal all the secrets of knowledge and social interaction, while constituting the main tool for their reformulation. The idea of revolution itself seems to fall prey to this conception, as long as we still believe in the possibility of thinking of it solely in linguistic terms. Only in the late 20th century and increasingly in the first decades of the 21st century we witnessed an emergence of critical positions ranging from feminism to queer theory, decolonialism, antiracism, posthumanism or ecocriticism (among many others) that are bringing the importance and political relevance of matter to the fore. One of the obvious challenges that these diverse and multiple approaches must undertake is to find out how not to reproduce the Cartesian habit of mind of understanding matter as an *object*, but to develop an entire ontology from matter.

For academia, though, a contradiction arises immediately: such an ontology can be formulated, according to academic methods, exclusively by the mediation of language. This limitation poses at least a difficult question to any theoretical endeavour that seeks to take the problem of matter seriously. In this sense, it is not surprising that many theoretical approaches are closely following and drawing inspiration from contemporary social and political practices, even artistic ones, that are engaging directly with matter and pushing forward ground-breaking models of relating to the world and its becoming.

From this point of view, we can think of dance and performing arts not just as a field for the reproduction of matter-based discourses and theoretical paradigms, but as a privileged spot for the production of material engagements and theory-in-the-making, especially when performativity[2] appears to be increasingly regarded as a keyword when it comes to understand the behaviour of matter (Barad, 2003). Dance and performance could therefore constitute a way to bypass the linguistic limitations of theory and to offer instead an embodied understanding of the questions that surround matter.

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2.   The concept of performativity has gained momentum in social studies to a large extent due to Judith Butler's influential work on gender performativity (1990). Although Karen Barad builds upon Butler while developing her own understanding of posthumanist performativity, she criticises the lack of agency and dynamism that matter is given in Butler's theory along with its limitation to account for the materialisation of exclusively human bodies (Barad 2007: 151). Therefore, the notion of performativity that I refer to in this essay is not to be confused with or reduced to Butler's approach to gender performativity.

But again, some difficulties arise: is it not true that the history of theatre and dance arts has been equally primed by language to a great extent? Is not the whole weight of Western culture to be felt in the working habits and conditions of dance and theatre institutions? Is not the work division and the deadline-oriented temporality that both production and exhibition venues, as well as public and private institutes for funding, continuously demand from artists dismissing, in practice, many alternative understandings of matter and the potential relations that could emerge from them?

Indeed, the Cartesian ontology echoes in every link of the production chain, and yet the transformations of dance and performance in our days, together with a broader understanding of performance and performativity as belonging to a sphere that surpasses the traditionally defined confines of art and art production, are promising. A shift is occurring from the exclusivity of language-defined realities to consistent material engagements with the time we share as part of the world. And if this is so, how could an ontology of matter, in the sense exposed above, prove useful for the further development of dance and performance practices, on the one hand, but also for political action and thinking on the other? What would thinking in terms of matter rather than in terms of intellect or language enable us to see, to feel or to develop in both artistic and political terms?

Obviously, the formulation of a matter-based ontology exceeds the scope of this paper, in which I aim, more humbly, to explore some links between matter and performance so an understanding of matter can benefit from a certain approach to performance and, inversely, performance can benefit from a certain understanding of matter. Importantly, my understanding of matter and performance throughout this paper tackles both concepts as aggregates of notions of time, space, bodies and agency. I argue that any suggestion about matter has immediate implications in performance and politics, and the other way around: any statement about performance affects matter and politics, thus weaving a cobweb of ethical thickness that maps our position within the milieu of matter.[3]

This exploration will follow the steps of two main theoretical figures. On the one hand, I will review the crucial claims of the philosophy of Henri Bergson, who did not just develop a complex theory about the relations between matter and memory, but whose insights about time, duration, virtuality or intuition proved to be highly influential among dance and performance theorists and practitioners from the second half of the 20th century onwards. Far from aiming to offer an exhaustive account of Bergson's thinking, I will concentrate on the dynamic relation that he inscribes at the core of his work, that between matter and memory, and on how his concept of duration seems to provide some clues for an alternative material engagement with the production of meaning. On the other hand, I will look closely at Karen Barad's interdisciplinary proposal to take a feminist interpretation of quantum physics as a radically transformative ontological ground for both

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3. Politics is meant not from the point of view of the institution but as a social struggle encompassing a multiplicity of inequalities.

natural sciences and the humanities. After analysing what she understands as representationalism, which as we will see can be described as one of the heaviest ideological burdens that the primacy of language has put on us, I will offer an overview of her main conceptual tools in order to eventually focus on her call not to construct knowledge *out of* matter but to understand the production of knowledge as an embodied practice *within* matter. In the last chapter, I will sum up the main points of this paper and raise the question of what implications Bergson's and Barad's views may have for a performative practice.

Matter and Memory: Henri Bergson and the Congealing of Meaning

It may sound a bit odd to introduce Henri Bergson as a reference point for building up a discussion on matter and performance, as his dualist propositions, his interest for picking up examples from psychology and psychological disorders and his thorough reflections on the spirit (*l'ésprit*) may sound nowadays, at best, like an anachronism. As a matter of fact, Bergson can be seen to have been already anachronistic in his own time. If, as Peter Louis Galison (2000) suggests, one of the greatest obsessions of the 19th century was the conquest of time, or rather the conquest of an objective and homogenised time that would eventually allow for the synchronisation of all clocks — a necessity posed by the invention of the railroad and the dreams of imperial expansion —, Bergson was thinking of time in metaphysical terms while Einstein was trying to fix the problem of clock synchronisation, eventually formulating his theory of relativity. Unlike Einstein's physics, Bergson's metaphysics were lacking any immediate practical utility, and the outbreak of World War I wiped out almost completely any possibility for Bergson's insights to be followed up. That is why we could consider, together with Elisabeth Grosz (2004), Bergson's position to be an untimely one. Bergson's philosophy remained deeply unfashionable until the second half of the 20th century, when the interest of several philosophers in his work — most notably, Gilles Deleuze — created a scholarship of its own. This scholarship would no longer be about Bergson but about Bergsonism: a broader concept that Deleuze came up with in order to reframe the old-fashioned perception of Bergsonian theories and let them appear as capable of being part of the present and melting with its current concerns. From this perspective of Bergsonism, there is no point in trying to reconstruct Bergson's thinking word by word, but rather in rereading it from a contemporary point of view and in placing his ideas not in the narrow frame of his historical time but in his own mighty untimeliness.

There is still a second reason why the choice to invoke Bergson in this context might seem an odd one, which emerges from a first reading of his texts: by tracing a dividing line between "matter" and "memory", which we could equate with the Cartesian cut between "body" and "mind", is he not granting all the attributes of the spirit — including those of agency, vital impetus (*élan vital*) and becoming — to memory, while reducing matter to pure extension? A first encounter with Bergsonian texts strongly suggests so. One

of his theoretical cornerstones, laid at the core of his first work, *Time and Free Will*, is a clear distinction between quantitative and qualitative magnitudes. According to Bergson, affections and psychical states, unlike "things with well-defined outlines, like those which are perceived in space" (1910: 9), cannot be measured according to a numbered scale, because they constitute differences in kind instead of differences in degree. The feeling of bliss cannot be said to be an intensified feeling of joy, at least not in the same sense than two metres can be said to be twice the length of one metre. The opening pages of *Matter and Memory* describe a difference in kind between matter and memory, and may suggest an identification of matter with an inert object, since "matter cannot exercise powers of any kind other than those which we perceive. It has no mysterious virtue; it can conceal none" (Bergson, 1994: 71).

A closer reading discloses, though, that these first impressions are misleading. One of the main clues of Bergsonism, as Deleuze highlights (1991: 31-35), consists of "stating and solving problems in terms of time rather than of space." What this means (and this has very important implications for a proper understanding of Bergson) is that Bergsonian philosophy never builds on fixed concepts or essences, but is fundamentally dynamic. It is neither animated, however, by the kind of automatised movement that can be found in Hegel's dialectics. Bergsonian texts progress in duration, and they can be understood in the very terms of becoming that they seek to describe. Its movement is meandering and open-ended, and if we find some clear-cut distinctions as in the examples above, we can understand them to be "provisional" (Lawlor, 2003: 30). They constitute a mere methodological artifice and, at the end of *Matter and Memory*, the once strongly established distinctions eventually start to melt:

> Consciousness and matter, body and soul, were thus seen to meet each other in perception. (...) And homogeneous space, which stood between the two terms like an unsurmountable barrier, is then seen to have no other reality than that of a diagram or a symbol (Bergson, 1994: 219).

But what does this shift actually mean, and how are we to approach the relations between memory and matter? Let's start with the latter concept. In the first pages of *Matter and Memory*, Bergson describes matter as follows:
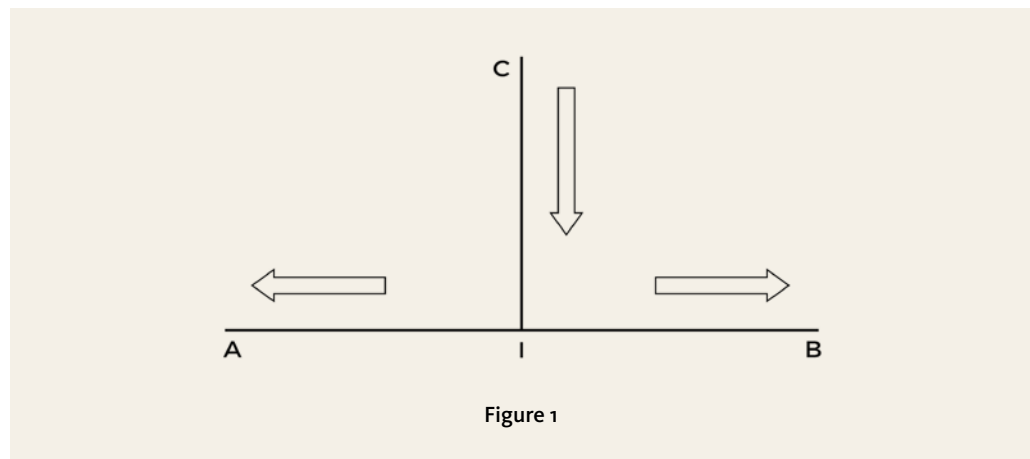
> Matter, in our view, is an aggregate of "images". And by "image" we mean a certain existence which is more than that which the idealist calls a *representation*, but less than that which the realist calls a *thing* — an existence placed halfway between the "thing" and the "representation" (1994: 9).

This definition of the "image" is important for Bergson in order to distance himself from idealism and realism at the same time. What is at stake here is where the nature of matter lies. According to Bergson, both idealism and realism share the disbelief that the nature of matter resides in its knowability. Whether matter is a mental representation or an autonomous entity, "to

perceive, for both idealism and realism, means to know, to receive a disinterested registration of a pure knowledge," while "for Bergson, perception cannot be equated with knowledge, for it is primarily concerned with action" (Grosz, 2004: 164). Indeed, in the same way that "to recognise a common object is mainly to know how to use it" (Bergson, 1994: 93), the perception of matter is always related, for Bergson, to an operation of selection of the images that constitute matter as a whole according to the capacity of our body to interact with them. In other words, "we always perceive first what interests our needs or functions" (Lawlor, 2003: 24), while the rest of matter remains unnoticed. That does not mean that that unnoticed matter constitutes a mystery. As we already saw, for Bergson matter does not conceal anything, since the difference between matter and our perception of it is a difference of degree: "there is in matter something more than, but not something different from, that which is actually given" (Bergson, 1994: 71).

Let us consider now the second instance of Bergson's "provisional" dualism. If perception is in charge of the selection of images from the multiplicity of matter, memory's role is to perform its recollection. Here we find one of the most elaborated aspects of Bergson's philosophy, and the spine of *Matter and Memory*, which I will briefly summarise with the idea that the past, for Bergson, is not the time we left behind, but a constant force that keeps together all our recollections within our present, and which continuously interacts with it. The following scheme (*Fig. 1*) may be useful to understand the specific relations that Bergson aims to draw:
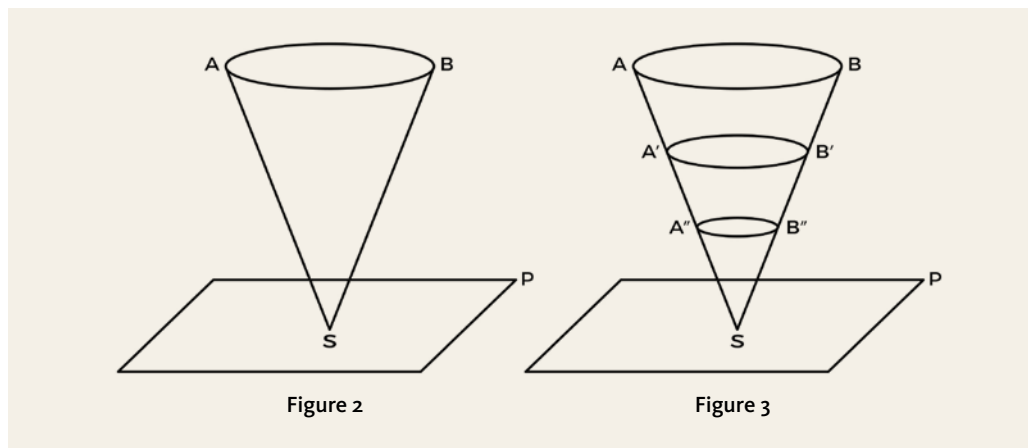

Figure 1

In this scheme, the axis AB represents the extension of matter (which, as we can see, is much larger than its perception), while the vector CI indicates the flow of past memories to the point I, which corresponds to the position of the body in the present time. The point I is but a really tiny portion of the combined dimensions of matter and the past. In fact, it is so small that we can almost see it as a tip that cuts through matter from the past. As Bergson understands it, "memory does not consist in a regression from the present to the past, but, on the contrary, in a progression from the past to the present" (Bergson, 1994: 239). Memories "constantly mingle with our perception of the present and may even take its place" (Bergson, 1994: 66). From this point

of view, the present as a stand-alone time becomes hugely problematised, as it practically turns out to be a function of the past, an instrument for its actualisation:

> [Our present] is that which acts on us and which makes us act; it is sensory and it is motor—our present is, above all, the state of our body. Our past, on the contrary, is that which acts no longer but which might act, and will act by inserting itself into a present sensation from which it borrows the vitality. It is true that, from the moment when the recollection actualises itself in this manner, it ceases to be a recollection and becomes once more a perception (Bergson, 1994: 240).

Let's move to a different visualisation. The famous image of the cone (*Fig. 2* and *Fig. 3*), in which the point I is replaced by the summit S, shows more clearly how the present is contained into the past (the cone defined by SAB) and not the other way around; that "the present itself is only the most contracted level of the past" (Deleuze, 1991: 74). What I would like to stress about this image is that, according to Bergson, we should imagine it *in movement*. The entire graph is supposed to move, and indeed in a very complex way. Bergson speaks about movements of ascent, descent, advance, flow, rotation, contraction, release and sectioning, just to name a few.

Figure 2   Figure 3

I do not pretend to summarise here the entire set of steps of this process of remembrance,[4] but just to underline the fact that the relations that Bergson is thinking about, in a language strikingly imbued with descriptions of movement, are fundamentally dynamic. And so is the relation between matter and memory. As Lawlor (2003: 48) suggests:

> We must even say that, if the memories are descending towards the summit, images are ascending up from the bottom. If the difference between matter and memory consists in these two opposite directions, then we have to say that the cone image as Bergson presents it is incomplete; there is a second cone, a cone of matter, below the cone of memory. Being a double, like a mirror image, this second cone would have to be the *inverse* of the first.

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4. A thorough description of the cone's movements can be found in Lawlor (2003: 43-59).

The double cone that Lawlor imagines, and which I sketched up (*Fig. 4*), might be redundant in its representation of matter (otherwise already portrayed as the plane P) but it allows us to visualise an important point of Bergsonism: that, in spite of the preliminary methodological distinctions, matter seems to flow directly into memory and shape it, in the same way that memory is shaping matter through the actualisation of the past on the action of the body. The idea of dance, of movement, becomes especially meaningful from this point of view, as we can imagine the entire exchange depicted by Bergson as an engagement of material and mental agencies in a common movement. As Deleuze (1991: 75) posits it:

Figure 4

Hence, the importance of *Matter and Memory*: Movement is attributed to things themselves so that material things partake directly of duration, and thereby form a limit case of duration. *The immediate data (les donées immédiates)* are surpassed: Movement is no less outside me than in me; and the Self itself in turn is only one case among others in duration.
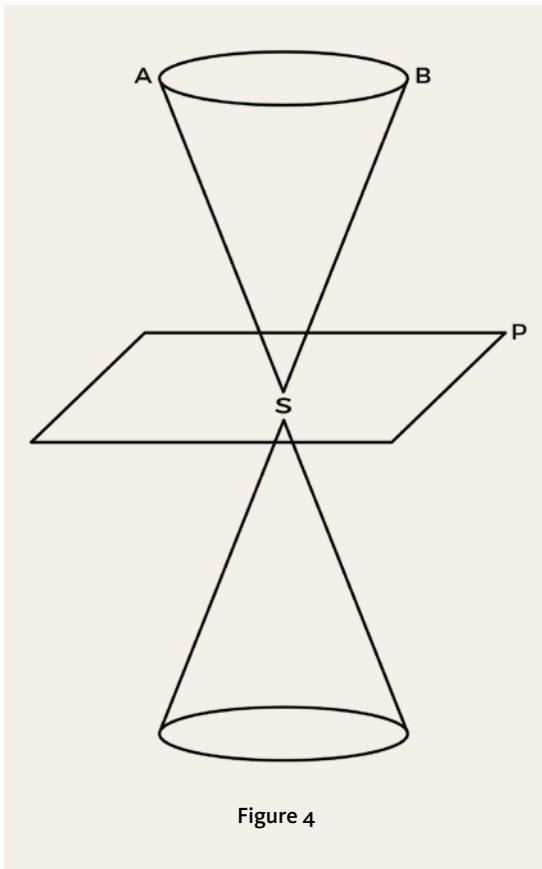
Bergson defines his key concept of duration as a time that is imbued with becoming. Unlike the time measured by clocks, which "homogenises and measures all other modes of passing insensitively" (Grosz, 1999: 18), duration cannot be seen as a *thing* but as a *process*, an open-ended experience of time that contains simultaneously the past, the present and the future in their ongoing becoming. Bergson's notion of duration allows us to imagine an open future that unfolds without following any previous plan, by constantly actualising itself through processes of differentiation (Deleuze, 1991: 42-43), "through division, bifurcation, dissociationby differencethrough sudden and unexpected change or eruption" (Grosz, 1999: 28). Although in *Time and Free Will* Bergson seemed to grant the experience of duration exclusively to the human mind, there are some hints in *Matter and Memory* (and increasingly in his later work) that point towards matter having its own duration and forming a virtual Whole with the duration experienced by human beings (Deleuze, 1991: 105). We can venture that this understanding confers, finally, as much dynamism and agency (potentiality to become) to matter as to the psychological human subject. As Grosz (2004: 248) notes, it would be absurd to think that the ability to become and to partake of duration could belong exclusively to living beings, "for it is the condition under which nonorganic configurations of matter give rise to the earliest forms of life, as well as the conditions under which life elaborates and develops itself, along the lines matter itself provides." That means that matter has the same capability of

congealing meaning[5] (through difference and actualisation in its ongoing becoming) than the psychological subject owner of language. The implications of this idea are profound at least in two directions: on the one hand, it turns upside down the Cartesian ontology that confined the production of meaning to the mind while reducing matter to an external object of knowledge deprived from any virtuality. (Here we can recall how, in the beginning of *Matter and Memory*, Bergson was still insisting on the idea of matter being unable to "exercise powers of any kind other than those which we perceive.") On the other hand, maybe it is not too risky to draw the conclusion (even if we want to take it just as a provocation) that the disclosure of a symmetry between matter and memory leaves the subject alone on the summit S, without having more control over the upper cone (that of the past) than over the lower one (that of matter). Hence the upper cone should not be seen as a property of the subject, which grants it its spirit and the capacity to produce meaning, but as a force acting upon it and setting it in movement, as much as matter is so too. Bergson himself seems to ponder these implications in a beautiful paragraph of *Matter and Memory* (151-152):

> Now, if it be true that we never perceive anything but our immediate past, if our consciousness of the present is already memory, the two terms [matter and memory] which had been separated to begin with cohere closely together. Seen from this new point of view, indeed, our body is nothing but that part of our representation which is ever being born again, the part always present, or rather that which, at each moment, is just past. (...) But this special image which persists in the midst of the others, and which I call my body, constitutes at every moment, as we have said, a section of the universal becoming. It is then the *place of passage* of the movements received and thrown back, a hyphen, a connecting link between the things which act upon me and the things upon which I act (...)

Matter and Performance: Karen Barad and the Agency of Matter

Although the physicist Niels Bohr was a contemporary of Henri Bergson, and both developed their theories around the concepts of time, space and matter, the distance between their respective approaches to the question of the nature of the universe may seem too huge to be smoothly overcome. Nevertheless, I argue that the metaphysical suggestions of Bergson can be extraordinarily developed into the physical concerns of Bohr, and that the apparent dividing line between them falls apart as long as we consider them from the point of view of a performative ontology, which I have tried to hold

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5.   I draw on Barad's description of matter as a "congealing of agency" (2003: 822) in order to better convey the mechanism by which meaning is formed, neither as a property of an object nor as a projection from the outside, but as a process of becoming from within. For this reason, I prefer to discuss how matter "congeals" meaning rather than how it "produces" it. The very notion of meaning experiences here a transformation: on the one hand, meaning cannot be regarded as a "product" any longer, as something clearly bounded, but becomes physically enmeshed in the very matter upon which it depends. On the other hand, meaning ceases to be exclusively related to human perception, and takes on the capabilities of matter to change, self-organise and evolve (in Bergson's words, to become), as is notably exemplified by the formation of life from nonorganic materials. That encompasses other than human intelligences and capabilities and helps us see that meaning is not an exclusive human quest. For further Bergsonian considerations on matter, life and evolution, see Bergson (1998).

thus far. In this section I will follow Karen Barad's feminist reading of Niels Bohr and his interpretation of quantum physics, which she seeks to make accessible not only to physicists but to the most multiple arrays of scholars and readers. In her opinion, Bohr's practice must be defined as "philosophy-physics", since "physics and philosophy were one practice for him, not two" (Barad, 2007: 24). Barad performs a serious attempt to develop a philosophical framework by drawing on matter and its behaviours rather than on the traditional sources of the mind and language.

The primacy of language over matter (or its equivalence, the primacy of culture over nature) is not a mere instrumental arrangement but an ideological and political one. We must bear in mind that "the sciences are marked by the cultural and ideological specificities (e.g., political, historical, linguistic, racial, religious) of their creators" (Barad, 1995: 70). The traditional confinement of the attributes of subjectivity, agency, virtuality and historicity to language and culture shows how the deprivation of matter from producing meaning or being granted an own sense of historicity is the enactment of a bias that forecloses any recognition of a different, differential and differentiated becoming of the world without the subtraction that language inflicts on it.[6] Or, as Barad formulates it: "What is at stake is nothing less than the possibilities for change" (2007: 46).
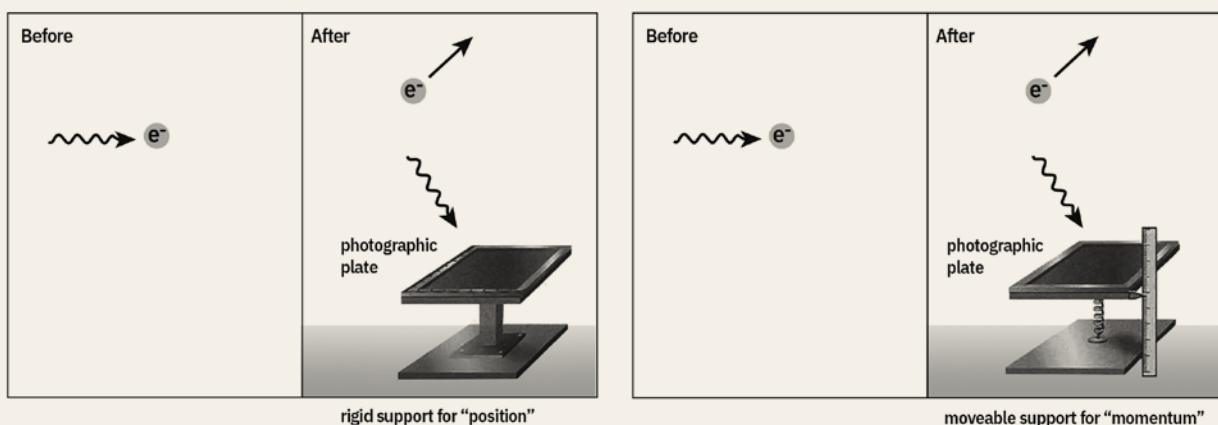
Probably the most prominent subtractions enacted by language come from the (often) unacknowledged ideological position that Barad calls "representationalism". In her own words, "representationalism is the belief in the ontological distinction between representations and that which they purport to represent; in particular, that which is represented is held to be independent of all practices of representing" (2003: 804). Representationalism is the ideology that underlays the Cartesian ontological gap between subject and object, and which defines Newtonian physics as well. Whether we talk about knowledge, language or politics, representationalism assumes the existence of individual entities (either objects, words or social groupings) inherently constituted by certain properties and delimited by determinate boundaries. This assumption is so strong that accuracy, a legacy concept from representationalism, has unwittingly become an absolute value. Scientific objectivity is often described in these terms: the closer a theory or a representation is to the object of study, the more objective it is. In a maybe more disturbing way, we can find this absolute value as being the cornerstone of the definition of social justice in democratic systems too: the more accurate the interests of people are represented in power institutions like parliaments, the more just a democracy is. Importantly, the ideological character of these assumptions relies on them being perceived as self-evident, or "natural". But is "Nature" really consistent with these views? Does Nature conform to representationalism, Newtonian physics and Cartesian ontology? In describing

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6. Interestingly, when commenting on Bergson, Deleuze describes the relation between our perception of matter and matter itself as an operation of subtraction instead of one of addition or completion: "By virtue of the cerebral interval, in effect, a being can retain from a material object and the actions issuing from it only those elements that interest him. So that perception is not the object plus something, but the object *minus* something, minus everything that does not interest us" (1991: 24-25).

this ideological knot, Barad claims that Nature not only shows very different behaviours than those which representationalism would expect, but that, moreover, it often acts in plain queer ways (Barad, 2011).

As she explains, the idea that beings "exist as individuals with inherent attributes, anterior to their representation" (Barad, 2007: 46) has been deeply put into question by quantum physics. Quantum mechanics show how, as counter-intuitive as it may be, matter at subatomic level does not seem to have individualised inherent properties, nor to conform to the Newtonian descriptions of time and space that used to be the undisputed foundations of physics. Dispelling the aura of the Heisenberg's well-known uncertainty principle, Barad brings to the fore Bohr's complementarity principle (which she renames as indeterminacy principle), according to which the core problem in quantum physics is not that we *cannot know* simultaneously two attributes of a moving particle (like position and momentum), as Heisenberg stated, but that particles just *do not have* determinate values of position and momentum at the same time. Our measurement of either the position or the momentum must be carried out by mutually exclusive apparatuses, since a rigid support is necessary to determine the position of a particle, while a moveable support is required in order to define its momentum (*Fig. 5*). The conclusion that Heisenberg draws from this (that there are limits to our knowledge of physical reality) is an epistemological one, while Bohr's is ontological. According to Bohr, the measured property of the particle emerges as a result of the act of measurement itself. In other words, the determination of an apparatus produces, rather than detects, the determination of a certain value that we must otherwise imagine as indeterminate. Therefore, "there is no unambiguous way to differentiate between the "object" and the "agencies of observation" (Barad, 2007: 114). Barad sums up this challenge to the Cartesian subject-object distinction by replacing the ontological category of "entities" by that of "phenomena". Phenomena, "specific material configurations of the world's becoming" (Barad, 2007: 91), can be seen as "the primary ontological units" (Barad, 2003: 818). They express themselves in terms of relations and always emerge within an "intra-action". Barad proposes the

Figure 5

rigid support for "position"   moveable support for "momentum"

concept of "intra-action" as a shift from the customary notion of "interaction", which presumes the prior existence of independent entities with inherently determinate properties and boundaries. If we understand that the world's becoming takes place through phenomena, that these phenomena always emerge from specific intra-actions, and that their identity does not precede them but is congealed in and through that very intra-action, we are very close to the core of Barad's articulation of quantum physics and her performative account of matter.

The notion of performativity, which Barad borrows from Judith Butler, must be complemented by yet another key concept in her formulation, that of agency. According to Barad, agency strictly means the capacity to act; "it is an enactment, not something that someone or something has" (Barad, 2003: 826-827). Through this reformulation, "agency is cut loose from its traditional humanist orbit" (Barad, 2003: 826), since it concerns both humans and non-humans as long as they can engage in processes of intra-action. The Cartesian cut between subject and object is replaced, in Barad's account, by an agential cut, which strictly determines those agents (human and non-human) engaged in an intra-action in the terms produced by their very intra-action. In her own words:

> This ongoing flow of agency through which "part" of the world makes itself differentially intelligible to another "part" of the world and through which local causal structures, boundaries, and properties are stabilised and destabilised does not take place in space and time but in the making of spacetime itself. The world is an ongoing open process of mattering through which "mattering" itself acquires meaning and form in the realisation of differential agential possibilities. (...) In summary, the universe is agential intra-activity in its becoming (2003: 817-818).

If agency is not a property but a performative "flow", and if it cannot be attributable to human beings more than to material phenomena, we are finally able to grasp Barad's concept of matter, which "isn't situated in the world" but "worlding in its materiality" (Barad. 2007: 180-181).

> Matter, like meaning, is not an individually articulated or static entity. Matter is not little bits of nature, or a blank slate, surface, or site passively awaiting signification; nor is it an uncontested ground for scientific, feminist, or Marxist theories. Matter is not a support, location, referent, or source of sustainability for discourse. Matter is not immutable or passive. It does not require the mark of an external force like culture or history to complete it. Matter is always already an ongoing historicity (Barad, 2003: 821).

One of Barad's highest ambitions is to show that a performative understanding of matter does not only account for the production of material bodies but also for the production of meaning and discourse.[7] As a matter of fact,

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7. As she makes it crystal-clear herself in "A Feminist Approach to Teaching Quantum Physics": "In fact, agential realism offers a way to interrogate not just classical notions of realism versus instrumentalism, objectivity versus subjectivity, absolutism versus relativism, or nature versus culture in science but also dualistic and fixed notions

"discursive practices and material phenomena do not stand in a relationship of externality to each other, [but] the material and the discursive are mutually implicated in the dynamics of intra-activity" (Barad, 2007: 183). The fact that matter is "an ongoing historicity" does not mean that matter has an independent existence somehow ungraspable for the human mind; rather, we should keep in mind that "the world is an ongoing open process of mattering", of which human beings are part. It is important to note that Barad considers discursive practices to be "not human-based practices" (2003: 821), but any material configuration of the world. In this sense, she does not describe matter as "a thing" but as "a doing", as "a congealing of agency" (2003: 822). If we followed this argumentation, we might end up concluding that matter and meaning are, for Barad, one and the same, since they do not seem to be separable from each other any longer. In doing so, we would be falling prey again to Cartesian fixed categories and ignoring what quantum mechanics actually teach us. We would be taking again "matter" and "meaning" to be things instead of processes (something that Bergson already warned us about). What we can draw on quantum physics is the possibility to think of the relation that we observe between matter and meaning as an entangled one. In quantum mechanics, entanglements represent "a generalisation of a superposition to the case of more than one particle" (Barad, 2007: 270), which means that the determination of a value (for example, spin) of one particle in an entangled system will immediately determine the value of any other particle it is entangled with, even if they are separated by a large distance. The famous Schrödinger's cat paradox, in its final stage, shows how an observed object can be entangled with its agencies of observation, as long as the eigenstate of the cat (dead/alive) can be only determined by the apparatus of observation, and will remain indeterminate until a measurement is conducted. But the crucial point to understand Barad's position on the entanglement of matter and meaning is that, instead of being "the interconnectedness of things or events separated in space and time," entanglements are "enfoldings of spacetime-matterings" (Barad, 2011: 139). The concepts of time, space or even being-alive, do not constitute given independent realities, as they are presented to us by classical physics.[8] Instead, they are performed by iterative intra-actions, which represent "the dynamics through which temporality and spatiality are produced and iteratively reconfigured in the materialisation of phenomena and the (re)making of material-discursive boundaries and their constitutive exclusions" (Barad, 2007: 179).

The entangled relationship between the production of matter ("a congealing of agency") and the production of meaning crystallises in the idea

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of race, class, gender, and sexuality in the realm of social dynamics. For example, according to agential realism, 'gender', 'race', 'class', and 'sexuality' refer to specific social dynamics, not to properties attributable to a particular person. These terms are historically, geographically, and politically situated. Agency is involved in using these categories. People use these terms for specific purposes. Realism is involved because, in a power-imbalanced society, sexism, racism, classism, and heterosexism have real material consequences, even though the concepts are socially constructed" (1995: 68).

8.   In his refusal to give up on the classical principle of locality, Einstein argued against the theory of quantum entanglements while referring to them as "spooky action at a distance".

of "mattering" or "worlding" as "particular boundary-drawing practices" (Barad, 2011: 126). I argue that this constitutes the core of the ethical commitment that Karen Barad seeks to extract from the quantum understanding of matter: as far as intra-actions are agentive, and therefore part of the world in its becoming, every material-discursive practice produces a differential configuration of the world. These practices, whether they are conducted by humans or not, enact agential cuts and therefore define the world in terms of differentiation. Differentiating, as Barad points out to us, "is not about othering or separating but on the contrary about making connections and commitments" (2007: 392). The nature of matter consists of a readiness to get entangled with the Other, "which is not just in one's skin, but in one's bones, in one's belly, in one's heart, in one's nucleus, in one's past and future" (2007: 393). In other words, Barad, for whom knowing and being are material entangled practices (2007: 379), considers knowledge to be already an embodied ethical commitment with the world and not something to be collected from the outside. The human understanding of matter is always produced *within* matter and in intra-action with it; and in the same way that matter's becoming is accountable to the performative becoming of the world, human practices are equally responsible, by their boundary-drawing and determining activity, not only for the knowledge that they seek "but, in part, for what exists" (Barad, 2007: 207). The entangled state of material phenomena and discursive practices (matter and meaning) implies that any conceptual cut or division has immediate and direct material effects on human and non-human bodies. Barad's final invitation is not to disregard or try to disentangle these effects, but to assume the responsibility that they entail and to look for practices of making connections and commitments instead of othering and dividing.

> That is, what is needed is accountability for the cuts that are made and the constitutive entanglements that are effected. In particular, the "posthumanist" point is not to blur the boundaries between human and non-human, not to cross out all distinctions and differences, and not to simply invert humanism, but rather to understand the materialising effects of particular ways of drawing boundaries between "humans" and "non-humans" (Barad, 2011: 123-124).

Conclusions: A Leap into Duration

Thus far I have explored the different conceptions of matter that emerged from my reading of Henri Bergson and Karen Barad. I do not find it too bold to conclude that the resemblances between them may have exceeded the differences that were to be expected, according to the apparently essential difference of their fields of study: physics and metaphysics. That is not so surprising, after all, if we regard both approaches as a challenge to their disciplines and to the Cartesian notion of the cognitive human subject as opposed to the inert and passive realm of matter. What we actually saw is that matter is neither inert nor passive in either Bergson's or in Barad's accounts;

quite the opposite, matter is for Bergson part of the world's becoming and an ongoing process of congealing of meaning, while for Barad it is directly a congealing of agency and an embodied production of meaning. In this respect, we saw how "meaning is not a property of individual words or groups of words but an ongoing performance of the world in its differential intelligibility" (Barad, 2003: 821). Difference and differentiation are key concepts for both authors. Bergson's pioneer idea of virtuality, which is actualised by the past into the present, thus producing "an irreducible pluralism" in "the actual" (Deleuze 1991: 104), can be directly related to the "constraining but not determining" nature of agential intra-actions (Barad, 2003: 826), which perform constant reconfigurations of the world for which both human and non-human agents are accountable.

Akin to Bergson's statement that "the past should be *acted* by matter, *imagined* by the mind" (1994: 223), I argue that matter is much more tightly bound to performance than to mere representation. Matter is not a thing but a process, and its own duration is "a mode of infecting self-differentiation" (Grosz, 1999: 28), of becoming and producing meaning and historicity within an ecology of both human and non-human practices.

I would like to conclude with the claim that these attempts to bring to the fore an ontology of matter showcase a great potential for rethinking key aspects of dance and performing arts. Indeed, we dealt exclusively with concepts of time, space, bodies, movement, agency and meaning, duration and differentiation, virtuality and actualisation. By shifting the focus on performance from having a human subject in the centre to considering matter as becoming-with, we can undo and overcome the Cartesian dualisms that keep haunting the artistic and political understandings of performance as related to human will, agency and subjectivity. This approach, which for Bergson would imply a refusal to exert our practical needs on matter, opens up our perception of the material world in order to regard it as "an integrated totality," which "exhibits a duration of its own, a mode of its own unpredictability and novelty" (Grosz, 2004: 197). In a relevant thought experiment, Bergson offers us an extraordinary description of this suspension:

> (...) if you abolish my consciousness, the material universe subsists exactly as it was; only, since you have removed that particular rhythm of duration which was the condition of my action upon things, these things draw back into themselves, mark as many moments in their own existence as science distinguishes in it; and sensible qualities, without vanishing, are spread and diluted in an incomparably more divided duration. Matter thus resolves itself into numberless vibrations, all linked together in uninterrupted continuity, all bound up with each other, and travelling in every direction like shivers through an immense body (1994: 208).

The posthumanist landscape presented by this performing matter, which "draws back into itself", "resolves itself into numberless vibrations", "all bound up with each other", and makes them travel "in every direction like shivers through an immense body", opens up the field for further artistic

exploration of the multiplicities that the virtuality of matter can entail, and which can be actualised in a constant reworking of agencies and productions of meaning.

An example of such an artistic exploration could be the work by Kris Verdonck (A Two Dogs Company) in a series of performances without human actors where machines or chemical reactions take on the task to perform. Whereas his series *Dancer* stages the machinic movement of a radial saw (*Dancer #1*), a truck motor (*Dancer #2*) or a jackhammer (*Dancer #3*) as they perform a solo in an otherwise empty venue, his series *Mass* explores the dynamism of raw matter: *Mass #1* confronts us with a low-lying sea of fog animated by autonomous chemical reactions while *Mass #2* focuses on the subtle yet unstopping movement of several graphite pools. What brings these works together is not just the replacement of the human body by a different source of agency, but the insistence on movement as a continuum of differences: the process of becoming what Bergson described as "duration". Both the *Dancer* and *Mass* series call movement into question by forcing us to attune to different bodies and rhythms and perceive in them dance too, not because their movement is virtuous from a human point of view, but rather because our presence as an audience turns those motions into an artistic event.[9] In fact, one of the acutest questions that experiencing one of those works may pose to us is how we observe and how we stand to the performance as its observers. Regardless of how matter continues to behave on its own when no human being is staging it, Verdonck's works show clearly that the congealing of meaning in front of an artistic performance is an entangled phenomenon, that feeds both on the performance of matter and on the imagination of the mind.

With this example I do not mean to state that my reading of Bergson and Barad must lead us to a theatre without human performers.[10] Quite the contrary, I consider this approach capable of opening more horizons than those that it may foreclose. Moreover, I consider it equally capable of inspiring both artistic practice and research, by calling into attention the dividing lines that we might be inadvertently drawing between human and non-human, living and non-living, intellect and matter. Another relevant aspect of this approach is its refusal to separate representations from things, in other words, to cut loose meaning from the material conditions of its emergence. This approach encourages us not just to focus on the final artistic work as a bearer of meaning but to pay attention to the working methods and conditions, to the relations of humans and non-humans, of the artists/researchers and their environment, in practices of becoming-with. In addition, we should not consider the movement of dance, performance or politics by tackling it uniquely from within, but also in relation to the apparatus or the agencies of

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9.   From the point of view of quantum physics, it is clear that attendance is already a form of participation.

10.   In this respect, Erin Manning, a close reader of Bergson, proposes an understanding of dance as a "mobile architecture". As she clarifies, her point is not to discount the human dancing body, "but to open it to its relational potential as a participatory node in the milieu of movement. It is to emphasise that there is no outside of movement, that movement already moves and that we are moved by it and move it on the topological surface of its deformation. Movement is already an architecting. It is already landing, already making space, making time" (2013: 122).

observation — whether we are talking about the audience (with their virtual diversity of abilities of perception), about an institution or about whatever social actor involved in its performative development. As we have already seen, the production of meaning is not an attribute of the performing matter, but an intra-action with an apparatus or with the conditions of emergence the performing matter is entangled with.

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