

STREAMS TOUCHING CONSCIOUSNESS: SENSORIALITY AND THE ONTOLOGY OF REPETITION

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ABSTRACT: The nature and the role of sensation sit at the heart of classic enlightenment debates about the nature of knowledge. While these debates, in their modern form, came into being several hundred years ago, many key words from them remain with us today. As a result, a number of culturally particular assumptions also remain as part of the semantic composition of these words (e.g. Wierbicka 2010). In the following, we examine such assumptions, particularly in relation to sensoriality. We contrast the classic empiricist and rationalist views on sensation, including their broader epistemological stakes, and bring forth a third account through Peircean semiotics. We suggest that the classic debate between rationalists and empiricists can be re-examined by asking how repetition exists in the world. By thinking about the ontology of repetition, and by highlighting some of the basic semiotic principles of this, we suggest that sensoriality needs to be recognized as a dynamical system rather than a system that exists for the documenting of “what there is”. In this account, neither sensoriality nor the nature of existence, including the physical world, are anchored toward absolutes on any level. This point, however, does not lead us toward rationalist claims about the non-importance of senses or the body, but toward recognition that while patterns and stability play a significant role in living systems, there is always room for plasticity and open-endedness. It is in this space between stability and change, where meaning is brought into being.

KEYWORDS: Sensation; Perception; Repetition; Semiotics

INTRODUCTION – LOCATING THE MIND

In David Lodge’s novel *thinks* (2002), the reader encounters a classic and a persistent debate about the nature of consciousness; does this phenomenon actually constitute a “problem”, scientific or otherwise? Besides this basic question, the novel also asks us to

consider – in many cases to reconsider – what are we actually talking about when we deploy the term "mind", and the related, equally elusive processes: sensation, perception, cognition. A somewhat common intellectual problem deals with linking these later three processes up as if existing on a linear chain, one proceeding from "brute physicality" of stimuli toward the presumably higher domain of cognition and thought, wherein we encounter still other "problems" surrounding languaging.

In the novel, Lodge sets up a contrast between making sense of these phenomena through a classic, what Evan Thompson (2010) calls a 2nd wave, cognitive science approach or through a more classic arts/humanities approach, one in large part inspired by Rene Descartes' framework of rationalism. On one level, the contrast in the novel highlights the problem of materiality and consequently, the location of mind in space and time; can we point to a set of neurological processes, for example, as being specific correlates of consciousness? Can we see grief being manifest on a brain scan? While the current cultural ethos has tilted toward locating both the mind and consciousness in the brain, and even though an extensive amount of brain tissue has by now been both sliced and diced, as well as scanned through various technologies, we still lack any cohesive neurologically founded explanations of either process.

Besides focusing upon the mechanics of neurons themselves, another way of looking at the nature of consciousness deals with taking the phenomenon itself for granted, while paying attention to what can be somewhat colloquially named as "altered states of consciousness". In the Lodge novel we find such approach being deployed by the arts and humanities perspective, wherein one takes it for granted that we as humans are conscious beings. Yet, this consciousness is never continuous or complete, and consequently, it is the gaps between what we are able to notice that are more interesting to interrogate and reflect upon rather than the more mundane, quotidian conscious perception.

Interestingly the latter case aligns with classic anthropological approaches to consciousness that have examined such altered states of consciousness in ritual and trance while, generally speaking, giving sparse conceptual attention to the unmarked, quotidian experiences of everyday consciousness. This situation might in part be a reflection of the somewhat humanist bias of classic anthropology. More recent turns toward 'post-humanity' in anthropology take a more critical distance to that humanistic bias, however (e.g. Kohn 2013). With this post-human turn, we are interested to see how consciousness itself might also become re-examined by anthropologists in the future.

Like classic anthropology, the novel *Thinks* is (culturally) Cartesian in its treatment of these topics, for example, in the sense of what is being left out from this account and what is thereby being taken for granted. While the novel approaches many of the key

issues through highly nuanced exchanges crafted between two main characters—a cognitive scientist and a novelist—what is not addressed is the issue of existence or ‘the world itself,’ or what English speakers commonly refer to as the ‘Real’. In other words, the overall *positionality* of the organism itself, whether a human or a bat, who experiences and engages with these processes of knowing and perceiving is left out.

Consequently, what such a conceptual move does, whether accomplished through literature, philosophy, or science, is that it dramatically simplifies the issue of sensation/perception, leaving it secondary to the presumably “higher” processes of mind/cognition. Maybe more importantly, sensation becomes frozen as static phenomena, in an analogous fashion to how in linguistics semantics can be regarded as being “frozen pragmatics”.

In the following, we trace these Cartesian based accounts of sensation that are founded upon a number of classic dualisms, such as the distinction between an organism and the environment, often aimed at maintaining an epistemologically convenient clear-cut split between what is on the inside of us and what consequently resides somehow outside of us, or “out there in the world”.

By re-examining the issue of sensation in relation to the broader question of the mind and consciousness, we will address the basic, yet persistent question of materiality and meaning in living systems.

SENSATION: MORE THAN DOCUMENTING THE EXTERNAL

In many scientific accounts, a number of explicitly cultural and historically particular assumptions about sensation are present. One such basic assumption deals with the enumeration of sensory modalities, which in many current frameworks and colloquial expressions remains centered upon the almost mythical number five (Howes 2003, Geertz 2002)

Conversely, the conventional semantic composition of the notion of a “sixth sense” evokes a linguistically marked sense of a less established process, something explicitly out of the ordinary.

Yet a closer examination of sensation as a process suggests up to 30 distinct sensory modalities to be in existence – among humans alone (Howes 2009). The main question of interest for us doesn’t so much concern the issue of how many senses there might “really” be, but rather, how and why does the cultural notion of there being only five senses persist so robustly through history? Furthermore, other central questions deal with the epistemological challenges that this cultural logic toward sensation maintains.

THE CULTURAL HISTORY OF THE SENSES AS INSTRUMENTS FOR KNOWING

Looking at the issue historically, one finds a great deal of conceptual disagreement placed upon the importance or the non-importance of sensorial/perceptive processes in relation to the (presumably) broader domain of epistemology, or knowledge itself. Yet even such disagreements, for example as cast between the rationalists—inspired by Descartes—and the empiricists (following Locke and Hume), make a number of similar assumptions about sensation that help to maintain the classic number five, a number that to some degree was established by the ancient Greeks and later recycled back into the Enlightenment debates.

The Rationalists wanted us to distrust sensorially based knowledge while the empiricists made sensorial documentation the very foundation of the Real. What both frameworks share however, is the basic assumption that sensoriality is a process oriented toward the external world, toward documenting what there really is (empiricists) or by being misled in our thinking because these sensorial imprints of the world can only be partial at best and simply hallucinations at their worst (rationalists). In other words, both theories make the assumption that the human being can be conceptually separated from ‘the world itself’ in a meaningful way.

For Descartes, the human can attain true knowledge—to know the world as it really truly is—not through the senses, for they are fallible, even presenting us with hallucinations—but through the powers of the mind; thinking, logic, and mathematics are the only central foundations of rational thought within this framework.

For the empiricists, we can only know anything at all if it is first sensorially documented. Indeed, the British philosophical tradition of empiricism as a central conceptual movement in the 1700s helped congeal central enlightenment ideals into the emerging scientific frameworks. As Raymond Williams noted, at the heart of this philosophical movement is the “old association between experience and experiment” (1983:116). While the term “experience” itself can be open toward a range of differing perceptual encounters, including those that are not distinctly grounded in material or energetic properties of the world (e.g. a spiritual or an aesthetic event), once experience is coupled with experimentation, a more narrow range of parameters is at play; namely, a more explicit focus upon capturing the essence of phenomena through materiality alone.

The Newtonian based world of existence therefore came to center upon the “brute facts” of existence. In these accounts, certainty and objectivity became highly valued cultural ideals (Daston 2007).

REPETITION: THE PERPETUALLY NEW OR THE SAME OLD?

We'll now address the issue of sensoriality through a more general level question about repetition itself: when and how can the same be "the same". In other words, this question deals with ontological aspects of repetition: how does repetition or "the same" exist in the world?

Before proceeding, it is worthwhile to frame the term ontology itself in a more detailed manner, particularly as it has gained broad circulation across a number of disciplines in recent decades.

ONTOLOGY AS A CONCEPT

The domains of epistemology, metaphysics, and ontology have classically been the purview of philosophy. Interestingly two of these terms, or philosophically speaking, areas of specialization, epistemology and ontology, have in recent decades travelled to a number of fields, including both across humanities and social sciences, in some cases also appearing within natural sciences. As a basic definitional distinction, epistemology deals with the overall domain of knowledge—what is "good" (e.g. "defendable" or "rational") knowledge and what are the methods or general premises of attaining such knowledge. Ontology on the other hand is centered upon the basic question of existence, of "what there is". Yet, in order to ask any question about the existence of things, one of the immediate questions leads us right back into the domain of knowledge itself: *how* do we know what exists, and conversely then, what is it that does not exist. One the ways in which classic enlightenment thinkers aimed to sort out these questions is by establishing distinctions such as "mind independent" vs. "mind dependent" realms of existence, categories that in some cases became further aligned with the distinction between "natural" and "supernatural". In most reductionist accounts the "natural" or the mind-independent domain is "all there really is" in terms of overall parameters of existence. One such grand historical shift occurred when the medieval cosmological account, the Great Chain of Being, became replaced during the enlightenment with naturalist taxonomies, such as Linnaean taxonomy: a shift from an organic worldview toward an increasingly mechanical worldview (Capra 2014:19).

Both anthropologists and historians of science have documented the ways in which these conceptual issues, when being played out in the scope of social life, were blatantly colored by political and ethical issues (Daston 2007, Marks 2011, Bauman and Briggs 2003). It is a common pattern across social life that core questions about the existence of things are also distinctly political questions, still today, simply on the basic level that those who are cast as being outside the modern, "rational" accounts are in some instances categorized as "savage" or as "crazy"; either one is somehow stuck in

the past, for example, being “blinded” by a given cultural tradition which does not allow one to grasp the world for what it really is or, one as an individual is lacking something in themselves, such as sanity. In either case, significant institutional consequences have historically followed as a result of such classifications, again stemming in part from these foundational philosophical, and today, increasingly “evidence based” claims about the true existence of things.

One of the particular ways in which a paradigmatic approach to the questions of existence emerged through empiricism, is the focus upon materiality that this philosophical movement takes. Again, such focus came into being as a result of the previously existing debates about the role of sensoriality within the broader domain of knowledge, here the focus being on the overall notion that ‘seeing is believing’ (Anderson and Pettinen 2014). Any philosophical movement directly influenced by empiricism consequently came to maintain that without a sensorial stimulation present, which then can be perceived by a human or through various technologies that further expand human sensorial range, there simply was no ‘true’ existence. In other words, the realm of ontology came to be centered, at least common-sensically, upon materiality being at its core. As such, besides setting up the modern vs. primitive contrast, empiricist philosophy also comes to later establish the “two cultures” (Snow 1959) of academia, or the distinction between sciences and the humanities (e.g. Hernstein-Smith 2005:12).

Given that the overall epistemological foundations of the west have tilted toward materiality, to posit an “ontological” account of repetition—an abstraction not an entity to begin with—is to already make a somewhat particular claim about the nature of existence, namely that existence is in part conceptual and cannot be captured through material or energetic parameters alone. Such an account can be grounded through various theoretical perspectives, including idealism and various post-structuralist movements that followed it in the course of the 20th century. However, in our case, we do not follow these latter conceptual movements, mainly because they have no ability to account for materiality while placing too much faith in representational processes. Another way to make the basic ontological claim that materiality alone cannot account for existence, while also recognizing that materiality is highly significant, is through Peircean semiotics, or systems theory, for example as brought forth recently by Fritjof Capra (2014). What both of these frameworks share, is the ability to account for constraints and patterns, but in an open-ended manner that leaves room for dynamism rather than being caught within the overtly mechanical enlightenment cosmology.

THE ONTOLOGY OF REPETITION

Heraclitus classically stated—or has been reported to state, as might more accurately be the case—“one cannot step into the same river twice”. In such articulation, the world is fundamentally regarded as being in a state of flux; all being is also becoming. In the words of semiotician Floyd Merrell; “everything is becoming something else than what it was previously becoming” (2010). In Merrell’s view then, all “things”(for convenience, we can focus upon material objects but the same applies to concepts and ideas) are interdependent, interrelated, and interconnected.

Along these lines, identical reproduction of anything as precisely itself is not possible—ontologically speaking. From the semiotic perspective that Merrell, following Peirce, highlights even inert objects are always in the process of becoming something else than what they previously were, because even their existence is within a particular context, within a particular set of relations that themselves cannot be stable. Of course, the issues of context are rather broad as they can be recognized differently, including on grander evolutionary scales of existence: evolutionary deep time in no way respects human accounts of the world’s becoming. Yet when shifting the perspective from ontology toward subjectivity we can locate a contrasting way of thinking about repetition and sameness.

Specifically, if we place focus on the sensorial and perceptive ways in which organisms exist in the world, in other words, upon our embodied ways of being and existing as individuals, we can note that the moment we *recognize* something, we have treated it as the same on some level. In other words, we have conceptually made a categorical move and shifted from particularity toward abstraction.

The classic empiricists get epistemologically great mileage out of the basic observation that in some instances things fundamentally are “the same”. This is the case because empiricism as a framework maintains a number of particular assumptions about the world, which lead toward a coherent stable reality existing “out there”. These two points of focus—sensoriality and reality—are somewhat circular cosmologically, both supporting each other: “if it really is there I can see it; if I can see it, it really is there.” Therefore, in certain epistemological interpretations the claim that repetition does have a distinct ontology might lead one back to regarding sensoriality simply as a means of documenting that which exists, “mind independently” as it were. In the following, however, we will take a differing interpretation toward such ontological claim.

Another way of looking at the question of how repetition exists in the world stems from taking a different stance toward sensoriality as compared to the one adopted by empiricism. Here, we can contrast the fully dynamic account of the world and of existence (a semiotically grounded ontology) and the fact that when living organisms

engage with such a world they all encounter moments of fundamental familiarity; they recognize things, they remember things, they re-encounter a range of “the same” through various sensorial modalities.

The main reason for such encounters of familiarity deals with a fundamental feature of living systems, that of memory and of learning. In essence, what constitutes learning across biological systems is the ability to perceive similarities across sensorial feedbacks. We can be reminded of Gregory Bateson’s basic account of information being “a difference that makes a difference”; the living organism recognizes something as familiar or “the same” precisely because such recognition is in some ways significant within the context of its *Umwelt* (Uexkull, 1957)—within its species-specific ways of perceiving and being in the world. Echoing these notions, philosopher of science, Isabelle Stengers further reminds us that, “learning does not mean imitation” (2003:31).

When we place the focus upon *embodied learning*, a process that is ongoing, something never to be completed, sensoriality can be highlighted as a means of engaging with the world, within the world, rather than a set of “information” gathering devices that document “what there is”. This account of sensation as a means of engagement allows us to more readily recognize internal sensorial events such as balance, hunger, or thirst, as being distinct sensorial modalities in their own right.

Furthermore, if we also take into account what we have referred to in the above as semiotic ontology—a position that emphasizes the dynamical state of all systems, whether living or non-living—we can take this point a bit further. Rather than leading us toward any epistemological angst about whether we can really, truly know the nature of the world (we can altogether bracket the solipsist doubts of rationalism: whether the world, including other people, actually exists) we can instead recognize that our understanding is always already situated and ongoing. It is the case both that the world itself acts upon our knowledge, our understanding—we can’t just “make it all up”—while it is also true that our knowledge systems themselves act upon the world and impact the manner in which we come to understand given parameters of the world.

As a whole, the broader argument about ontology is this: there is no way to truly separate subjectivity from existence. In other words, this claim challenges the distinction between mind-independent vs. mind-dependent realms of existence as being meaningful. It is indeed such a perspective that arguably led toward the rise of a “disenchanted” universe. A semiotically founded ontology includes the subjective aspects of existence, in short because if we are to recognize living organisms as *active interpreters* of their particular environments, their *Umwelt*, in contrast to being

fundamentally driven by a set of codes, we also have to recognize subjectivity in our accounts of existence and being (also see Varela, Thompson 1993, Deacon 2011).

THE TENSION: BETWEEN DYNAMISM AND STABILITY

In the last section we emphasized the view that from the perspective of life, or living systems as a whole, repetition has no ontology, you indeed cannot step into the same river twice. Things are open-ended, life is filled with digital plasticity and analogue elasticity, dynamism is both local inductive rule and global deductive law. The creativity that violates yet energizes tame expectations from inductive and deductive patterns would be the wild or less predictable abduction, the utterly new.

However, from the perspective of an individual organism's life span, repetition or sameness emerges through perceptive processes. In order for habits to form, whether functionally, behaviorally, or perceptively, some previously dynamical process needs to be treated as a stable phenomenon.

Among non-human animals such processes of learning became conventionally catalogued under various notions of "instinct". The conceptual tendency for this was in part lodged into place by Descartes, and by other humanists sharing a paradigm of human exceptionalism; the main attribute assumed exceptional was the soul that only humans were thought to possess. The soul as a categorical prerequisite equipped the human agent with various capacities that were otherwise denied from other living organisms, including language, mind, and sentience—even human children were assumed deficient and incapable of feeling pain. In part, these considerations underlay Haeckel's adage proposing that ontogeny recapitulates phylogeny.

In the course of the 20th century, the framework of natural selection became operationalized, initially through the concept of a gene, later through the concept of DNA, and now often the unit of analysis is the genome/epigenome, while more recently also holobiome (Guerrero, Margulis and Berlanga 2013) and even ecobiome have emerged as possible units of evolutionary analysis.

In time the "blueprint" of DNA coded for all further behaviors down the line, regardless of the -ome in question (a notable exception is Guerrero et al 2013). This would leave little or no room for any actual amount of learning to take place—apart from something like "operant conditioning"—except among the humans, now the supposed possessors of *culture*, rather than the more medieval notion of a soul. The logic of course, hadn't changed much.

Recognizing the strong historical roots for such human exceptionalist accounts, we can still talk about some of the ways in which repetition as a phenomenon is brought into particular modes of existence as a result of human history and culture, including

through scientifically grounded epistemology. Among humans there are a number of patterns that, for better or worse, amplify the broader tilt of learning, present in living organisms at large, toward perceiving, and actively seeking, patterns in nature and thus creating a sense of repetition.

As a whole, in this paper we work from the overall tension between the non-ontology of repetition, of taking the cosmos as being in a through and through dynamic state of becoming, and the inevitability of living organisms return and recognition of something as the same.

EPISTEMOLOGIES OF VALUE

On many levels, the story of western modernity intensifies the processes of replication, in part through a set of technological developments, such as the phonetically-based alphabet, mechanical printing and mass production of texts. At the same time, a number of these developments took place on representational and epistemological levels.

The core epistemological shift—in many ways, the very story of western modernity—centers on the development of scientific approaches to knowledge systems. The scientific modes of knowing, in large part culturally formalized in the Anglo-American tradition through the philosophical framework of empiricism, came to center on approximating the “true” aspects of the external world. One can note the ways in which this project emerges out of the broader social orders of capitalism and imperialism, systems that benefitted from a strict separation between the so called “civilized” and “primitive” modes of knowing. In short, the civilized came to be positioned as those able to recognize that something referred to as reality in-and-of-itself exists and can be set apart from the realm of the so-called supernatural, as well as from the realm of human subjective, and hence variable, experience. Furthermore, “truth” then is the domain that truly sets the civilized further apart, mainly being the publicly shared, reliable, demonstration of this reality—via autoptic witnessing and show-and-tell evidence, privileging the visual.

It is in such epistemologies wherein replication emerges as a higher good of its own kind, something to work for, something to achieve, for example, through a set of highly controlled procedures of a laboratory. Here innovation and creativity become modes of methodological performance; the ability to establish those kinds of procedures that will yield a consistent and one-to-one objective picture of the world and nature. The universal, the singular, the causal; the highest order of knowing being a universal law and certainty.

THE WORLD AS AN ILLUSION

Another strand of scientific modeling, rising from contemporary neuro- and cognitive sciences, is the account of viewing the world (as experienced by humans) inherently as an illusion, specifically one “created” by the human brain. While being now articulated in contemporary scientific contexts, these accounts echo the philosophical anxieties raised by Cartesian solipsism: how does one really know if the world as perceived by the self, more specifically everyone else except the self, is just an illusion of some kind? As both Alva Noe and Eduardo Kohn have pointed out, such Cartesian solipsism can emerge only through a thoroughly disembodied logic. If we actually acknowledge the presence of the body and sensoriality, and further recognize that we exist through such modes of embodiment, we cannot disregard the actual and inevitable existence of both ourselves and of others, all of us already within the world. In a sense, the basic argument that both Noe and Kohn touch on, is that while scientific realism came to take a very close and detailed account of living systems – it paid attention to materiality – it did so through a number of Cartesian tenets that became imbedded into the Enlightenment scientific systems. As a result, all biological systems, including the human body, came to be viewed mechanically, systems “dumb” and prone to error.

More specifically however, current neurological accounts are centered on findings that supposedly demonstrate the limits of human perceptive capacities; that the world over and over presents itself to us in a manner that doesn’t correspond with notions of a singular assessable reality, a “world-in-itself” in Eugene Thacker’s words. In somewhat obvious ways, the prevailing scientific paradigms here elevate the domain of physical and material reality, the world (presumably) “out there” rather than the social intersubjective domain that the Cartesian based problem of solipsism was centered upon. Furthermore, rather than letting go, or even reconsidering the actual productivity of the moniker “reality” itself, these models come up against the plasticity of our perception through various case studies, such as the rubber hand phenomenon, McGurcke effect, change or inattentional blindness, and color perception, casting all such phenomenon at times as sensorial “illusions”. To categorize dominant human ways of sensing and perceiving as illusions should on some level cast questions back toward the nature of the assumptions present in such categorizations in the first place (Noe 2009).

What can be highlighted here are the ways in which the accounts of a world as an illusion are indexical of the epistemologies that are premised upon valuing repetition, for example as a pathway toward certainty. Such scientific paradigms do very well on the pole of reliability, yet cannot but to lose validity through such focus. Furthermore, a number of core questions about the state of ecology or human health cannot be

directly addressed through a set of experimental procedures in the first place, in other words, replicability is not all there is even to scientific certainty (Sarewitch 2015).

CONCLUSION

Rather than regarding the human ways of perceiving the world as an illusion, we suggest that a more productive, as well as a more evolutionarily grounded way, is to recognize that both ends of the pole here are in a dynamical relation to each other. On the one hand, the world itself (the nature of existence) is a dynamical system, one always in the state of becoming something else than what it previously was becoming, even if such changes are in many ways subtle. On the other hand, living organism's subjective ways of being in such a world resonate with such dynamism. While sensorial/perceptive processes need to be able to take into account the patterned, structural aspects of the world – every moment cannot be radically new! – they also need to be able to correspond with the ways in which such patterns and structures exist both within particular contexts and within particular sets of relations. This double dynamical recognition allows us to respect the key features of life that make it an engagement with meaning on all levels of existence; plasticity and open-endedness. The core value that then emerges epistemologically is not that of certainty but that of relative stability.

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