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The affordances of inscribed mediations: Troubling the subject/object dichotomy in knowledge production

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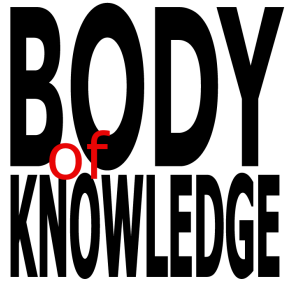
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### Publication Date

2018-01-08

Peer reviewed



**The affordances of inscribed mediations: Troubling the subject/object  
dichotomy in knowledge production**

Proceedings of A Body of Knowledge - Embodied Cognition and the Arts conference  
CTSA UCI 8-10 Dec 2016

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## Abstract

This paper concerns the role of inscribed mediation in bridging the experiential gap between cognition and knowledge production, where: (1) cognition refers to present tense, intelligence-in-action resulting from the coupling of environmental context and the standard kit of human sensation and perception; and (2) knowledge production refers to the transformation of intelligence-in-action into durable, generalizable statements about the world. The brunt of this work occurs at the coupling of the components of in situ mediations, or *things*: subjects and objects. As such, the Gibsonian concept of affordances will also play a central role, given its discursive foregrounding of the paucity of the subject/object dichotomy. A core assumption of the paper is that we are ‘always already’ living in a world of mediations, but that the knowledge productive role of mediation has not received adequate scrutiny from the phenomenological, experiential perspective of affordances. The lack of such scrutiny potentially occludes the merger of two categories of knowledge proposed by Bertrand Russell: acquaintance and description, thus fostering the possibility that formal knowledge products are only ever encountered via description. As grounding for my argument, I ask the reader to consider this paper, this *thing* of which they are a co-constituting part. As a specific *thing*, this paper illustrates the role of the object, an inscription-bearing substrate, in bounding the relationship between ‘what is known’ across time and ‘knowing’ via the interactive coupling of subject and object in the present tense. I end the paper by considering an emergent layer of mediation: the Internet of Things.

## Introduction

In the realm of the informatic, discussions of knowledge production often begin with the hierarchical relationship between data, information, knowledge, and wisdom. This relationship is commonly presented in the form of a pyramid having the category of ‘data’ as its base and ‘wisdom’ as its peak. In an abstract way, and particularly as it relates to pedagogy, this representation is fine. It is sturdy and accessible. However, in its

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accessibility it glosses over two important aspects of knowledge production: temporality and materiality. Although the hierarchy implies a contained temporality in which data is manufactured first into information, then knowledge, and still subsequently into wisdom, it extends no further. It is as though the past tense transformation of data into information is enough. That is, the circumstances, the historicity of this process, its embeddedness in an experiential context of embodied subjectivity that gave rise to the perception of information are all absent—at best tacitly implied—from this hierarchical representation. Unless this entire process occurs within the cognitive boundaries of one agent and her environment, then the question of temporality, the accessibility of information or data across time and space, must be addressed.

At each stage of this hierarchical, transformative process, the ‘whats’ of knowledge production are materialized—this is ‘information-as-thing’ (Buckland, 1991). That is, they are inscribed upon objects or materialities, be they anatomical as in the case of self-contained knowledge production occurring in the cognitive sphere of an individual, or extra-bodily as in the case of written data or digital data. In these latter cases, which are now most common—much to the chagrin of Innis’ Ancient Greeks, the fascination of Derrida, and the troubling of Flusser—the ‘whats’ of knowledge production are inscribed upon a substrate. These inscription-bearing substrates comprise objects. Assuming that these objects require subjects to interpret and analyze them in

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order to facilitate the transformation from information to knowledge, then the process of knowledge production represented in this standard hierarchy is necessarily a process of *things*: of the coupling between subjects and objects.

*Things* are at least complex as the phenomena of material culture to which they give rise. As Malafouris and Renfrew noted, “things are good to think *with* or *through*, but not so good-to-think-*about*. The more time you spen[d] thinking *about* things the less of a thing and the more of an object or category they become” (2010, p. 1). Arguably, the discursive difficulty surrounding things arises from the necessary distribution of the concept across actants in the historically dichotomous categories of ‘subject’ and ‘object.’

This problem of *things* is not new: it has received the detailed attention of scholars from many disciplines across many years. What perhaps *is* new is the emergent approach to things embodied by practices in anthropology, cognitive science, media studies, the arts, and informatics, to name a few: “...it is becoming of paramount importance to come up with new cross-disciplinary synergies, capable of transforming our understanding of the relation and co-evolution of brains, bodies, and things’ (Malafouris & Renfrew, 2010, p.1).

To this list of brains, bodies, and things, I add ‘knowledge products.’ If the world were only experienced in real-time, then the three-part list above would suffice. However, as was the case for Benjamin’s angel of history (Benjamin, Adams, &

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Prochazka, 2009), in the realm of formalized knowledge production—the realms of epistemology and practice, methodologies and texts—we tend to look from the present backwards, however contradictory that may seem given the apparently breathless progress of science and engineering in even the past twenty years. We breathe and eat and walk in the present, but we think with an eye towards the past. In scholarship, the object of this eye’s gaze is the set of knowledge products, the pads on the shoulders of giants, upon which our post-Enlightenment, mediated society is based. This past, mediated and generalizable, is the archive from which and through which statements are constructed, events are played out, knowledge is produced (Foucault, 1982).

Although this statement may appear deterministic, it need not be read as such. With each passing interpretation and re-assembly of artifacts, knowledge products, contained in the archive, the possibility of emergence appears: the role of the subject—for some, the role of the reader (e.g., Eco, 1989, 1994)—gives rise to variance in interpretation of artifacts within the archive. Still, even given this room for emergence, ‘We look at the present through a rearview mirror,’ (McLuhan, Fiore, & Agel, 1996, p. 75) via the constellation of subjects, objects, and the knowledge products contained in inscription, in prosthetic memory.

Shifting materialities—from voice to stone to paper-ish goods etched or mechanistic, to digital renderings—imply transformations of information and knowledge

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products, but not fundamental disruptions in the communicative act of maintaining durable knowledge across time. We are simultaneously *knowing what is now* and *knowing what is known already*. If we are to stand on the shoulders of giants—to produce knowledge that is not only generalizable for the good of society, but also in service to a greater ontological clarity—then knowledge production is as much a task of balance and proprioception as it is a task of formalized methodology and scholarly communication.

Certain aspects of knowledge are already implied in the three-item list provided by Malafouris and Renfrew; however, such knowledge as exists across time—formally derived via the application of one methodology, *-ism*, or another—escapes this list, or is perhaps distributed across the ambiguous mediation implied by ‘things.’ This absent or thinly spread knowledge is not wholly that of the mundane world or intelligence-in-action—not the knowledge of how to navigate a crowded street, saw wood, reduce fret noise when playing a difficult passage on a guitar, or even the direct perception of whether or not a physical constellation in the environment is climb-able, swim-able, or throw-able. Rather it is the sort of knowledge that comes by way of what Bertrand Russell (1951) called ‘description’—a knowledge of phenomena in a generalizable sense that is itself mediated by semantic-laden inscriptions upon substrates such as paper, silicon, or film. The addition and overt consideration of this ontologically coy knowledge

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becomes all the more necessary as the invisibility of mediating objects spreads through old media to new.

This paper is a theoretical entry point into a discussion bridging discursive gaps between the experience of the world in the present tense, both *through* and *with* things—things in an ablative sense, or as mediations through which or by means of which actions are taken (Peters, 2015)—and the ways in which such things exert influence on the archive of knowledge, both formal and informal. Such influence shapes the abstract concepts of an increasingly informaticized society. Such influence also, I argue, exerts influence over how knowledge products can be known across time—how the statements, ‘I know now,’ and, ‘It is known,’ relate in terms of knowledge by acquaintance and knowledge by description.

## **Subjects & Objects, Things & Affordances**

Given its grounding in the meeting space between subject and object, the *thing* is always at least a dyad, a coupling or set of couplings (however temporary). There is no *thing* without multiplicity and perspective, without the liminal spaces between categorical skins or membranes, prototypical boundaries, and what Bowker and Star referred to as the human desire to classify (2000). Insofar as this requisite duality underlies the ‘thingness’ of things, things are inherently relational. In such unstable and fleeting



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relationality arising from subject and object couplings, “the word designates the concrete yet ambiguous within the everyday” (Brown, 2004, p. 5). This concreteness and ambiguity is not only central to the *thing*, but also allusive to a term of art that is conceptually adjacent to things: affordances. I argue that we can better understand the relationship between cognition and knowledge production via the nature of things—their role in knowledge production both formal and informal—through the lens of affordances in this wider sense. As with any object in the environment, scholarly communications (i.e., conference papers) offer to actants within the environment sets of actionable possibilities, including abstract mental processes, which are mutually codetermined by the perceptual characteristics of such actants. Just as Blair (2010) and Gitelman (2014) demonstrated the impact of mediation on the production of knowledge—how the material form of curios, cabinets, even documents themselves, containing knowledge bearing inscriptions impacts how those inscriptions shape and give rise to durable knowledge—I argue that the mediation of conference papers impacts which forms of knowledge production and which modes of cognition can be represented.

The literature on the concept of affordances is vast; the treatment its history here will receive will be necessarily reductive. The term was coined by ecological psychologist James Gibson: “The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill” (Gibson, 1977, p. 127). That

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such a relatively simple statement should receive concentrated and virtuosic scrutiny from scholars in the fields of cognitive science, design, and human-computer interaction (HCI) seems at first somewhat odd. However, the root of such attention is found within the same piece written by Gibson only a couple pages later: "... an affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of the subjective-objective and helps us understand its inadequacy" (Gibson, 1977, p. 129).

Little in the realm of communication and media studies, cognitive science and HCI is more difficult to do than to think outside of subject-object dichotomies. (Such dichotomies are arguably manifest in the historically weighty theory of Cartesian duality, wherein the mind is rendered subject and the body is rendered object.) As a result of this difficulty, as Kaptelenin and Nardi noted, "the meaning of 'affordance' in HCI remains vague" (2012, p. 967). Add to the proverbial pot the notion that 'affordances' call into question the validity of theories of direct and indirect perception, and what's created is a bitter stew. Such a stew is frequently watered down in such a way as to render affordances mere properties of objects, or left off the table altogether. Taking a cue from Chemero (2003), I propose that such questions of direct or indirect perception be set aside for the moment in order to make progress towards understanding the nature of the relationship between subject and inscription-bearing object in the maintenance of the

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archive of formal knowledge production. Rather than perception, I focus on the collocation of affordances in the *thing*, in the coupling of a subject and an object.

Given the role of the subject in its construction, the *thing* appears to be always known through acquaintance, the meeting of two entities by way of overlap in perceptual field(s). This is the *thing* as set of affordances: possibilities for action mutually co-constructed between subject and object. The concept ‘thing,’ however, remains one generally defined through description, the transference of previous constructions of a ‘thing’ to potential constructions, from a steady subject projected to myriad objects. It is at this point of description at which one arrives at the ‘object’ or ‘category’ of which Malafouris and Renfrew wrote. In the scholarly discourse on things, the *thing* is always *a thing*, but rarely if ever *this one* or *that one*. Indefinite articles abound. In an attempt to remedy this problem of generics for the sake of my argument, I direct your attention to *this* thing, the thing that you are reading at the present moment—the relationship between you and this document—and request that you bear this relationship in mind.

## Two Assumptions About Knowledge

I proceed from two broad assumptions about knowledge and knowledge production. For the purposes of this paper, ‘knowledge production’ refers to a process of systematically reducing uncertainty, either by means of formalized epistemology and

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practice or by means of innate systems of sensation and perception belonging to an organism. Both processive operationalizations are ostensibly in service to successfully being in the world—ideally at the level of both individual organism and also at a sociotechnical level.

The second assumption is that knowledge can be divided into (at least) two broad temporal categories: the durable and the ephemeral. These categories roughly correspond to the phrases, ‘It is known,’ and, ‘I know.’ First is a knowledge that is produced to be known across time (i.e., formalized knowledge, that which ‘is known’), durable and relatively stable by way of generalizability. This is the sort of knowledge that has received the most scholarly focus since, say, the first and second scientific revolutions begging the validity of such statements as, ‘*x* cerebral pathway or body is responsible for *y* cognitive function,’ or ‘*b*-colored icon is more likely to elicit a click in the context of *c* GUI.’ This is also the form of knowledge that since the birth of the scholarly journal has generally maintained its durability by coupling with a physical, textual artifact.

The second broad category of knowledge is that which is known in the present tense through interaction with one’s environment. This is the category of practice and embodiment, the co-constitutive relationship between cognizing subject and object in an environment. We might think of this form of knowledge as including the ‘abilities’ (e.g., ‘climb-ability,’ ‘walk-ability,’ ‘inscribe-ability,’ ‘read-ability,’ etc.) To the former

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belongs the fabled scientific act of ‘standing on the shoulders of giants;’ to the latter belongs the proprioception and visual perception necessary to climb and remain stable should that metaphor be realized. That is, the former category of knowledge begins as the latter: that which is known now and has remained durable across time, was at one time ephemeral. Its durability ensured by coupling with material substrates, it passes into that which is known, only to be re-experienced in the present tense by a reader. The relationship between these two categories, then, is cyclical and remains cyclical regardless of the category from which one begins analysis.

By chisel, printing press, or digital materialities, formalized knowledge is inscribed and made durable, to travel across time and space on a substrate. Generally speaking, in this mode comprising a limited set of paradigms that define twentieth century empiricism, an event or phenomenon is observed, recorded, and analyzed. Findings are subsequently derived, and scientists or researchers—cognizing agents specializing in formalized knowledge production—leverage logical processes in order to generalize these findings into a form of knowledge that remains durable across time by means of inscription.

According to those paradigms for which generalizability is key, these knowledge products serve as load-bearing conceptual constructions (de Bolla, 2013) upon which subsequent findings are to be stacked. (Again we encounter the shoulders of giants, but

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the image of *fonds des archives* also lurks—stacks of knowledge upon knowledge.) The processes that construct these load-bearing findings remain as invisible as the technologies envisioned by Weiser (1991), as invisible as the technologies of paper in Derrida and Mehlman’s (1974) analysis of Freud’s (1951) theory of memory. That is, they are hidden behind the object that bears their inscribed description in the form of methods sections and findings. Such is formalized knowledge and the maintenance of the ‘social’ or the ‘informatic’—abstractions that arise at a level or perspective far greater than is accessible to any given individual, and which through reliance on (and faith in) the scientific process are then fed back into decision making processes relevant at the individual level. In such a state of invisibility the role of the object, the carrier of semantic content, paradoxically takes primacy if we are to better understand how *things* contribute to the production of knowledge.

To understand what might be known via inscribed scholarly communication, it is necessary to focus not only on what is said or inscribed, but also on the forms of mediation that render inscription readable. We must look to the relationships that arise between subjects (readers) and objects (the inscribed), to the actionable possibilities constituting the *thing* if we are to understand the role of affordances in giant step between cognition and the maintenance of the archive of scholarly knowledge.

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## Description, Acquaintance, and Things

The first form of knowledge production resembles what Bertrand Russell referred to as knowledge by description (1951). Although the knowledge product has its roots in (ostensibly direct) observation, the actual product resides on or in the substrate that carries it—spreadsheets, documents, databases, repositories, prosthetic memory. This form of knowledge is in line with the cognitivist paradigm, which separates the mind from the body as much as it does the semantic content of inscription from the substrate that carries it: if we think and therefore are, then *it* is inscribed and therefore known. The latter temporal category of knowledge constitutes something closer to the phenomenological: knowledge of the world, the import of the ephemeral and mundane. This is the knowledge residing in the act of being in the world, rather than conceptual understanding of what the world is and how one might be in it. This is the knowledge of proprioception, of wayfaring (Ingold, 2007), of olfaction's linkage with memory (Doop, Mohr, Folley, Brewer, & Park, 2006).

Ultimately, however, both temporalities are inextricably linked with the objects that embody them—the materialities and mediations that give rise to knowledge in the moment *and* knowledge across time. If the former category of knowledge resembles Russell's knowledge by description, then surely the latter form occurring in the present tense approaches Russell's knowledge by acquaintance. However, as the production of

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present tense knowledge, of intelligence-in-action, is increasingly mediated—whether fed through spreadsheets, documents, databases, repositories, etc., and subjected to (often) computerized analysis—the clear separation of description and acquaintance comes into question. To what extent is acquaintance achieved with anything other than the mediating substrate that carries a knowledge product?

In order to approach an answer to this question we must ‘let the things speak for themselves’ (Heidegger, 1968). Or, better, we must consider the relational possibilities that emerge from the thing, between the subject and the object, and the *possibility* of letting things speak for themselves. As I will demonstrate, the nature of the object that bears inscription (i.e., carries semantic content) has much to do with how that inscription can be known. The materiality of the object dictates its placement in the disappearing liminality between Russell’s description and acquaintance.

## **Affording Things via *This Paper***

You have before you a rendering of the thing that I see before me as I write. You also have before you a mediated representation of Cartesian duality. By this I mean that the constellation of objects you use to read this document has been relegated to an ‘always already’ condition of servitude to the inscribed semantic content carried by the document. Just as Descartes quipped the body into subservience to the mind, so, too, did



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his style of thought enslave mediation to semantic content. As Derrida wrote, ‘The Stones Speak!’ but they do not speak purely for or of themselves (Derrida, 1998). They speak through the violence of inscription, the reduction of the written, the chiseled: through the very absence of totality that the archive implies. They speak only when they are, as stones, rendered invisible and mute, thus giving way to the signals of the inscriptions they bear.

At the moment of reading, before you and with you, you and this paper comprise a *thing*. It is likely that you are reading on a screen, but possible that you have printed this out. In either case, this *thing* is a complex thing. Should you read on a screen, the size of the screen bears relevance to the nature of the coupling between you, the reader, and the document: Is the screen portable as in a smart phone, or more like a tablet? Is it stationary as in a giant screen sitting on a desk in an office? Are you reading this document in a windowed program that allows for markup and annotation? Do you wear glasses, have dyslexia, attentional deficits? Are you hungry or over-caffeinated?

The answers to these questions in combination render a thing unique from *this* thing that is before me and with me, this paper that I am writing sometime prior to your reading it now. In the process of reading what I write, I, and you, seek a certain distanciation, a removal of material constants from the field of stimuli so as to commune with the language of this paper, its semantic content. In writing and reading we seek the

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invisibility of mediation, an achieved but fleeting perceptual amnesia in which the screen, the paper, the pixels, the ink recede to allow semantic content.

As I write, and in one of the common vernaculars of affordances, I am engaged with the write-ability of the thing (albeit a multifaceted ‘ability’); as you read, so too are you are engaged with its read-ability. In these ‘abilities’ there is a lingering performativity to the creation of a knowledge-bearing object, which is lost upon completion. Knowledge production is necessarily performative insofar as it is to be expressed or communicated, received and deciphered.

In the acts of reading and writing a document, the object with which the reader-writer-subject couples, we are always already Cartesian, succumbing to the latent call of dualism, the separation of mind from body, of language from document. We are tempted by the invisibility of the document and its sociotechnical historicity so as to read, the acclimation of the body so as to think. Through the coupling of subject and object, the reading of this paper, you construct and achieve an acquaintance with a unique *thing*. In achieving such an acquaintance for the sake of effecting scholarly communication, the subject-reader simultaneously constructs only a knowledge by description of what I, the subject-writer, writes at this moment. As mediations proliferate, the boundary between the categories of description and acquaintance becomes porous.

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This is admittedly a difficult relationship, so I'll write through it again. You are acquainted with this *thing*, this complex of screen-chassis (or paper), annotation tools, digital-file-rendered-human-readable, and the hand that holds the screen or the desk upon which it sits. But in the generality of these characteristics, you are fundamentally divorced from acquaintance with the primacy of *this thing*—the paper as it exists between my body and the computer/tool I am using for inscription. Instead, the constellation of objects you use to render this digital file readable is likely the same constellation you always use, or at least one with which you are familiar. As such, this document-object is enrolled into the constellation of your *thing*, and it is through such enrollment that acquaintance gives way to description. Alas, in this context of written knowledge production, your *thing* cannot be my *thing*, too.

This problem is the reason for a great deal of vexation across the disciplines. Insofar as we maintain our Enlightenment practices of mediation (Siskin & Warner, 2010)—knowing the previously unknowable aspects of the world as they are mediated through apparatuses and objects—we must begin to take very seriously the role experience in the production and expression of knowledge, the grand and abstracted results of cognitive processes. That is, we must seek to maintain the visibility of our mediations and the ways in which they couple with us through our sensorial and

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perceptive systems if we are to believe in futures of knowledge from which we are not our(embodied)selves fully alienated by a process of ubiquitous description.

As our Enlightenment societies continue along their epistemological trajectories of mediation—screens, sensors, word processors—the muddy and the visceral, the visible and tactile of acquaintance recedes into infinite description. We are alone with inscription, alone with our choice of mediations. We are left with and of our *things*, to filter out or reconstruct what *things* have been with/of others. Failing closer scrutiny, what is left in this solitude is a confounding Derridian violence: “*L’un se garde de l’autre pour se faire la violence*” (Derrida, 1998).

## Conclusion

The Body of Knowledge conference (BoK) existed as a series of performances across a few days in Southern California. Those speakers and participants in attendance were, and perhaps are still in the form of memory, acquainted with it. But now, at a couple months’ remove, BoK is and will be represented by this collection of (digital) papers, inscriptions, residing in the California Digital Library. The knowledge products to which the conference gave rise are rendered durable only and always as descriptions, as objects waiting to couple with idiosyncratic subjects via myriad communication technologies. In this standardized, academic coupling, the correlation between

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acquaintance and description is taken for granted. But in the space, however small, where acquaintance and description do not align, the reductionism of inscription fails: the semantic content contained in an object's inscriptions takes precedence over the object's body. The subject/object dichotomy underlying affordances and identified as so problematic by Gibson presents as a deep-seated manifestation of dualism.

The nature of the subject and object dichotomy, the experiential and phenomenological action potentials mutually constructed between subject and object relative to the knowledge products borne by inscribed substrates, deserve scrutiny in order, at least, to acknowledge that this *thing*, this constellation of reader and written, is not BoK: it is a description, as if by partial kaleidoscopic lens, of the written distanced from its substrate. This *thing*, this paper, is as dualistic as antiquated notions of mind and body, as problematic as the subject/object dichotomy itself. Still, it seems, this dualism is necessary for want of alternative modes of rendering knowledge products durable, alternative means of bridging the gap between 'I know' and 'it is known.' At best, when a subject couples with an object in order to approach the semantic content its inscriptions contain, one can say 'I know now what might have been known then.' In so saying, one tacitly acknowledge the importance of this metaphorical proprioception in the act of standing on the (mediated) shoulders of giants—in the production of formalized

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knowledge and the maintenance of discourse, particularly in the face of emergent forms and abstractions of invisible mediation.

## Discussion

The issues surrounding the merger of acquaintance and description do not end at textual inscription. As new media maintain their newness, mediation proliferates in emergent ways. One need only peruse newspapers and television ads to see a new and potentially ubiquitous mode of mediation: The Internet of Things (IoT).

The IoT has emerged as a category of things—albeit, perhaps as with all emergent phenomena, a floating signifier rather than a formed category—slowly at first in the form of RFID, then abruptly, over the past ten years or so, accelerated by the widespread adoption of smart phones and an insatiable market for apps and efficiency. Although IoT is under-theorized (Bunz, 2016), I argue it has its roots as much in the aspirations of invisibility described by Derrida and Mehlman in their consideration the scene of writing (1972) as it does in the canonical paper by Weiser, “The Computer for the 21<sup>st</sup> Century” (1991). For Derrida and Mehlman, the theory of memory presented by Freud in his consideration of the mystic writing pad (Freud, 1951) is predicated on the role of writing, the role of inscription, in durable communication: the ubiquity, the invisibility of writing as a mode of inscription, always already colors theories of memory and cognition when

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such theories are constructed under the sociotechnical umbrella of written communication. According to Derrida and Melhman, there is no Freudian memory without the invisibility of writing. For Weiser, the issue of computing in the 21<sup>st</sup> century is inherently one of invisibility, of increasing ubiquity. Such increasing ubiquity gives rise to invisibility in the same way that a filtered lens becomes invisible after a process of perceptual acclimation: if one were to wear rose colored glasses sufficiently long enough—let’s say in the form of a permanent coupling between wearer and glasses—then the world would become a rosy place, functionally negating the validity of the non-filtered visual spectrum.

The imaginary of IoT is one of invisible mediation, achieved through ubiquity. In such invisibility resides a process in need of examination: as these things, imbued with data-collecting and sensorial ability, proliferate and concretize at a kernel-level position of descriptive prominence in the longitudinal, formalized knowledge we create about the world (i.e., the social, the economic, the informatic), it will be all the more necessary to understand the ways in which these ‘things,’ in their ubiquity and invisibility, will impact what can and cannot be known about the world. In short: how might this disappearing act grounded in what might be called sociotechnical acclimation influence the relationships between cognition, mediation, and knowledge production?

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