Making a Laboratory

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Two Cuts

Across contemporary arts and humanities, we find the body figured as technical. This idea can be founded in analyses of gender as technology (De Lauretis 1987); race as technology (Coleman 2009); somatechnics (Sullivan and Murray 2009); anthropotechnics (Sloterdijk 2013); the “original technicity of the body” (Gill-Peterson 2014); and my own work on embodied technique. What is this *bodily technicity* and how is it archived in fields of knowledge? More specifically, how does the contrast between writing and audiovisuality affect the ontology and epistemology of embodiment? Theorists of embodiment often draw on their own lived experience, but they are not necessarily equipped to design rigorous experimental systems in practice. Instead, what we find in many branches of contemporary philosophy, from poststructuralism to new materialism and affect theory, is an anxious wrestling with the limits of language. This wrestling generates often very dense, sometimes poetic,
sometimes powerful new terms and concepts. But for those outside these particular discourses, their appeal can be confusing. Why all this writing about the limits of writing? Why undertake a critique of philosophy in the medium of written text? Meanwhile, the fields of artistic research that are most actively developing new methods for experimental practice (e.g., Allegue et al. 2009; Nelson 2013; Barrett and Bolt 2013) often remain bound to notions of art and performance that undercut their epistemic ambitions. There is a pressing need for new experimental methods, for the “invention of new forms of philosophy” and new enactments of “what it means to think” (Maoilearca 2018: 108, 110).

The concept of the laboratory has a long history in theater and performance. Philosopher of science Robert Crease devoted a volume to developing an analogy between scientific experiments and theatrical processes, according to which a laboratory “is a particular space of action” (1993: 106, italics original). But the analogy between laboratory and theater is as problematic for philosophers of science as it is for contemporary performers working in the lineage of Jerzy Grotowski’s “theater laboratory” (Grotowski 1982; Schechner and Wolford 1997). While there are undoubtedly experimental aspects of theatrical processes, it has never been clear exactly how and when theatrical performances can be understood
to generate knowledge, or how such “performed” knowledge might be compared with that produced in the sciences or humanities. In theater-making, the aims of experimentation and knowledge production compete with those of artistic composition and public spectacle. How should we distinguish the space of the theatrical laboratory from that of theatrical production? In my previous work, I have used social epistemology, a branch of science and technology studies, to demonstrate that embodied technique in fields like postural yoga, actor training, and gender is structured by knowledge as much as by habit and repetition (Spatz 2015). Here I extend this thesis by synthesizing key insights from two major theorists of scientific experimentation, Hans-Jörg Rheinberger and Karen Barad.1 The understanding that follows does not result from squeezing embodied practice and performing

1 Rheinberger calls himself a historian of science and is an important figure in early social epistemology, inspiring the work of Karin Knorr Cetina and many others. Barad’s writing on laboratory science is more recent and employs a different rhetorical strategy, part of what has been called the ontological turn. Rather than linking culture and materiality at the level of discipline, Barad locates this entanglement in experimentation itself, using the term “onto-epistemology” to grasp the workings of laboratories. Barad’s onto-epistemology
arts into a scientific or quantitative frame, but instead from recognizing that the social and historical models offered by Rheinberger’s “philosophy of experimental practice” (Lenoir in Rheinberger 2010: xi) far exceed the technoscientific domains that inspired them. My emphasis here is neither on the wider context of science studies nor on their implications for critical ontologies—although I touch upon these matters below—but on the practical, methodological, and onto-epistemic structure of the laboratory as a place of sustained and systematic investigation. What parameters define the time and space of “laboratoriality” (Schino 2009: 24)? How is this “space of action” set apart from others and by what mechanism does it make its specific contributions to knowledge?

For Rheinberger, experimental practices involve “a permanent process of reorientation and reshuffling of the boundary between what is thought to be known,” the technical, “and what is beyond imagination,” the epistemic (Rheinberger 1997: 11). This suggests a kind of border or edge, continually redrawn, between the known and the unknown, which any given experimental system implements in a specific way. A similar
model is proposed by Barad in her examination of the experimental systems of quantum physics:

The boundary between the “object of observation” and the “agencies of observation” is indeterminate in the absence of a specific physical arrangement of the apparatus. What constitutes the object of observation and what constitutes the agencies of observation are determinable only on the condition that the measurement apparatus is specified. The apparatus enacts a cut delineating the object from the agencies of observation. Clearly, then, as we have noted, observations do not refer to properties of observation-independent objects. (Barad 2007: 114, italics removed)

For Barad, the “cut delineating the object from the agencies of observation” is essentially defined by an act of measurement. Yet the image of the cut, with its decisive cleaving of a whole into parts, can be applied much more broadly if we clarify two points. First, it is hardly the apparatus by itself that enacts an onto-epistemological cut. What makes something a measuring device in the first place is a whole ensemble of social and technical conditions that constitute an experimental system. Second, my key point here: There is not one cut needed to produce laboratorial
space, but rather two distinct cuts, with a crucial gap between them.

If there were just one cut separating the “object of observation” (Barad) or “epistemic thing” (Rheinberger) from the technical conditions that produce it, then it would not be possible to retrieve any meaningful data from the experimental event, because the definition of the experiment would be the same as its result. In each of the experimental systems described by Rheinberger and Barad, there are actually two cuts, two distinct ways or moments in which the technical interacts with and defines the epistemic. These two cuts are not separated by time or space, but by knowledge. That is, the opening cut does not happen first or in a different place from the closing cut; rather, the two cuts happen simultaneously and together, the difference between them being their relation to the space of unknown that emerges between them because it is defined precisely by them. Thus, what Barad calls a “cut” is more accurately a gap created by two cuts, one on either “side” of it. This gap has epistemic width or thickness and it is “inside” the gap, in the unpredictable phenomena that emerge between the experimental conditions and the measurement of what happens, that the experiment unfolds. As Barad demonstrates at length, the unknown be-
comes knowable in experimental science through an act of measurement. But the measurement cannot be the same as the experimental conditions, or else nothing could be learned. Thus, the cut is always two cuts, or better, two sets of cuts. These occur simultaneously but have different epistemic positions, one instigating the experimental event and the other measuring it. Barad declares, “what is at issue is the cut that makes a distinction between object and instrument” (2007: 328). If we clarify that, in practice, this cut is always made twice, in two different epistemic locations, and that the object therefore appears between two different sets of instruments, then we will be in a position to apply the idea of epistemic cuts in situations that have little to do with technoscientific measurement.

A single cut would be like a scientist who slips a slide into the microscope and then refrains from peering through the lens, or who takes a detailed reading of an empty chamber into which nothing of interest has been inserted. Such actions would be epistemically incomplete. In the first example, an experimental event is “opened” but not closed; in the second, it is “closed” without having been opened. To generate new knowledge, both cuts are needed: the opening cut, also known as the initial or technical conditions of the experiment, which generates a situation or object of interest; and the closing cut, by which that mani-
manifestation is measured, imaged, or otherwise traced. The opening cut generates a potentially interesting space of unknown—Crease’s “space of action” in its narrowest sense—while the closing cut produces a trace of what happens there. Hence the experimental cut is always two cuts: a cut that specifies conditions for something to happen and a cut that derives traces from what happens. Referring to these two cuts as a single cut effectively builds a particular interpretation of the experiment into its description, as if the relationship between opening and closing cuts were fully transparent or determinative. This is only possible retroactively: After the experiment has been enacted and interpreted, one can perhaps retrospectively describe both the experiment’s initial conditions and its outcome as a single cultural-material or onto-epistemic structure. In contrast, from a practical perspective, when one is immersed in the details of planning or designing an experiment, it is precisely the complex and rigorously indeterminate relationship between the opening and closing cuts that generates interest in what might take place between them.

The project that inspired this writing was well-supported for humanities research, with ample technology and a paid team of three researchers. But an experiment in the sense defined here is constituted on a micro level every time that a precise relationship
is set up between initial conditions and the derivation of a trace via an experimental moment, regardless of whether a designated room or any specialized technologies are used. To further generalize the concept of laboratoriality, we need to go beyond the assumption that the closing cut of experimentation is always defined by measurement. Barad writes: “What we usually call a ‘measurement’ is a correlation or entanglement between component parts of a phenomenon, between the ‘measured object’ and the ‘measuring device’, where the measuring device is explicitly taken to be macroscopic so that we can read the pattern of marks that the measured object leaves on it” (2007: 337). I have already noted that that the “measured object” cannot appear for the “measuring device” unless an epistemically distinct opening cut has been made. Additionally, in our context, measurement will not usually be the most appropriate term by which to name the closing cut. Measurement, or quantified tracing, is a special case of the “pattern of marks” that may be generated through experimentation, which Rheinberger calls “graphematic concatenations” or “engravings” (Rheinberger 1997: 3). Although its vast power and impact through technology is undeniable, quantified measurement is by no means the only kind of tracing or inscription that can act as a closing cut for experimentation. Indeed, to take measurement as
the paradigm of the cut, as Barad does, is implicitly to center mathematical physics as the paradigmatic mode of knowledge. We could go further and say that inscription itself is unnecessary for experimentation. Certainly, a kind of experimentation can take place without any type of inscription. The most basic experiment would take the form: Let’s do X and see what happens, where “X” is the opening cut and “see what happens” is the closing cut. I will therefore call “laboratorial” a particular kind of rigor associated with the implementation of inscription at both cuts. According to that definition, “Let’s do X and see what happens” would be experimental but not laboratorial,

2 This may be the most significant difference between the accounts of Rheinberger and Barad. While Rheinberger emphasizes “the fragmentation of the sciences into disunified areas” (1997: 179) and even acknowledges a debt to art history in formulating his theory (4), Barad’s argument is based on a reading of quantum physics as a “completely general” theory that “supersedes” everything prior (2007: 110). While she intends to use quantum indeterminacy as a starting point for an ethical and political destabilization of ontology, her centering of physics as the paradigmatic form of research seriously undercuts this aim. Despite their commonalities, Meeting the Universe Halfway barely mentions Rheinberger except in a passing comment about copyright (382).
because its opening and closing cuts are not ar-
chivally traced. An experiment becomes a laboratory
when both cuts are traced or inscribed archivally, so
that those not present can have mediated access to
both “what was done” (the opening cut) and “what
happened” (the closing cut).

By defining laboratoriality in this way, I foreground
experimentation that uses archival inscription — but
not measurement — to establish the rigor of its
cuts. I do this because I consider the investigation of
non-quantitative archival inscription to be one of the
core duties of academia in a technoscientific age.
Accordingly, I offer three definitions: Experimentality
is any kind of “trying out” (opening cut) coupled with
observation (closing cut). Laboratoriality, or inscriptive
experimentality, requires that both the “trying out”
and the observation be archivally traced. (This makes
the question of what constitutes an adequate tracing
an essential part of experimental design). Finally,
technoscientific laboratoriality pertains where the clos-
ing cut is not only archival but also quantitative, as in
measurement. These definitions put technoscience in
its epistemological place, as a uniquely powerful but
onto-epistemologically narrow type of research. All
three types of research are structured by an epistemic
gap between opening and closing cuts. This gap
is not simply an “edge” (Rheinberger) or singular
“cut” (Barad) between the known and the unknown, but a tiny open zone between two cuts that defines experimental, laboratorial, and technoscientific events. To adapt Barad: It’s all a matter of where we place the cuts (2007: 348). Within any given moment of laboratoriality, a multiplicity of highly complex emergent phenomena are simultaneously opened, or instigated, and closed, or traced, in particular ways. When we decide where to place — that is, how to implement — the opening and closing cuts of an experimental system, we are limiting in advance what can happen inside it and what can be traced of that happening. These decisions are always intuitive to a degree, even in technoscience, where “the interaction between scientific object and technical conditions is eminently nontechnical in its character” and scientists “are, first and foremost, bricoleurs (tinkerers), not engineers” (Rheinberger 1997: 32). Yet these decisions also build upon vast bodies of knowledge that sediment as the domain of the technical in any given field.

A definition of laboratoriality based on two archivally inscribed cuts can be used to reexamine existing methodologies in artistic research and other emerging interdisciplinary and transdisciplinary fields. One can apply to any research method such basic questions as: What is the opening cut and how is it
archivally traced? What is the closing cut and how is it archivally traced? This framework replaces the technoscientific emphasis on measurement with a broader understanding of onto-epistemological cuts in relation to archives and their varied affordances. Noting that “the word science derives from the Latin scientia, ‘to separate one thing from another,’ which is related to the Indo-European root skei, ‘to cut, split’” (Schneider 1997: 203n4), we could even attempt to reclaim the word “science” for non-quantitative cuts, such as those described in the rest of this book. If knowledge in a general sense is coextensive with life and has no need for archival inscription, we nevertheless must recognize the role played by archives and inscription in any institutionalization of knowledge that goes beyond direct interpersonal transmission. This is the point at which I would hope to intervene in the politics of knowledge, research, and academia. If scholarly institutions of knowledge are founded on particular relations with archives, rather than specifically on the medium of writing — by which I mean all forms of numerical, textual, and musical notation — then the advent of audiovisual research stands to radically transform the university and perhaps knowledge itself. At issue here is not only the forms that research can be understood to take, but also who can be recognized
as conducting research and what can be counted as knowledge.

Leaving these broader questions aside, I now turn to a specific new research method that is, in these terms, strictly laboratorial but not technoscientific. The method is named “Dynamic Configurations with Transversal Video” (DCTV), after the two sets of cuts that define it.