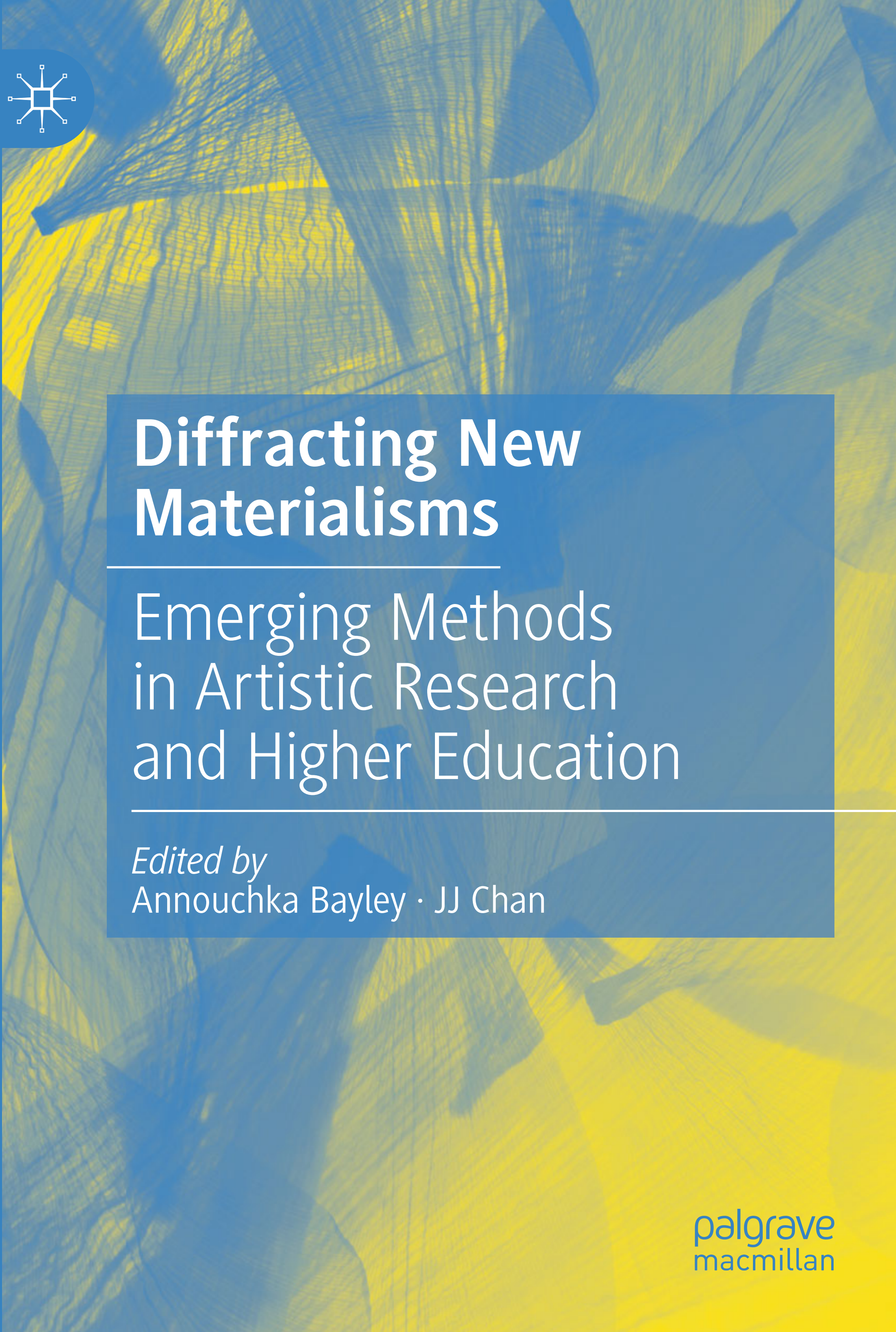

Diffracting New Materialisms

Emerging Methods in Artistic Research and Higher Education

Edited by
Annouchka Bayley · JJ Chan

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PREFACE: HOW TO READ THIS BOOK

In this volume, you will encounter a selection of essays and writings that have been devised to explain, explore or otherwise *represent* various investigations into the entanglements of new materialisms and artistic research. However, this isn't the whole story. When we the editors conceived of the book, what we wanted to do was create a work that opened the door to the *performativity* of academic publishing, rather than remain representational. We wanted the structure of the book to be presented as something you might engage with, rather than read in a standard order, or take one chapter on its own rather than as part of a world of ideas that permeate one another. We wanted to invite you as a reader to create your own interventions, affective and intellectual responses enact via *the way you read the book*.

Such performative, academic and artistic encounters aren't premised on a separable notion of 'now I will encounter this idea and now that one'. As if ideas were separable and separated, brushing up against one another occasionally and apologising for the intrusion. Rather, the ideas you find herein are conceived as an entanglement (Barad, 2007), a material-discursive configuration where 'you', 'me', 'scholarship', 'artistic practice', 'book', 'publisher', 'academic landscape' and any other number of multiple and never-entirely-knowable factors presence into the experience of reading *here, now* the contents of this book. As editors, we hope that the unique *diffractive* (Barad, 2007) journeys you take will challenge, complicate and queer the atmospheres they form as they build around you. We hope that these journeys move with and through you, to open up the many possible ways you might go on to read and of course, to build new diffracting worlds. If, as Thomas Nail suggests (2018), ontology *is* movement, then we invite you to move with the scholar-artists herein, dancing inside the pages and out into the many worlds we live and create.

In this spirit, the following chapters are intended as an inventory of practices that might become (through your readings) personal practical pedagogical tools, shaped through new material epistemological (ways of knowing), ontological (ways of being) and axiological (ways of relating/ethics) concerns for arts and education in the years of the global (post)pandemic.

Affective Reading

We invite you to engage with this book physically, affectively and personally, entangling the practices, the fingers on papers, the many open tabs on your screen, the whir of your computer, phone or tablet with the words, worlds and ideas contained within. We invite you to follow your urges and your urgencies, your desires and your frustrations, your sensibilities and intuitions, to guide you in your approach, allowing these words to act with whatever others are acting around you; moving with you, through you, as you.

The urge to engage senses other than simply the *intellectual sense of engagement with ideas* is something at the heart of the structure of the book. You might smell the pages, tap out the rhythm of the words that flash up before you or weave through your own cartographic map of chapters that differs from the one we propose. Such gestures act (unknowingly perhaps) as a ritual of somatic grounding, anchoring the pages and words with your body and your world. In a sense, as artists who engage in scholarly pursuits, we invite you to become with the work of other scholar-artists, paying close attention to the different ways you do this. Mapping and tracing the affective journeys you take and how these, in turn, go on to make new worlds, new horizons into what research and practice could be. Like atmospheres that engage and entangle with the material-discursive worlding of ideas, what does it mean to engage with a book not just as a scholarly tool, but as an atmosphere, breathing in the words and worlds and breathing out something different—something *differencing*—an utterly unique process of configuration of meanings and materials.

Breath and Becoming-with

We have learnt to become very conscious of our breathing in recent years. The global outbreak of COVID-19 arguably made the immersion of our material bodies in the matter and matters of others became increasingly visible as violence through toxic phenomena inside of us, existing in more ways than one and in many forms and states of matter(s).

In times where breathing has become a matter of viral encounter, with the closures of borders, homes and passageways in the lungs, with trust and risk, with responsibility and with critical care, we invite you to breathe differently in these pages, to breathe caringly, mindfully and hopefully, acknowledging that all of us have different and differing needs, differing access to breathing, to exhale as well as to inhale. The weight of breath can be troubling. It is an atmosphere in which we all live.

Breath here is understood as vital to life, but also as a critical practice—a critical way of being together, of staying with the trouble, as Donna Haraway (2016) might have it with all the risk, ethics and vital urgencies that thinking about breath in post-2020 brings. Breathing is material. It connects us to life. Breathing is discursive—through it, we make utterances and gestures, words and worlds. Breathing is shared. Now more than ever we know that breathing is a collective act that affects everything and everyone around us. Breathing in post-2020 is about ethics and finding ways of being together, acting together, knowing together in new ways and always with attention to care.

Whilst Covid-19 presented a physiological toxicity that could replace breath with breathlessness, breath can also be taken away by other kinds of toxic and violent patterns of diffraction which were once again made highly visible in 2020. In 2020, the murder of George Floyd in US police custody led to widespread circulation of his last words ‘I can’t breathe’, which were used as a rallying cry during international protests which arose from the anger towards institutional racism and systemic police brutality, re-invoking the visibility of matters and matter that these words have held, since the murder of Eric Garner in 2014. These words now carry with them the weight of breath and breathlessness from the deaths of many others who died in police custody and the myriad injustices diffracting out in small and large scale violences. Who gets to breathe? How are breath and brutality entangled? How are they invoked together in post-2020, becoming a configuration, an apparatus that seeks to restory the world? To restory justice?

Diffracting breathing begins to reveal the complexity of this kind of entangled critical process. Breathing post-2020 isn't just a neat little metaphor for entanglement. It is *entanglement* of the *here* and *now*. It is risky and it is dangerous. It is a right that we don't all hold equally, full of compromise and limit. It is about life itself, a sustained vitality that isn't just afforded to humans (or those who in our, still violent, political times get the luxury of being treated 'as human') alone. How we have come to practice breathing in our social, personal and professional lives has been nothing short of world-destroying/creating. It cuts-together-apart (Barad, 2007), diffracting through the worlds of those who breathe and those who don't breathe, those agents who bear lungs and those who bear things other than lungs, and all our non-human companion species. Breath is powerful. It is alive with agency in the realities of the everyday; in the geopolitical, social, economic and cultural structures of our differing encounters with the world. We are all inescapably entangled. All implicated in the realities of one another. Such matters are restless, panting and shivering realities anew.

As scholar-artists, we are engaged in the imagining of new perspectives, possibilities and realities. We are interested in disrupting established ways of seeing, thinking and doing in the world(s) we inhabit. Such moments of breath are at the core of the conceptualisation of this work; they are acts of movement and choreographies of gesture, that we might actively, consciously and thoughtfully, practice as creative practice—to rewrite the narratives of survival, of living, of how we come to be and what becomes of it.

In 1988, Ursula LeGuin first published her *Carrier Bag Theory of Fiction*, where she invited readers to upturn the notion of story as a heroic arc (so common in Western narratives of what it is to be in the world. So 'normal'. So utterly Greek!). In this small essay-book, LeGuin encourages us to create narratives that were based on the gathering together of ideas, rather than the hunting of heroism. She calls this a 'carrier bag theory of fiction' stating that such an upturning of the heroic trope might change the way we understand (and thus go on to create) our world(s).

> We've heard it, we've heard all about all the sticks and spears and swords, the things to bash and poke and hit with, the long hard things, but we have not heard about the thing to put things in, the container for the thing contained. That is a new story. (1988/2019. p. 26).

Here, now and for the purposes of this collection, we would like to propose that in the sense of LeGuin a lung might also be considered a kind of 'carrier bag'—a place to collect, gather, un/pack and stay with the troubles of our shared atmospheres. The lung is a creaturely organ that has previously gone relatively unnoticed (or perhaps ignored) on the stage of world politics and now has risen to the highest of visible prominence in our everyday, diffracting new modes of care and concern, new modes of necropolitics and injustice, new modes of 'living and dying together in a thick present' (Haraway, 2016. p.1).

Inhaling and Exhaling

A 'thick present' takes on a whole new meaning when placed in the context of Higher Education. Scholar-artists positioned in the academy come directly into contact with the weight of canons of knowledge and knowledge-making that are immensely troubling. Questions of what knowledge gets to be taught, published, written and researched are ones that invoke epistemic in/justice. Whose knowledge *gets to matter*? What kind of approach to knowledge is allowed—not just in teaching but also in our assessment practices? Are all types of knowledge and articulation allowable? Scholars who involve practice in the critical structures of their work, or *as critical structures in their own right*, are often called upon to justify that what is being done is actually 'academic'.

The version of the academy we specifically discuss here (and across this book) is Northern and Western, although neither editor is entirely Northern or Western themselves and both have come to also be neither a scholar alone nor an artist alone, but occupy the deterritorialised position shakily called 'scholar-artist' in the twenty-first-century academy. The current atmosphere we both experience in Higher Education is that 'inclusivity' is encouraged. But our questions and discussions in corridors, in doorways, and outside the buildings we work in with colleagues, students and administrative staff are often centred around one theme: Inclusive of what exactly? Inclusive of what is other? Of what deviates from the 'canon'? How far does the remit of 'inclusivity' stretch? Might we include other ways of knowing? Other ways of critically performing in the world? Might we include other modes of assessment? Other modes of being-with the multitudes of difference that make up any 'normal year' in the academy?

From this particular position—the position of being-with and being-in Higher Education in a time that comes after the 2020 lockdowns, after the first sweeping protests of Black Lives Matter, and after the call to epistemic justice signified in the toppling of relics to colonial masters of the academy, we created this project to allow a temporary pause. In this pause, we wanted to articulate the multiple differencing movements that are passing through us (or indeed *as us*) as scholar-artist-editors, and the community of divergent others who responded to our initial call to participate.

We did not ask scholars, scholar-artists and artists herein to speak directly to politics but to allow ourselves all the freedom to be with what it is to diffract new materialism and artistic research in practice. To enjoy the simple and yet utterly vital and timely luxury of being able to inhale the world around us through the apparatus of our practices, breathing in the kinds of questions that scholar-artists currently working both with/in and with/out of the academy are working with and holding them close to our heart. What kinds of epistemic justice, epistemic erasure, playfulness, liveness and experimentation are surging through the atmospheres we find in some of the corners of the academy today? Inhaling the atmospheres of the academy post-2022, certain questions emerge. What is the role of practice in academic understanding of arts and creativities? What is really 'new' about new materialisms? How do multiple ways of being together presence—ways that are decolonial, diffractive, queered and differenced? What does it mean to differentiate a work in a studio, a classroom, a site, a discipline or a world? By the end of the book, we reach out beyond the pages of the material here to ask you: what kinds of small or large material-discursive practices do you want to create? And how might these create new atmospheres in the world? Because exhaling into the atmosphere, we propose, draws us to the specific configuration we make with our own relationships, affordances and atmospheres of breath that give life to spaces we live in, think in and work in the world.

Each time we breathe out, we breathe out changed and simultaneously we participate in *changing* the atmosphere around us. For scholar-artists, for whom such a large part of our thinking and making exists within the institutional context of the contemporary university, the entanglement of critical thinking and practices of making exists as both an inseparable necessity of our work and often the precise conditions for the emergence of oppositional relations to the university itself. We may hope to be granted a pause in which to think, move and create an atmosphere of otherwise, yet after the pause the questions come flooding back in: *but does this belong in the university, or does it belong in the gallery?* We are asked to make a taggable, countable unit out of something that in truth is more of an atmosphere than a unit, a cycle of inhales and exhales that are all about process and thus allow the creation of a new approach to what a 'unit' might be. We breathe in and we breathe out and we make the world each time we do, bringing everything with us, *as us*. We are *entangled* with the configurations we make. Never entirely apart from anything we encounter, the work of scholarship, we argue, is a critical atmosphere inside of which we advance the work of thinking, doing and being for times that are risky, full of racial, gendered, environmental violences and so utterly complex. Thus, the work is at home in the gallery and the academy. Perhaps it was always an odd and powerful separation in the first place.

Overview/Underview/Innerview

Having spoken briefly of the bare problem of unitaries and countables, we now turn to how the individualised chapters add to the atmosphere herein. Each one that takes form and shape as a part of this project, shivers in a kind of synchronicity. At times, rhythmically, in differencing time(s) but also across varying genres of differing sensibilities. They entangle in what we hope to be a coherent post-disciplinary composition. Thus instead of organising the book by discipline, or by specific methodological practice, we have proposed a cut around a few key thematic areas in conversation with our participating contributors, setting out to enable the performativity of each proposed method. As a reader, we further invite you to challenge, resist, cut-anew, diffract, discard or engage in any way that produces new arcs, new atmospheres and new innovations. The themes are provocations for engagement. They are as follows:

- *fictioning*
- *embodying*
- *reading*
- *inhabiting*
- *folding.*

Methodologies of artistic research are plural and changing, adaptable and unpredictable. Those described here are to be articulated through their speculative readings, performativity and ensembles, accessed through a series of established and emerging apparatuses. Reading is disruptive and influential—it is a creative act. In other words, reading creates. It creates fictions and realities that are mutually reliant. Thus, whilst this section *here, now,* is called 'How to Read this Book' we hope you will engage with this as a question, hearing the ghost of a question mark haunting the edge of it, inviting multiple, diffracting answers.

In terms of content, many of the chapters herein consider diffraction through the apparatus of performance in the context of the arts and artistic research. Performance and practice are motions and atmospheres that not only keep us alive but also allow us to consider the differencing process that gives rise to a multiplicity of livenessness, all contributing to the entangled phenomena of academy-life-politics that scholar-artists co-create together. The focus on the performative and our critical approaches enacted here is not merely theoretical but have emerged through our own artistic practices which are engaged with notions of the artist as a performer across a multiplicity of mediums and outputs. Questions of who and what *performs* in an entangled world of differencing, are ones that the different authors featured in this book will repeatedly address. Whilst Barthes famously claimed that the author was dead, his idea that the work would have a life of its own, could in fact entail the author's continual shivering into birth—the authors and the words of this book are becoming through reading and being read. They are presence in the atmosphere, diffracting through the inhaling and exhaling of thoughts, matter and materials, giving rise to new worlds. This book is an attempt at such re/configurations of artistic modes of thinking/doing the world(s) as we come to know them anew.

A Cordial Invitation

Thus, in summary, an invitation to breathe with the editors, contributors and artistic communities that have come together in this book, is no small one and certainly one that is haunted by ecologies of risk and care that *matter*. The act of breathing together through all the artistic and scholarly labour of these chapters is the fictioning mode of world building that the editors and authors are inviting you to make with us. In the inhale, we aim to situate the world. Here contexts, politics, justice, shape, sound, visual image, play, script, aperture and all the material-discursive *things* we diffract new artworlds through are found. We invite you to breathe in these things and through a diffractive method of pulsing, pushing, transforming, clearing, cleaning and in all ways *moving* through the phenomena, finally exhale into your own utterly unique modes of participating in world building; your critical, pedagogic, artistic diffractions going on to create new practices in the world. Practice is how we build the world(s) each time a little differently. Practice is political and personal and precise. Through it, we diffract the world(s) anew, responsibly, in modes that are committed to thinking through what forms of response create the atmosphere of the world we live in. In our movements of exhale, in the expulsion of breath, toxicity, utterance, gesture, performance and creation, we empty the lungs of fiction, holding within them some harmful and other careful entanglements of matter and matter(s). This performance of porosity also can act as a wringing that opens up a becoming-porous, a becoming-receptive, a spacial body of possibility and intra-relational acts of art and making.

Chapter Cartographies: Putting it all Together

The 'map' of chapters that follows here, invites a cutting-together-apart (Barad, 2007). A rearrangement of order and the logics of our chronologies. If you are reading this digitally, we would encourage you to arrange the chapters as you feel make sense, creating folds and logics of other bindings. What other words and papers might you see fittingly bound here, what modes of thinkings and musics might also be present in the margins and echoes that you bring and what tipples or brews are due in such a concoction of material? What ideas need unbinding from the pages of this book, and the shelves of libraries, words deserving of another fold. What kinds of reading can teach a book 'new tricks'?

For print, this book is organised around five key thematic sections that deal expressly with methodologies for artistic research (fictioning; embodying, reading, inhabiting and folding). Throughout these sections, you will find various modes.

Astrid Schrader (Chapter "Diffraction as Cross-Disciplinary Methodology between Science and Arts") and Anna Nazo (Chapter "At the Deepest Depth of Uncertainty There Are Always Blue Rays of Hope") and Sarah Hopfinger (Chapter "Entanglements and Response-Ability in Intergenerational Performance Ecology: Part I") offer us, in their very unique and different ways, an introduction to the walls and potential walllessnes of the atmosphere, by guiding us through apparatic frameworks via theory and performative utterings respectively. They each extend the invitation to diffract critical ideas through scholarship and practice, offering different ways of imagining that help to craft post/disciplinary frameworks via which to configure our own atmospheric approaches to being in the academy. Whilst each comes from entirely different discipline, they provide a vital entrance point into the kind of ways that disciplines diffract critical being-with, shaping very different worlds as they do so.

In *Fictioning*, the authors consider what and where New Materialisms have brought artists in the academy, what journey we are on and how we come to tell it. This section begins with the first chapter offered in the form of a film script by Erin Hill (Chapter "A Discreet Exit Through the Back Door or in the Echo of a Loon") before Helen Iball (Chapter "Essayers, Zines, and Peeps: The Matter of Diffraction (for Undergraduate Practice-as-Research)") enters the classroom to reconsider the practice of radical and subversive essaying. Thomas Nail asks What is New Materialist Aesthetics? (Chapter "What Is New Materialist Aesthetics?"). Divergences in approach show the processes of difference differing. How do aesthetic, radical, and alternative approaches to phenomena create new ways by which we might re/story the world? What lenses, viewpoints and ways of seeing together inform the post-disciplinary agendas put forth? Sarah Hopfinger returns (Chapter "Entanglements and Response-Ability in Intergenerational Performance Ecology: Part II"), with another part of her work, this time looking at how a live responding exercise has the ability to engage us with the creation of new practices and thus new worlds.

In *Embodying*, Brian Schultis (Chapter "Magical in Spite of Being Analyzed: Representation and Diffraction in Rudolf Laban's Space Harmony") and Simon Bowes (Chapter "If One Looks Closely at an Edge: Four Dances Remember'd") both come to encounter the problematics of representation in sometimes ghostly and at other times echoey shivers of material patterning via dance and memory. What does it mean to experience the world through a human body? What constitutes an edge? How do these forms of embodiment become specific material configurations through which meaning is made? Sarah Hopfinger (Chapter "Entanglements and Response-Ability in Intergenerational Performance Ecology: Part III") returns to close the section by discussing 'bodying' across the generations. What is it to be embodied with others?

In the first chapter of *Reading*, understood as different and thus involved in differencing the mode *fictioning* on account of a historic specificity that has tied 'reading' to the apparatus of words, Annie

Abrahams, Pascale Barret, Alix Desaubliaux and Alice Lenay (Chapter "Diffractive Thinking, Reading, Writing and Playing: The Methodology of Constallations(s)") offer a kind of memoir-come-manual for reading together in the twenty-first century, aided (and also challenged) by digital software. Harriet Plewis (Chapter "Reimagining Methodologies of Reading") offers a document of artistic intervention, recounting momentary readings and re-readings, as well as un-readings and anti-readings of/through Karen Barad's Meeting the Universe Halfway. Re-readings are then considered again in Pamela Burnard and Carloyn Cooke's (Chapter "Troubling Terrains of Diffractive *Re*-readings: Performing Transdisciplinary Re-matterings of Music, Mathematics and Visual Art Materiality") through music making, and the processes of self-making observed through the MathArts project. How do reading through disciplines, through divergent practices and/or through memory create new impactful atmospherics? Sarah Hopfinger's refrain returns (Chapter "Entanglements and Response-Ability in Intergenerational Performance Ecology: Part IV") this time through a meditation on muddles and muddlings and how reading is always an act of differencing.

Following this, the section, on *Inhabiting*, begins with Kélina Gotman (Chapter "Plastic Critique"), recounting how matters, atmospheres and knowledges become entangled in the work of reading, and being read in space, *as space*. Camila González Ortiz (Chapter "Beating Around the Bush: Non-human Theatre in Manuela Infante's *Vegetative State*") considers post-human theatre through Manuela Infante's Vegetative State, asking us to reframe our way of thinking about nature-cultures. What would a different way of understanding the divide do to our notions of what it is to inhabit a body, a space or a context? Alice Gale-Feeny, Andrea Stokes and JJ Chan (Chapter "The Iridescent Creature: Notes for Performing a Webcam-Based Investigation") consider the inhabiting of digital spaces in times of enforced distance and isolation and how webcams and other devices force us to inhabit learning spaces differently. Sarah Hopfinger's refrain (Chapter "Entanglements and Response-Ability in Intergenerational Performance Ecology: Part V") returns us to the wildlife of inhabiting together in intergenerational performances. How do we inhabit diverse and yet at the same time entangled modes of knowing?

In *Folding*, Kit Danowski (Chapter "Excavating the Present: Time as Diffracting Ghost in *We Dig*") and Filippo Romanello (Chapter "The Diffractive Power of Repetition") think through time and repetition, approaching matter and matters through performance, through ends and through beginnings. How does time fold? What kinds of epistemological practices are emergent when we focus our critical apparatuses on practices of time, repetition and record? Hermione Wiltshire and Annouchka Bayley (Chapter "In/Visible Relations: Feminist New Materialisms for (Post)Pandemic Arts Pedagogies") offer us a series of lessons learnt from lessons taught, along with questions raised by questions asked we consider how matter and matters come to fold, be folded and are folding. Here the lens is focused around the sensate experience of time and being with the senses when we fold our experiences together in online platforms.

Through ends and through beginnings. In and out. Breathe in and out of these pages, because surely, the urge to smell deeply the pages of a new book are not unique to anyone; breath is a critical matter. And it is how we invite you to read this book.

Cambridge, UK Annouchka Bayley
London, UK JJ Chan

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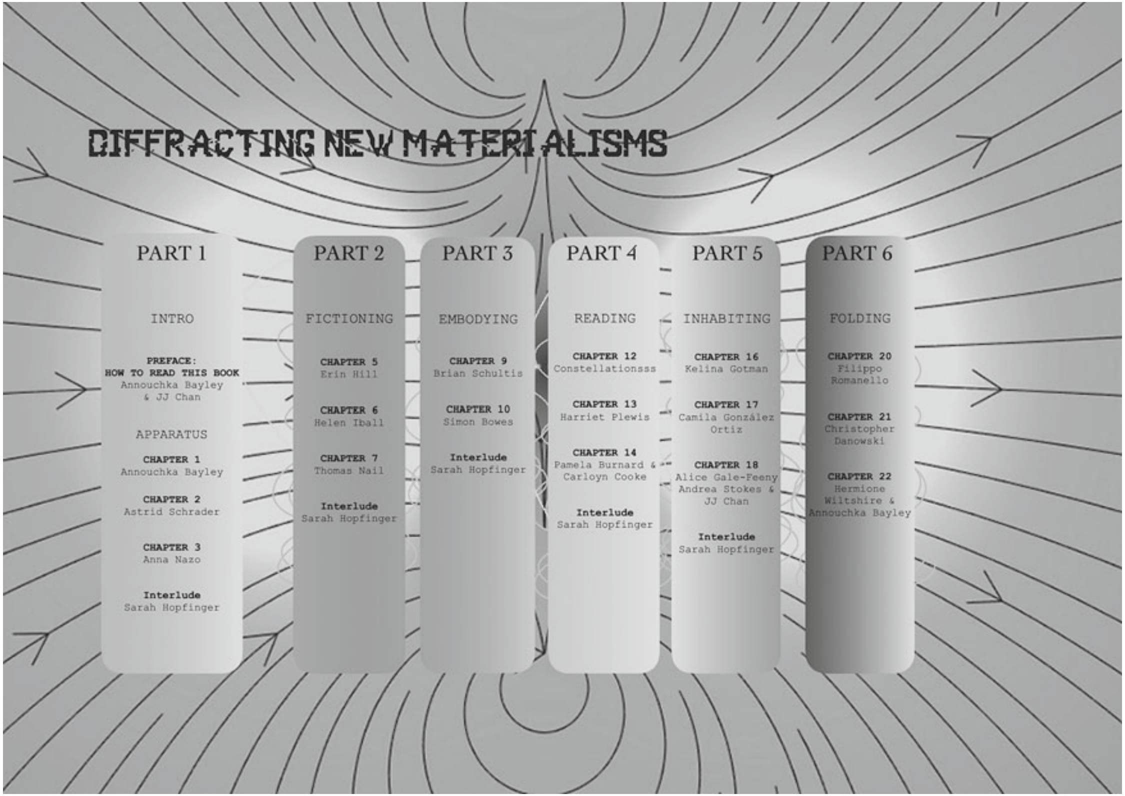
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Acknowledgements are usually reserved for naming and demarcating those who deserve special thanks; the people who have helped to realise the book you are about to read, in some direct and sometimes indirect way. As editors, however, we would first like to invite you to reimagine this citational practice with us—what such kinds of acknowledging is, what kinds of stories it tells and how they in fact acknowledge the very real and messy processes involved in the creation of any critical project. The citational gesture involved in acknowledging is an agential cut that speaks deeply to, and with, the idea of *naming* within an immense network of ideas, bodies that entangle as the world. Once named, these letters, words, screens and papers, pull and shift and reshuffle the reality of contribution into an approximation—usually one whose borders are confined to the human, and often to the humans who have, along with us, configured the privilege of being named in such a way as to be marked in such *acknowledgements*. We become *with* our citations. We breathe them in and out, expelling thousands of differenced others in each moment, naming only a few. The extent of such a citational gesture is invisible, and so we cannot in good faith imagine that we cite properly, exhaustively and correctly and with anything like the due care to the realities—spatial, temporal and material—of research.

Our thanks and acknowledgements simply cannot account for all of the actants—persons, places, memories, critters, creatures, codes or algorithms that have contributed with all their generosity and challenge to this project. Our acknowledgements are, therefore, neither definitive nor complete, but instead offer appreciation to some of those entities who have come together to make these pages a momentary cut in the material-discursive flow of the arts and the academy.

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Constellationsss: Alice Lenay, Alix Desaubliaux, Pascale Barret and Annie Abrahams, the four French artists of three different generations have been working together since 2018 as Constellationsss. Using challenges and surprises, they defied each other in online performative and collaborative explorations, improvising with the unknown of the other's gesture.

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Apparatus

The quality of light by which we scrutinize our lives has direct bearing upon the product which we live, and upon the changes which we hope to bring about through those lives'. (Audre Lorde)

What is an apparatus? A microscope? A ruler? A tool crafted by a human to break the world into smaller parts, even from the first moment someone raised a thumb and squinted and said *about this big*? Devices make measures out of senses, we zoom in and zoom out, hear differently at different scales, drawing the world back to us in a godly making of meaning.

Apparatuses are inherently humanising tools that describe a world of endless scales, flows, multitudes and polyphonies entangling in their desires, folding and separating out in a buzzing exteriority-from-within (Barad, 2007)

And so, apparatuses are more than just devices that *reflect* data back to us as if the object were *always-already* there, a thing inherently separable from the act of measurement. The way we measure is as much a part of the unfolding phenomena that we measure.

So what's a stake when we measure? When we create a system of number, an eternal cutting-into-pieces of that buzzing hum of life/*zoe*? What's in a number? Perhaps not just the unit itself, a cold and unmoving slice of time–space–matter, but a whole history of epistemologies, sounding inside the shape of a number, clawing at the edges of each one in a desperate attempt to break the boundaries and say *but I am so much more than this!* How does the material configuration of an apparatus produce not just a measurable and ordered world, but the whole way we understand what knowledge is?

Aren't ways of knowing more than just a shared language that describes one way of seeing time, space, and matter, but indeed *productive of those very phenomena?* Ways of knowing in themselves are as much apparatuses as the tools we generate to aim to *reflect* the knowledge we seek. All knowledge is performative and the tools by which we seek out that knowledge are part of a call and echo—sounding back to us not the data itself, but the way we have built the world, *as part of us.*

What if an 'apparatus' were not just productive of an observable, cold, one-voiced world, but threaded through with the history of knowledge (both those silenced and lost in the wake of colonial violence and those that speak in Gaussian tongues: *there is only one-world out there, and I will measure it!).* If you listen so closely to the performative tremors that live *inside* an apparatus, do their movements contain also the ghosts of ethics? How we measure the world becomes how we engage in time and space and matter? What are the ethics inside any measurement, inside any world-configuring apparatus? Might we build our apparatuses differently to create new worlds? What worlds might emerge, scaling up and scaling down in an infinite patterning of *otherwise?*

Annouchka Bayley

Entanglements and the Many-Worlded *Doing* of Research-Based Practice, Practice-Based Research, Practice-as-Research, and Postqualitative Inquiry in the Academy

Annouchka Bayley

The following chapter examines four key ways practice is emergent within Higher Education in the Northern, Western academy. These modes are apparent not just as conceptual configurations and conversations in the academy, but directly structure contexts (in terms of assessments and accreditations) for thinking in, with and through *practice*. Practice is a site of contestation—a world through which the academy grapples with its own shifting identities. Traditionally, as a site of *theory*, the academy arguably finds practice to slippery, too wet, too much mess, and far too prone to the trembles and remakings of bodily and embodied knowledges that signal that there may be more than one world. Worlds of knowing that don't all trace their thick presents back to a European, Enlightenment

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The original version of the chapter has been revised: The old version has now been updated. A correction to this chapter can be found at
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heritage. Practice is altogether too embedded in the daily reality of hands and/or eyes, and/or ears, and/or skin, and or/feet, and or temperatures, and or sensate knowings and all the affective, repetitive, less-than-lofty ways of being and knowing the world. And so, certainly practice must be a ‘thing’ that is in content danger of being uncritical, untheoretical, under-evaluated.

I want here, now to ask how practice was ever divided from theory in the first place. To do this, I argue that we pay attention not to the many differences the academy might spot and inculcate in their heart of every scholar setting out on an academic journey. Differences that include the idea that theory is somehow critical and practice, in the first instance, is not. Rather than understand both theory and practice as ‘things’ that have always existed in separation, I would like to propose that we pay more attention to the flows of knowledge and knowledge-making that exist around these apparently distinct and discreet phenomena. In order to do this, new patterns and configuration of theory/practice emerge. At stake and thus in need of urgent critical consideration are timelines and temporality; the material of justice or justice-mattering in and beyond cause and effect; eros and the erotic in affective and sensate registers and Western epistemic practices as they confront the many worlds implicit in artistic research knowings. As Lola Olufemi states: “[i]f I ask you to connect point A to point B and you draw a straight line, what do you think you think of history. If you draw a circle, do you think of history as living commotion?” (Olufemi, 2021. p. 3). As mentioned at the outset, the specific version of the academy discussed here is Northern and Western. It is the positioning that the editors of this book (both together, a slippery combination of mixed heritages and multiple genders) have found a temporary pause to articulate the differencing, circular, spiralling momentums passing through us. Thus, the broad phenomena *practice* and *theory* or *practice* and*research* discussed in a few specific formulations here, perform only a few modes of thinking about the realities of artistic research in an academic context. Nonetheless, these modes begin the dance, the breath, and the being-with that I hope will diffract in the relationships to position, and momentum, that you make through the apparatus of your own artistic, scholarly, educative, activist, and other life/lives.

Justice Matters

What happens if 'we'—where 'we' is always a contested site, a grouping never arbitrary and always made—scholars, artists, academics, and educators loosen the vow some of us made to the intersectional, to the *cross-roads* of practices alone and enlarged it to imagine with/in a pulsating, beating, material-discursive flickering resonance more akin to and with Barad's notion of *entanglement,* as a way to imagine how we might 'do' our work. Why then, work with 'entanglement'? As Barad states in *Meeting the Universe Halfway*, entanglement absorbs the notion of the subject/object divide as a primary ontological foundation upon which the universe is built, into one where separable phenomena are *cut* by modes of observation into being. The universe is no container in which separate entities meet, bump, or collide in encounter. Rather, at the most primary root, being is *entangled*, emerging in separation by virtue of what she calls a 'cutting-together-apart', where one part of the entanglement observes or measures another part. I love Haraway's notion of tentacular thinking (2016) as a way to start to understand this kind of logic—one arm of the octopus can act independently and observe the other arm, but it still remains an octopus for the most part, all the way down! You can do some similar thinking with mushrooms (Tsing, 2015).

The interesting thing to note here is that the phenomena do not come together to *inter*sect across a field. Rather, in line with the idea '"matter simply *is* … a doing," as Karen Barad puts it', and 'Matter *is* what it does or "how it moves", as Thomas Nail puts it' (Gamble et al., 2019, p. 112). By re-framing the ontologic and epistemic into an entangled *onto-epistemology* that performs not through examining movements or phenomena encountering each other *in space*, but rather *as part of the ongoing flow of movement itself*, 'we' scholars, artists, activists, and educators get to do very different things with methodologies. And methodologies and their methods make worlds. There's nothing in-active, non-political, or disengaged about this approach to methodology. Relationality here does not destroy or absorb the notions of activisms, action, or justice. I would argue that the resonances these modalities present, sound in tones that are quite the reverse, discordant to the idea of new materialisms as somehow devoid or in danger of drowning justice in some kind of hyper-relationality. By re-imagining the practices by which modes of lives, living, death, dying, and all other things along the spectrum are constituted, we open our deep material inscriptions to many, many more worlds. The ‘trick’ is to un/learn how ‘we’ might *practice* the world anew *as part of the entanglement* (and here the ‘we’ is very much about inclusions, exclusions, necropolitical violences, and all sorts of marks on bodies that score our modes of living into different identities, giving rise in entanglement to the activisms such *relations* rely on and cut apart to move in the world, *as the world*).

Why is this important? Because justice *matters*. Because the way we practice even the smallest acts and doings, re/affirm the flow of movement that we call the world at small and large scales. This isn’t an intersectional flow, a matter of dams and rivers and tributaries of thinking-doing that go to make up a map of the world—one that remains materially the same whether you are observing from space or fighting at the border. Such a form of thinking, an inside–outside as primary ontological base, does not account for the material flow of meaning-making moving across different specificities, *as different specificities*. Constituted through *entanglement* and as a matter of movements, justice is a resonance that is as central and specific to existence as time. Time: a phenomenon/that is at large an apparatus through which we might create *history* and at the same time, at small, an intimate companion, constantly changing the body into something else. In this configuration, justice might also become a phenomenon/a intimately threaded through with time in all its movements. Justice for *then*, justice for *now*, justice to *come*. Justice unfolding in the body and across bodies at the same *time*. As Wolgemuth et al. (2021) state: justice is *pedagogical*. It’s about un/learning the world *as* the world. So what kinds of worlds do we enact, destroy, protest, create, voice, sound, erase, undermine, affirm, and *move* together?

Of course, the next question which follows on this one’s heels is *how*? This collection brings together a range of such ‘what’s’ and ‘how’s’. The how’s are threaded through with an urgent call to rearrange the resonances and diffractions of this ‘thing’ called research into ways that are informed by a performative kind of new materialism. The editors and contributors each wrestle with ghosts—the inherited hauntings of research from worlds that affirm vitalisms, or essentialisms, metaphysics, or fixities that have held the world in place. For sure, these ghosts resonate, they clang and buzz and sound inside the movement of each piece of research. But what is happening *here, now* inside the shifting pages of this book is a call to artists, scholars, activists, and educators to find new ways to diffract 'our' thinking through the prism of a new materialist praxis that is as committed to justice—to justice-matterings, as it is to the development of arts (indeed we believe that these are entangled).

The 'how' therefore is utterly entangled with the 'what' and 'why'. These aren't separate phenomena that exist in their own four-sided, tick-box squares—the ones that appear on ethics forms ('*detail how will you* conduct *your research, in the box below please*'). Such forms see how, what, and why as sectional, perhaps even inter-sectional but rarely ever *intra*-sectional or entangled. In the mode offered here, the projects described invite an engagement that tears up the lines of such boxes and rearranges them in new patternings. These patternings invite new ways of practicing the multiple phenomena 'research'. And such an onto-epistemic approach is nothing short of world-building. Nothing short of deeply *pedagogical*—where learning, doing, resisting, cutting-together-apart, moving, and resonating are part of an entanglement that makes worlds.

Some Modes

The following is a brief entrance-point into some of the modes or territories (to call to mind Deleuze and Guattari's *de/re/territorialisations*) cut-together-apart (Barad, 2007) by the academy that currently define, and so in the new material logics offered here *create*, artistic practice as a form of critical knowledge-making. Perhaps these definitions function as apparatuses through which the entanglement of matter and meaning is diffracted into a particular system of flows and resonances, an ordering that marks bodies and creates deep positionalities. In turn, these positionalities make the world—make many worlds, moving through one another in endless momentum, each with a particular relationship with justice.

Isn't that what an epistemology is? A way of knowing the world that re-affirms it each time it moves around? But instead of knowing a world of separations and separate subject positions that have always already existed and thus may become strangely resistant to change, the modes presented across the volumes entangle 'how' we know with 'what' we know; an onto-epistemology that allows for multiple worlds to exist together-apart, where, instead of presenting a one-world as foundational, "a world that has granted itself the right to assimilate all other worlds and, by presenting itself as exclusive, cancels possibilities for what lies beyond its limits" (de la Cadena and Blaser, 2018, p. 3), we are invited to see the world(s) as diffractive, material-discursive encounters that emerge together.

This is risky and rebellious stuff. It points to a complete reappraisal of what Audre Lorde called 'the masters' tools' and thus requires we take a very real and very responsive 'look' at how we configure justice across worlds. Rather than dismantle the master's house (to refer to Lorde's essay *The Master's Tools Will Never Dismantle the Master's House*), these apparatuses build their worlds inside the crevices and gaps that such one-world territorialisations sometimes overlook. Knowledge-making from such margins, such multiple positionalities, experiences, bodies, and lives, is perhaps more in tune with the complex buzz of a multiple-ly sonorous world. Research doesn't just have to be from the perspective of one-world singularities that airbrush out difference in a violent act of *that doesn't matter*. Matter is very much the matter here. Matter and meaning. Examining how we fold these together in our practices might offer us clues into what kinds of justice might become possible for complex times.

RESEARCH-BASED PRACTICE

The configuration *research-based* or *research-led* as it is sometimes called can be associated with any discipline that works with the timeline or teleology that goes: *first research then practice*. This timeline is no stranger to the academy. Its flow runs straight—from mind to body, from thought to implementation. But perhaps this kind of timely dance doesn't need to be looked at in terms of how purely Cartesian or 'traditional' it might be. Instead, it offers us the opportunity to enquire into what we *really* mean by 'research'. What constitutes research as a phenomena? Is 'research' a matter of books and articles? Is it a matter of interviews, fieldwork, or studio time? Or philosophy? Or is research in ontological terms, a *thing* that is in itself constituted by the dynamic flow of a multitude of tiny practices, always on the move?

Being *research-based* or *research-led* is perhaps simply a call to define clearly what we mean by research. That definition goes on to become the entrance-point from which we start to *collect, create, cite,* and *write* the first few steps of the territory we cut. This is not, however, to conflate research with practice where the configuration *research-led/-based* is blurred to create a kind of *practice-led* practice by broadening what we mean by research in order to simply absorb it into practice alone. I argue the point is more subtle than that and invites us into the all-important critical consideration of our own epistemologies and ontological framings. Instead of conflation, what considering the constitution of this thing called 'research' requires us to do when we embark on research-led practice is really think closely and critically about the way we cut-together-apart the territories of research-as-phenomena and practice-as-phenomena. The *led* or *based* part defines the timeline, the privileging of modes in a *first this then that* approach to the ordering of the world. This can be urgent and necessary work, an apparatus built out of a timeline or teleology that allows us to shed light on material configurations of a phenomena where a body of knowledge *about* a phenomenon allows for a particular re/construction of that phenomenon.

This can be useful when the research is pointed in service of cause-and-effect outcomes, such as certain kinds of medical research and engineering, but also for artistic research pointed in service of policymaking/changing, or activist theatres/arts. First, we learn about the community or phenomena, then we act. As Wolgemuth et al. state, '*For me it comes back to the question of what does it do? The sensitization is important, but when we are communicating feelings, talking about the materials that matter, we have to ask ourselves whether the matter is salient to the moment, whether bringing it forth enacts justice. And just a list of 'her skin, the sun, the reflection' to me that's a description*' (2021, p. 587).

The point here is well made. In a cause-and-effect pointed research project, certain timelines in terms of the way the research is conducted can be expedient. The researcher makes a certain specific configuration that is implied in the timeline of *research-led* and that configuration goes on to create a certain kind of research cut-together-apart from a specific kind of phenomena. But this isn't the only way to create research that impacts the world. And if we are true to Audre Lorde's call to rethink the tools, then how might tools and apparatuses such as implicit timelines and teleologies go on to de/territorialise worlds in an urgent present?

Practice-Based Research

So now let's reverse the flow, from practice to research. Here the way we define practice now becomes the entrance-point, the diffractive apparatus through which we begin to create the configurations we have become a part of, from the moment we first decided *I want to do some work here, now*. The want, the desire, is also important to notice. Desire is practice in action. And it is also a research practice in its own right.

In her essay *The Uses of the Erotic*, Audre Lorde first defines her terms. Here, the erotic is all about joy, desire, and satisfaction. It is an 'emotional', 'psychic' play of phenomena. It has nothing to do with pornography, which is what Lorde suggests is what patriarchy tries to make out of it, to reduce it to. Once we know the erotic within us, we can 'know the extent to which we are capable of feeling that sense of satisfaction and completion [and so], we can then observe which of our various life endeavours brings us closer to that fullness' (Lorde, 2017, p. 8). This kind of erotic knowledge, Lorde calls dangerous to patriarchal, racist or other such violently divisive power structures, as such powers cut apart the sensate joyful, desirous way of being in the world *as the world,* which might configure sexual encounter, but is not reducible to sex alone. For Lorde, the erotic lies in all the kinds of ways we know the world (epistemological), experience encounter (axiological), experience the fullness(es), meaning(s), and joy(s) of just being alive (ontological). And so,

> This is one reason why the erotic is so feared, and so often relegated to the bedroom alone, when it is recognised at all. For once we begin to feel deeply all the aspects of our lives, we begin to demand from ourselves and from our life-pursuits that they feel in accordance with that joy, which we know ourselves to be capable of. Our erotic knowledge empowers us, becomes a lens through which we scrutinise all aspects of our existence, forcing us to evaluate those aspects honestly in terms of their relative meaning within each of us. And this is a grave responsibility, projected from within each of us, not to settle for the convenient, the shoddy, the conventionally expected, nor the merely safe. (ibid., p. 11)

The 'grave responsibility' is key here, as is the motion to meaning-making. Eroticism has a critical intelligence to it. Eroticism is a *practice*. Thus, eroticism has its own inherent intelligence and knowledge-making aspects to it. It is another way to know the world as the world.

When we come to *practice-based* or *practice-led* research, we arguably allow for the entrance-point into the research to be made out of such forms of becoming-research practices. The affective, sensate sense of the paint, the stage, the woods, yes—even the *sun on her skin*, have an implicit political technology embedded within them that places the knowledge(s) cut apart by the academy and deemed extraneous, or even dare I say it pornographic in terms of revealing the reality of the research experience in the same way pornography reveals so much of the flesh that it skins the *erotic* out of the frame—leaving it to flee to the elsewhere. The politics here is nothing less than those bodies, experiences, knowledges, and so on in themselves: the ones whose specific marks mean that they too must remain erased; that they too must flee to the elsewhere. Those undesirable bodies, savage bodies, colonised bodies, feminised bodies, female bodies, trans bodies, queer bodies, and *other bodies.*

When we reverse the timeline and privilege practice *first,* then the research, we make a political kind of commitment to these forms of embodied and situated knowledge(s). We start to work with *many* other worlds, p(l)aying attention to the kinds of knowledges that the surfaces we encounter, touch, resonate with, feel are part of practice, from the most mundane everyday to the most complex, institutional, organisational, and academic. From the perspective of entanglement, this is simply another way to cut-together-apart the world. It is a diffraction, a specific configuration, just as research-based/led practice is. It's all about entrance-points. Each one has its own unique and very beautiful kind of politics. Its own specific configuration of how to *do* justice-matterings.

Practice-as-Research

At this point in the discussion of different modes, we come to play with a tiny preposition. Such a small thing that has such a resounding impact in the world. *As.* In the spirit of remaining specific and critical with our definitions, *what is 'as', really*? What does it mean? We might need to be careful because *as* can create a reductive formalism if not held and worked with, with care. And we have already discussed how the definitions we approach our research with imply huge apparatuses that make worlds.

The inherent representationalism of *'as'* is something worthy of note. It points to the power and potential of diffraction. A as B. $A = B$. But can anyone phenomenon really be reduced to another without any emergent *diffraction patterns*? Write the A on top of the B, and particular diffraction patterns emerge. These patterns also include you, your pen, the page you write on, or your screen and the pixels that disappear and reappear *as if never having been anywhere in between, as if flickering in and out of existence, from virtual to actual and back again.* Now reverse the flow—the timeline. Write the B on top of the A. See yet more diffractions! More differences differing from each other. Now if you like, return to the question of *as*. What is *as* but a swirling, shifting, swerving, resonating, *moving ontology* of diffractions?

Finding the critical entrance-point into *practice-as-research* from here, what we might draw our attention to now is the diffractive possibilities of *practice-as-research*. How do practice and research mapped through each other (rather than onto), create new patterns of difference-making. To note here, we aren't looking for what *differences* are made. What solid, countable spot-the-difference type of difference can we account for. This comes at a later point in the configuration, if we want it to (see timelines emerging as a kind of cutting-together again…). What the *as* allows us to do, what is built into its apparatus, is it allows us to see the *processes* by which the research (and all its actants) make difference.

This is the power of *practice-as-research*. It arguably invites us to momentarily exit the kind of cause and effect exemplified by processes that have a very clear teleology or timeline, privileging one or another flow for a clear and necessary critical reason (usually in service of enacting certain kinds of justice) and allows us to examine the way difference is actually made. Arguably, this is urgent if we want to uproot in/justices all the way down to their pulsing atomic-epistemics. Once again, we find another way to approach justice-matterings from inside the entanglement, creating new modes of approaching justice, opening ourselves to the chaos of the many worlds that breathe life into the one we casually call 'ours'.

Postqualitative Inquiry

In a way postqualitative inquiry shifts and slides through all of these, informed by the ghostly heritages of artistic research practices positioned with/in the academy. What postqualitative inquiry does perhaps, is diffracted these heritages *through* the varied thinking apparatuses brought by posthumans and new materialisms. The attention paid to the entanglement of matter and meaning is key here. What does it mean to think at the fringes and edges of orderly flows of time, space, and matter *as a radical act of innovative research*? As Lather and St. Pierre write, 'The ethical charge of our work as [postqualitative] inquirers is surely to question our attachments that keep us from thinking and living differently' (2013, p. 631). Perhaps this is what makes the 'inquiry' part of postqualitative inquiry so interesting. A postqualitative inquiry is threaded through with a continual attention and awareness paid to its processes and how such diffractive practices matter the world through research. And as de la Cadena and Blaser, and Savransky remind us, *there are many worlds*.

Thinking about justice-matterings, the becoming-just, or in more simple terms a commitment to re/scribing an ethics that might move as an entangled part of the complexities of post-2022 worlds, Sedgwick's work on the reparative buzzes and lights up in the passages of this diffractive approach to research. If as Sedgwick (1997) states, paranoiac research practices sift and search for moments of unjust practices pulsing in the overlooked places of any research project, then too, what she calls the 'reparative' mode is also cut-together-apart inside of text/doing. If the matter has been ripped from meaning and vice versa, creating the need to think urgently in terms of flows and timelines and appropriate *orderings of things* in order to best meet justice halfway, then it is indeed right and timely to meet such rippings at the site of the fissures they have created and is created by, to play just enough by injustice's rules, using its own deep languages against it. But if we are to take Lather and St. Pierre (2013) at their word, what would that mean in terms of questioning the kinds of attachments—the habituated ways of cutting-together-apart of the world—in order to think and do it all differently *this time*. This call to an entangled approach to reparative research practices has nothing to do with an outside, with pressing eject, with a 'stop the world I want to get off' and play in the eternal soup of sensation. What makes a posthuman, new materialist approach is the quality of entanglement itself. It is an eternal interior, made of fleshly and nonfleshy matterings that are constantly on the move *as movement* (Nail, 2019).

Paranoid and reparative modes of postqualitative research privilege are not just an investigation of the flow of timelines per se in a kind of 'what mode is being given precedence this time?' But a deep attention is given to the way that phenomena arise. As we know from Barad (2007), the way we observe is an entangled part of the mattering. What postqualitative research allows for (but perhaps doesn't always succeed in enacting) is the reparative that Sedgwick calls for so urgently. This is how postqualitative inquiry, artistic research of many forms, new materialisms and posthumanisms, ethics and justice, and the positionality of doing/being research practices might diffract through one another to produce new research.

Cutting These Thoughts

The approaches to the phenomena Research-based Practice, Practice-based Research, Practice-as-Research, and Postqualitative Inquiry spoken about so briefly here are not in any way a survey of the deep and varied histories, historicities, voices, modes, and meanings of any, which would require a dedicated, if not encyclopaedic amount of work. Rather, this short piece here offers an entrance-point into modes crafted from a very particular view of entangled phenomena in and for research. What such an apparatus, crudely put together as it is, is threaded through with, is a deep commitment to the profound potential of these modes of research to fail and fail better at creating new configurations of ethically responsive, open, sensate, voiced movements in this often violent act that we call 'research'.

This book is an attempt at such re/configurations of artistic modes of thinking/doing the world anew. This particular entrance point that you read in the position of *here, now*, whatever that position may be, invites you to do so through the moving parts of this apparatus, including, timelines and teleologies, eroticisms and sensate practices, multiple and many worlds rather than singularities, critical paranoia and reparation. Because the world has never been less than many, or fully made.

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Diffraction as Cross-Disciplinary Methodology between Science and Arts

Astrid Schrader

Art–science collaborations have often happened in what Barry et al. (2008) call a service-subordination mode of interdisciplinarity, in which arts practices are supposed to render science more accountable and accessible for a wider public, or, the other way around, in which science functions as a resource for an innovative art project. In contrast, we envision a diffractive cross-disciplinary methodology, in which the disciplines get neither synthesised nor merely serve one another. A diffractive methodology investigates how 'the world is materialized differently through different practices' (Barad, 2007, p. 89). Rather than employing a hierarchical methodology that would put different modes of thought, representations, or practices against one another, diffractively engaging with different traditions and practices means that they are read or worked through one another to engender creative and unexpected outcomes.

This chapter first provides a brief history of diffraction as a feminist reading/writing technology before it elaborates on the ways in which diffraction may work as cross-disciplinary methodology in specific arts-science collaborations. The focus will be on two science–art projects,

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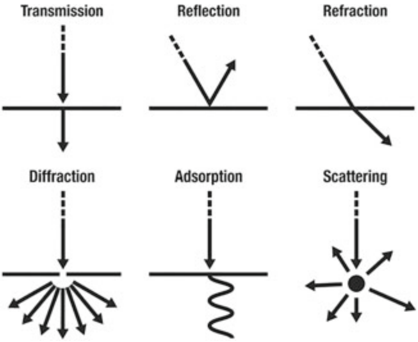
collaborations between visual artist Deborah Robinson and aquatic biologist Simon Rundle around their work with a species of aquatic snail *Radix balthica*. Through a superposition (a technical term in quantum physics that will be elaborated below) of science and art, the works interrogate the nature of knowledge production and visualization in science, rendering visible the process of scientific observations, while simultaneously shifting relationships between observer and observed. Diffracting the scientific gaze, the works draw attention to how spaces of indeterminacy are cultivated, and new temporalities are constructed.

INTRODUCTION TO DIFFRACTION IN FEMINIST SCIENCE STUDIES

Like reflection, the notion of diffraction is borrowed from the optical sciences; it refers to phenomena in geometrical and physical optics that describe the alteration or bending of light as a result of contact with a surface or obstacle (see Fig. 1). While reflection returns light waves or thoughts to where they came from, an origin or an autonomous author, diffraction describes the bending of waves around an obstacle; diffraction patterns result from interferences of different overlapping waves; their amplitudes may add together or cancel each other out (see Fig. 2).

There's a critical difference between the classical notion of diffraction of light or water waves (described in geometrical optics) and quantum mechanical diffraction (described in physical optics), as in the latter the nature of light (as wave or particle) remains indeterminate outside specific experiments or apparatus. When considered as practice, analytical tool, or methodology, the difference between the classical and quantum mechanical notion of diffraction has important epistemological, ontological, and ethical consequences. Importantly, for my purpose here, the quantum physical notion of diffraction troubles a linear notion of time and a progressive temporality of knowledge production that is assumed in modernist conceptions of science (Latour, 1993). As Murris and Kohan (2021) note, reading bodies of texts diffractively through each other breaks with the temporality of progress. For Barad, troubling the nature of time conditions the possibility for change (Barad, 2018).

In the case of classical diffraction, light waves interact with an obstacle or their environment; the effect of that interaction changes not only the direction of light but also its shape and kind. In quantum physics, diffraction manifests the very nature of light (as wave or particle), that



Reflection: When a wave meets a boundary, it can be reflected or transmitted. Reflection can be partial or complete. Reflection can also involve a phase flip (change of phase of 180 degrees.)

Refraction: Refraction occurs when a wave crosses a boundary from one medium to another. A wave entering a medium at an angle will change direction.

Scattering: Scattering implies a change in the direction of motion of a particle or wave, involving the departure from a straight path due to a collision. The wave energy is usually deflected in multiple directions.

Diffraction: Diffraction is a wave phenomenon; it refers to the "bending of waves around an edge" of an object. Diffraction depends on the size of the object relative to the wavelength of the wave.

Fig. 1 Behaviour of light waves (physics weekly)

is, its ontology, rather than simply changing its shape. Diffraction can be thought of as a practice that modifies bodies and relations (e.g. between subjects and objects) in an encounter.

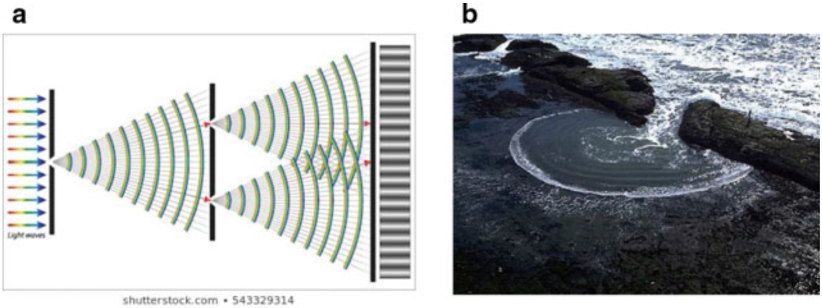


Fig. 2 **a** Diffraction pattern (Shutterstock). **b** Water wave diffraction (University of Cambridge, Rolls-Royce UTC)

Diffraction was introduced into feminist science studies by Donna Haraway (1992, 1997) as an optical metaphor for knowledge production intended to make a difference in the world of technoscience. Haraway suggests that ‘Reflexivity is a bad trope for escaping the false choice between realism and relativism ….What we need is to make a difference in material-semiotic apparatuses, to diffract the rays of technoscience so that we get more promising interference patterns on the recording films of our lives and bodies’ (1997, p. 16). Material-semiotic apparatuses for meaning-makings and knowledge productions are however not necessarily full-fledged methodologies. Haraway is wary of methodologies: ‘words like “methodology” are very scary’ she says in an interview (Haraway, 2000, p. 82). For her, diffraction is a trope, a guiding figure, perhaps also a reading and writing technology—not one without consequences; certainly not a neutral one. Karen Barad’s quantum physical elaboration of Haraway’s notion of diffraction, which they develop within their influential framework of ‘agential realism’ (Barad, 2007), is more akin to a methodology that can travel within and across the disciplines.

Artists and educators have been among the most enthusiastic readers of Barad’s work, and some of them have developed diffraction into pedagogy with the help of arts practice-based learning (Hickey-Moody et al., 2016). ‘Diffractive pedagogies’, writes Helen Palmer (2016), ‘pay attention to the inseparability between the knower and the known, the teacher and the taught, and learning/teaching bodies and the pedagogical environments and apparatus involved’. Diffractive pedagogies not only affirm differences and highlight the materialities of knowledge practices but also force students to grapple with undecidabilities and encourage an openness to the not-yet-known (Moxnes and Osgood, 2019). While undecidability is an epistemological term, a fundamental ontological indeterminacy lies at the core of Baradian (quantum physical) diffraction. A diffractive methodology not only forces practitioners to grapple with not-knowing it also reveals the indeterminacies of the nature of things opening up creative spaces between science and art.

As reading practice, a diffractive methodology pays attention to possible interferences of texts; rather than reading works against each other, diffraction encourages the reading of works through each other in order to engender something new. It allows for different stories or disciplines to inhabit each other. Diffraction is however not a methodology that could be applied to specific phenomena; rather it will have to be performatively enacted (see also Murris and Bozalek, 2019).

Some background is important in order to appreciate the power of diffractive approaches to deconstruct enduring dichotomies between nature and culture (or society) subject and object of knowledge and knower and known. According to Barad 'diffraction troubles the very notion of dicho-tomy—cutting into two—as a singular act of absolute differentiation, fracturing this from that, now from then' (Barad, 2014, p. 168).

I will introduce Haraway's and Barad's approaches to diffraction separately. They are often lumped together or introduced as Barad developing Haraway's notion of diffraction. This is however only one possible view; they can also be read as complementary and thus achieving slightly different things. For Haraway, diffraction is not only a material-semiotic apparatus that can be a practice but also a figure or trope, a metaphor for making a difference in the world. For Barad, diffraction is a material-discursive practice; their emphasis is on the materiality of the practice and the entanglement of 'agencies of observation' with the 'objects of investigations'. As described by Michel Foucault, a discursive practice is a practice of knowledge formation; it pertains to knowledge formation rather than language; while not necessarily practiced by humans alone, it always involves politics (see Bacchi and Bonham, 2014). Note that a discourse is different from a semiotic tool; a material-semiotic apparatus is often part of a discourse, but can also operate on different and multiple scales of meaning-making. Resisting methods, Haraway works with figures and figurations that 'are performative images that can be inhabited. Verbal or visual, figurations can be condensed maps of contestable worlds' (1997, p. 11). The entanglement of the verbal and the visual are crucial in Haraway's diffractive practices. Moreover, 'Figures always bring with them some temporal modality that organizes interpretive [or discursive] practices' (1997, p. 11). Rather than 'agential', Haraway calls her realism 'figural'.

Crucial to both approaches is attention to differences and creativity, relationalities, and nonhuman agencies. Diffraction moves away from the logics of progress and opposition; it moves 'away from the logic of negativity built into the Hegelian–Marxist dialectics of consciousness in critical theory' (Taguchi, 2012, p. 269).

The cross-disciplinary science–arts projects discussed below play with the visual representations of developmental processes of aquatic snails in shifting contexts. The focus will be on how through a manipulation of the visual representations and temporalities, the diffraction of science through art reconfigures the relations between subjects and objects and redistributes material agencies.

HARAWAY'S NOTION OF DIFFRACTION

Haraway first introduced the notion of diffraction in her essay 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others' (Haraway, 1992, 2004) with the help of Vietnamese filmmaker Trinh Minh-ha's notion of inappropriate/d otherness, and later elaborated it as a tool for feminist research in technoscience in conversation with Lynn Randoph's painting 'Diffraction' that depicts multiple selves inhabiting one body. In the book *Modest_witness@Second_Millennium.Femaleman©_Meets_Oncomouse*™, Haraway (1997) introduces diffraction as material-semiotic tool, a fourth component to be added to syntactics, semantics, and pragmatics in semiotic theory.[1]

It is important to note that diffraction refers not only to a scientific phenomenon but also to an optical one. The importance of Enlightenment metaphors of vision in science and knowledge production are not rejected, but rather updated; updated in a way that pays attention to the relentless particularity of embodied ways of seeing. 'Diffractions', Haraway writes, 'takes advantage of the optical metaphors and instruments that are so common in Western philosophy and science' (1997, p. 16). Optical instruments are also semiotic tools, while figurations are material practices. Figures are neither literal nor self-identical; they engender uncertainties and displacements. For Haraway, the visual and the verbal are inextricably entangled.

In addition to reflection or reflexivity, diffraction moves beyond mimesis, a strategy that Haraway detects in the work of science studies scholar Bruno Latour: 'a relentless, recursive mimesis. The story told is told by the same story. The object studied and the method of study mime each other' (1997, p. 34). 'Figural interpretations', Haraway elaborates, quoting Erich Auerbach on mimesis, 'establishes a connection between two events or persons in such a way that the first signifies not only itself but also the second, while the second involves or fulfils the first' (1997, p. 10). Diffraction deconstructs mimesis and its self-fulfilling temporality.

In 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others', Haraway puts Trinh Minh-ha's notion of inappropriate/d otherness to work. The notion changes the geometry of relations between people, but Haraway extends it to include other organic and inorganic beings. 'To be an "inappropriate/d other" means to be in critical, deconstructive relationality, in a diffracting rather than reflecting (ratio)nality—as the means of making potent connection that exceeds domination' (2004, p. 69). Diffraction here becomes a tool to make a difference within the belly of the monster, undoing dialectical oppositions. In order to do so, Haraway misappropriates Greimas' square, a structural tool designed to construct narrative through dialectical oppositions. Instead of through negations, places and stories are re-composed from interference patterns. The stories contained in her four squares interact and overlap across times and spaces. They are not posited in dialectical opposition. Each story is deconstructed internally and juxtaposed with alternative narration that figures naturecultures (one word!) differently. Refusing the opposition between 'modern' and 'postmodern', she regenerates an 'amodern' history allochronically; diffraction may engender relations between events occurring in different times. Haraway interrupts 'the ordinary course of things' in employing the structural device, Greimas' semiotic square, famous for its inability to account for diachronic history, to elaborate deconstructive relationalities and diffraction. 'Diffraction is a mapping of interference, not of replication, reflection, or reproduction. A diffraction pattern does not map where differences appear, but rather maps where the effects of difference appear' (2004, p. 70). 'Diffraction patterns', Haraway asserts later, 'record the history of interaction, interference, reinforcement, difference. Diffraction is about heterogeneous history, not about originals' (Haraway, 1997, p. 273). But not only that, Haraway's diffractive movement shows how neither semiotics nor squares nor circles were left intact. Diffractions tear down the entire Euclidean geometry that depicts space as a container and time as an external parameter.

Barad's Quantum Mechanical Notion of Diffraction—From Metaphor to Methodology

Barad takes issue not only with the geometrical optics of the reflection of light rays but also with the classical notion of diffraction, which renders the nature of the optical apparatus independent of the object of study. For Barad, '[d]iffraction is not merely about difference, … but about entangled differences that matter' (Barad, 2007, p. 136). In Barad's reformulation, a diffraction apparatus is not a recording device, but an apparatus or a technology that is never a pure instrumentality for specific ends, but inseparably entangled with what it diffracts. Barad's quantum mechanical notion of diffraction pays careful attention to the indeterminate nature of light. Diffraction in Barad's account is about the undecidability/indeterminacy between what functions as technology/apparatus and what is the object of that articulation/measurement. The intra-actions can never be finally extracted from the resulting pattern. In this way, the object of study becomes entangled with its measurement apparatus. Their notion of entanglement problematizes the notion of 'effects of differences' that could be (mis)read as following the intra-actions in time. Time itself is reconstructed in material intra-actions.

In the words of Bozalek and Zembylas (2017), diffraction is thus seen as both a process or practice and as a result—ontologically a being and becoming. In other words, *how* we record interferences matters to *which* differences come to matter. While reflection can document difference, diffraction is a process of producing difference; a diffractive methodology implies a profound reworking of research, teaching, reading, and writing processes. The main differences between 'diffraction' and 'reflection' as knowledge-making practices are summarized in Table 1.

Table 1 Summary of differences between 'diffraction' and 'reflection' as knowledge-making practices, adapted from (Barad, 2007, pp. 89–90)

Diffraction	*Reflection*
Interference pattern	Mirror image
Differences/relationalities	Sameness/mimesis
Performativity	Representation
Entangled ontology	Separate entities
Knowing as material practice	Knowing as transmission of truth
Intra-action	Interacting entities
Differences emerge from within	No difference/absolute separation
Reading through	Reading against
Accountability for differences	Reflection of representations

Diffraction as Research Practices

The proliferating literature on diffractive methodologies describes many different forms of diffractive practices; the common denominator is a focus on relationality, materiality, creativity and the unexpected. Because of the focus on difference and creativity, diffractive material practices have attracted great interests in the arts. Dancing, as Hickey-Moody and colleagues (2016) describe it, is however not the only way to problematize boundaries between teachers and learners, subject and object, embodiment and theorization. The most common form of a diffractive methodology is a diffractive reading practice in which different texts are read through each other rather than against each other. This goes beyond the reading of data through various conceptual lenses but aims to generate differences through mostly unexpected interferences. Diffractive reading practices are possible with any text, even though some texts encourage interferences with other texts more than others. Texts don't have to be reduced to printed things; readings can refer to (always material) observations and other ethnographic practices (see also Schrader, 2012, in press).

In their chapter 'Practicing Diffraction in Video-based Research', Mengis and Nicolini (2021) argue that diffraction has been mostly understood as metaphor rather than a practical orientation and that it has remained unclear how diffraction can be used in research practices. They argue that diffractive practice can be interpretive, a methodology, or inventive. A central concept for visual artists is the notion of the gaze that acknowledges that practices of seeing are socially and historically constituted. Mengis and Nicolini (2021) liken the notion of the gaze to a particular kind of Baradian apparatus, that is, a set of material-discursive practices that are productive of the phenomenon. Different apparatuses or gazes produce different phenomena. It is important to note that 'the gaze is not in the eye of the interpreter but rather lies between the eye of the photographer, the camera, photographic practice, and the practices of interpretations of the viewers' (Mengis and Nicolini, 2021, p. 5). Becoming aware of the gaze as culturally constituted and disciplined visuality is however not sufficient to make a difference. As the apparatus cannot be factored out of the phenomenon, an alternative gaze needs to be mobilized. Mengis and Nicolini explore the interferences between two different gazes. They put a 'traditional gaze' in conversation with a 'relational materialist gaze' in order to engender creative provocation (2021, p. 8). A similar kind of diffraction is achieved through the repositioning of the viewer of a scientific experiment in an art gallery as described below.

In her elaboration of diffraction, video artist Amba Sayal-Bennett (2019) emphasises the 'embodied engagement with the materiality of the research data'. Paying attention to the embodiment and the materiality of the arts practice allows Sayal-Bennett to reconnect the artwork with its method of production, something a representational analysis could not achieve. Similarly, Hillevi Lenz Taguchi (2012) understands 'diffractive analysis as an embodied engagement with the materiality of research data: a becoming-with the data as researcher'. The data cannot be regarded independent of the situation of their production. A diffractive methodology is essentially performative.

Temporal Diffraction and Not-Knowing in Science and Arts

For Barad, diffraction is not an event but 'a dynamism that is integral to spacetimemattering', more specifically an untimely dynamism, generating a multiplicity of moments within what they call a 'thick now'. According to them '"Now" is […] an infinitely rich condensed node in a changing field diffracted across spacetime' in an 'ongoing iterative repatterning' (Barad, 2014, p. 169). Barad's view on time has been evolving and changing since the publication of *Meeting the Universe Halfway* (2007), inspired by both Benjamin (Barad, 2017), Derrida (Barad, 2010, 2014), and findings in quantum physics on 'temporal diffraction'. What seems to be clear; however, there is no meaning of time outside specific material-discursive apparatuses. Sometimes 'time' gets broken apart into a multiplicity of (holographic) moments (2017), 'threaded through one another, knotted, spliced, fractured, each moment a hologram' (2010, p. 243); at other times, temporality is created in the action (Barad, 2010); sometimes time itself 'is diffracted through itself' (2017, p. 22), or, the past gets diffracted 'through the present moment, like the play of light inside a crystal' (2017, p. 43). According to Barad, 'temporal diffraction is a manifestation of another, much less well-known, indeterminacy principle: namely, the time-energy indeterminacy principle. As a result of this indeterminacy principle, a given entity can be in (a state of) superposition of different times. This means that a given particle can be in a state of indeterminately coexisting at multiple times—for example, yesterday, today, and tomorrow' (2017, p. 67). Another kind of temporal indeterminacy appears when ontology itself can become 'history'-dependent, as I have argued with the help of the life-histories of marine microbes (Schrader, 2010). In any case, 'no absolute boundary' exists 'between here-now and there-then' (Barad, 2014, p. 168). Anything new is necessarily aporetic, it must be simultaneously connected to a past (to be recognized as something) and disconnected from it (in order to count as new).

This insight is central to creativity in general and to creativity in the arts in particular. For artist Rebecca Jones, aesthetic wisdom lies in knowing how to let go of knowledge. Jones (2013) affirms that a temporal paradox lies at the heart of creativity in the arts: in order to be original, an arts practice cannot follow any rules; it must be disconnected from tradition; rules, however, can and must be abstracted retroactively after the fact in order to recognize the art as something new; at the same time, an arts practice must also draw on other kinds of knowledge (aesthetic traditions) and technical skills (technē). Such a temporal undecidability (or spectrality) seems to be a precondition for creativity that allows for the cultivation of spaces of not-knowing or heterotopias, representations of 'other' utopian places. Jones elaborates further that for the philosopher Kant, not-knowing results from our inability to grasp infinity as a whole. As a consequence, when a subject encounters something it cannot represent, a sublime feeling occurs. Seeking to represent infinity we inevitably erase it. The Kantian tradition of the sublime suggests transcendental relations that can be recuperated through the rationality of a human subject. There are, however, other possible relationships to moments of not-knowing than suggested by the Kantian tradition of the sublime. As Jones maintains, infinity doesn't have to be associated with bodily transcendence but can inhere in every sensation in so far as any sensation can be regarded as singular.

In some accounts, not-knowing is also a virtue in scientific practices, but a virtue that has been disciplined out of science, according to the philosopher of science Isabelle Stengers (Juelskjær et al., 2020, p. 145). Similar to Jones' account, Stengers maintains that cultivating moments of not-knowing in the sciences would require to shift the meaning of 'knowing' to creating 'a language that opens up the possibility of 'encountering' different sensible forms, of reproducing them, without for all that subjugating them to a general law that would give them 'reasons' and allow them to be manipulated' (Stengers, 2000, p. 157 quoted in Whatmore, 2003, p. 98).

In both of these accounts, in both the sciences and the arts, the generation or cultivation of spaces of not-knowing assumes an in-principle-determinable and representable nature of things; the failure of representation is then associated with the infinite complexity of 'nature' that in its entirety remains inaccessible to ordinary mortal humans. In such accounts, knowledge production and creativity remain a rather anthropocentric affair, affirming a representationalism that assumes an absolute externality of the human observer and a world that would remain unaffected by the observation of it.

A diffractive methodology suggests an alternative way to cultivate spaces of indeterminacy; rather than drawing on the unrepresentability of infinity as a source of not-knowing (that can be associated with human finitude); agential realism conceives of indeterminacy in ontological terms; it is due to an ontological inseparability, an entanglement of an 'object of study' and the 'agencies of observation'. There are no things outside of phenomena and specific material-discursive apparatuses that bring them about. New diffraction patterns are created through a superposition or interference of 'things', phenomena or the disciplines in this case (as discussed below). 'An interference pattern is an objective mark of a superposition' (Barad, 2007, p. 269). Superpositions are the embodiment of a quantum indeterminacy; they 'represent ontological indeterminate states—states with no determinate fact of the matter concerning the property in question' (p. 265). Below I will discuss how superpositions of scientific and artistic practices may change relations of knowing; before that however it seems necessary to outline some stereotypical assumptions about the difference between the practices of science and art.

Stereotypical Differences Between Science and Arts

Art is defined as creating something new; science presumes a static past present and merely reveals what is already there. This apparent opposition in their relation to time might be due to a particular humanistic conception of time and agency. Science is question driven and is assumed to produce knowledge teleologically. Arts does not generate answerable questions, it doesn't produce knowledge, instead it tries to generate affects and experiences. It is assumed that to be receptive to difference you need to cultivate a certain kind of ignorance; a space of otherness has to be actively created. The audience is not separate from the arts project but forms a constitutive part of it.

One of the main or fundamental distinctions between science and art projects is the location of agency. Science describes or discovers and art creates, or so the story goes; scientists seem to be committed to revealing what has always already been there, while artists create something new. In one case human labour seems to leave the world unchanged, in the other case human labour seems to be the only force that matters. In order to appear objective, scientists seem to busy themselves with a continuous erasure of their own agencies in order to make the object of investigation appear to speak for itself (see Latour, 1993). This process seems to be the opposite in the creative arts, almost by definition in the arts human agency is manipulating passive objects or materials. Science–art projects put this alleged opposition in question.

Creativity in science is not associated with the production of an object; the object itself is either supposed to be something found in 'nature' or to mimic something 'natural'. Creativity or invention in science usually refer to the tools and approaches that bring an object about. In other words, it is the apparatus of mimicry that requires scientific creativity; In Sarah Whatmore's terms—following Stengers and Latour—'consequential displacements' transpose something like e.g. soil into numerical, textual and visual records (Whatmore, 2003). In the case described below, creative intervention is required to transform the life history of an aquatic snail into videos of transparent blobs in a petri dish.

The goal of experimental biology is of course not a complete description of 'nature'; experimental biologists do not pretend to replicate 'natural' conditions in the laboratory; they rather try to approximate field conditions in a controllable manner. And this often creates great anxieties among scientists about how to connect laboratory conditions to environmental conditions in the field and how to establish the ecological relevance of their laboratory experiments.

Mimicry, however, can also be strategically employed in the arts. In Luce Irigaray's account, mimicry suspends the 'pretension to the production of a truth' and of a univocal meaning; mimicry is a 'playful repetition' that has the power to make 'visible' what was supposed to remain invisible (Irigaray quoted in Xu, 1995, p. 79). A diffractive methodology can do that too; however, it distributes agency differently. While mimicry relies on the agency of human actors, diffraction shifts the attention to the agency of the material-discursive apparatuses and the shifting relation between 'subjects' and 'objects of study'. A diffractive reading of science–arts intervenes into this stereotypical view of science and arts; it makes visible the creativity in science and also the rule boundedness of arts; in other words, it reveals the art in science and the science in art.

Diffraction in Cross-Disciplinary Practices

In a 2005 interview with Joseph Schneider, Haraway relates diffractive reading practices to transdisciplinary skills. Designing and reading a scientific field experiment takes one set of skills, reading a novel takes another set of skills, she asserts. 'Those different reading skills interact diffractively' (Schneider, 2005, p. 149). Different skills can mutually reinforce and/or interrupt each other, just like the amplitudes of interfering waves get both amplified in one location and cancelled in another. Reading the content of one discipline in the framework of another produces 'jokes', in Haraway's lingo: what appears straightforward within one context becomes bent in another. While there are certainly cultural differences in humour perception, whether they are funny or not, cross-disciplinary interferences or diffractions are both productive and disruptive; in any case they are creative. Barad (2014) calls the simultaneous process of producing and disrupting 'cutting together-apart'. The disruption however should not be understood as a critique. Unlike 'socio technical integration' in which an STS researcher becomes embedded into technoscientific practices in order to intervene and disrupt the flow of things in the process, making the specific technoscientific practices aware of their social dimension, a diffractive methodology is not trying to critique or correct a workflow, but rather attempts to open up new spaces in which differences can interfere (Smolka et al., 2020).

Barad's own theoretical framework of agential realism is the result of a transdisciplinary diffractive reading practice across Niels Bohr's quantum physics, Judith Butler theory of performativity and Michel Foucault's account of power and his notion of apparatus or 'dispositive'. 'Reading diffractively … can be regarded as a boundary-crossing, trans/disciplinary methodology, as it brings about 'respectful engagements with different disciplinary practices' (Barad 2007, p. 93)' (Geerts and van der Tuin, 2016).

Diffraction has been enthusiastically taken up by artists and in cross-disciplinary collaborations between science and arts. For artist Annette Arlander, rather than such a 'boundary-crossing, trans/disciplinary methodology', which is 'blurring the boundaries between different disciplines and theories to provoke new thoughts' (Geerts and van der Tuin, 2016), diffractions can be 'produced by shifting circumstances' that may cause 'ripples' or 'bendings', or 'interference patterns' (Arlander, 2020).

A transdisciplinary reading however must be distinguished from cross-disciplinary collaborations, in which collaborators from different disciplines continue to have stakes in their disciplinary practices. Transdisciplinary research is often regarded as 'transcending' individual disciplines 'by disobeying their barriers and norms in its pursuit of a larger framework' (Peterson, 2019, p. 69). 'Transdisciplinary research approaches aim to promote integration across disciplinary boundaries, in order to provide new perspectives on complex problems' (Benham and Daniell, 2016). Such research practices are often characterized as emphasizing 'real-world' problems and are conducted in partnership between researchers and 'external stakeholders'. What counts as 'real world' is often pre-conceived in these cases.

Rather than aiming for synthesis or blurring the boundaries between disciplines, a diffractive cross-disciplinary approach may examine how boundaries between the disciplines are enacted, maintained and re-enacted. In collaborative science–arts projects, it is through the process of cross-disciplinary collaboration that differences arise. Science–arts projects don't necessarily contribute knowledge (in a representational sense) to their own discipline, they rather contribute an understanding of differences between their disciplines and thus help to define and simultaneously shift the practices of their respective fields.

Diffraction in Robinson and Rundle's Science–Arts Projects

In the following I elaborate on an established long-term art–science collaboration between Deborah Robinson (visual artist) and Simon Rundle (aquatic biologist) that forms part of what they call the RADIX network (with which I have also been associated since 2014). RADIX was founded in 2011 through a residency of Robinson in Rundle's laboratory at the Marine Biology and Ecology Research Centre (MBERC) at the University of Plymouth. The network owes its name to *Radix balthica*, a species of aquatic snail that Rundle uses as a model for exploring the link between developmental biology, evolution, and climate change (Robinson, 2014b).

Aquatic biologist Rundle has been investigating environmentally induced changes to developmental timing of aquatic snails and other critters living in estuaries and intertidal zones. The timings of development are critical to the survival of these animals under changing environmental conditions. Rundle explains, 'Key life history changes such as hatching and settlement (the change between a planktonic larval state and a bottom-dwelling juvenile), and maturation (the change from juvenile to adult) are fine-tuned to environmental conditions. These rhythms are now being disrupted by human-induced changes to the environment'. In the laboratory, scientific observations reveal that the timing of developmental transitions varies within a species and this variation may be a critical factor in allowing adaptation to climate change. For example, the timing of heart development in a marine snail determines whether they live or die when oxygen is limited (Rudin-Bitterli et al., 2016; Spicer et al., 2011).

Robinson's main interests in these art–science collaborations have been with both metaphorical and material lenses that isolate, capture, and engender an object of scientific investigation, and how artistic interventions may reveal assumptions about the processes of creating visual data in science. She 'had developed strategies that would reveal un-thought or "unconscious" structures' in scientific knowledge production (Rundle et al., 2014, p. 445). Some of these strategies involve drawing on surrealism to evoke a repressed 'underside' of scientific knowledge such as the mind/body or nature/culture divide upon which experimentation is premised (personal communication with Robinson).

Robinson and Rundle's joint projects explore the borders and interfaces between science and art, while investigating tensions that may arise between aesthetic decision-making and the scientific method. The creative process of generating artwork not only interrogates and adds a critical dimension to the scientific practice but also generates new perspectives and insights through interferences of science and arts. The diffraction of artistic and scientific practices may render visible what science either left invisible or labours to hide.

Work with and around the embryos of the aquatic snail *Radix balthica* has led to a number of collaborative science–art projects, including *Atria* (2011), *Transpositions* (2012), *Wandering Snail* (2014), and *Noisy Embryos* (2017). The first (*Atria*) and the final project (*Noisy Embryos*) in this series focused on sound. *Atria* was a sound installation, in which Robinson, working with sound artist David Strang, translated visual data from video recordings of the heart of the developing snail embryos into low vibrational sound. During the installation, an intelligent speaker system created multidirectional sound. The installation offered an immersive experience that drew attention to the sensory body of the observer, which more often than not gets erased from scientific experimentation. Sound cannot be easily contained or distanced from a listener/observer as it might be possible with the visual form (Rundle et al., 2014).

In the words of the artist, '*Noisy embryos* is an multi-channel, audio-visual installation that reflects on the relationship between scientists and the animals they observe by juxtaposing videos of snail embryos generated under laboratory conditions with the 'messiness' of the natural environment and of the process of data collection in the field'.[2]

I decided to focus my discussion here on *Transpositions* (2012) and *Wandering Snail* (2014) as these manipulate and transpose visual representations rather than changing the form of representation all together from the visual to sound. *Wandering Snail* also contains a sound component; in this case, however, sound does not replace the visual form but rather interrogates it. *Transpositions* reconfigures temporalities most explicitly and demonstrates the process of diffraction both literally (though the generation of ripples in a liquid contained in a petri dish) and metaphorically through the interference of science and arts. All of the projects seek to immerse the viewer, render the process of observation tangible and draw attention to the shifting relations between human and nonhuman agencies.

Radix balthica is found in a range of different habitats in Northwestern Europe, including small ponds, lakes, rivers and brackish waters, including the Baltic Sea. The snails can endure a range of environmental conditions, e.g. different salinities and temperatures and exhibit a high degree of plasticity in shell form, pigmentation, physiology, and development. Due to its plasticity and tolerance of a range of altered conditions, *Radix balthica* has become a model organism to study traits that are beneficial for survival under altered environmental conditions, such as predation stress, climate warming, and increased saline intrusion into freshwaters. Rundle is particularly interested in intra-species variations of the timing of developmental events due to climate change. Moreover, *Radix balthica* reproduces rapidly and their embryos are transparent and can therefore be easily observed in the laboratory.

In both *Transpositions* and *Wandering Snail*, scientific experiments are removed from the laboratory and placed into a new context; in cross-disciplinary diffractions, artistic interventions both disrupt and amplify scientific procedures, re-focusing attention to the process of observation in science—the very process that allegedly objective science is trying to erase, while also drawing attention to the processes of creative transformations.

TRANSPOSITIONS

Transpositions (2012) is a video installation by Robinson featuring films of the development of the embryos of *Radix balthica* produced by marine biologist Oliver Tills (at the time, a researcher in Rundle's laboratory). The transparency of the egg capsule assists in viewing the inside of the embryo. The production of the scientific image follows a rigorous protocol that involves the collecting and culturing of snail embryos, image acquisition with a custom-built bio-imaging system, time-lapse imaging, patient observation of developmental events, image analysis, digital documentation and processing (Tills et al., 2013). *Transpositions* appropriates the scientific film footage,[3] showing the growths of the snails *Radix balthica* in a different context: The artist transposes the scientific imagery onto a surface of dark liquid. Upon observation, the image is disturbed with the help of a glass pipette, enlarged and projected onto a wall. In the words of the artist:

> In the artwork, the imagery is projected onto the mirror-like surface of dark liquid, held in a round, shallow glass tank. The presence of the viewer intermittently causes a probe to dip into the pool, disturbing the perfect surface, and transforming the projected imagery into ripples of light that are reflected onto the adjacent wall.

The artistic interference renders visible the interferences within experimental observations[4]; Robinson (2012) continues:

> Removed from a laboratory setting (its origin) and reflected in the dark well-like form (somewhere between a petri dish and a conduit into another world), the image is disrupted and transposed, hinting at uncertainties in the space between the boundaries of science and art.

The installation of the artwork is accompanied by a catalogue with commentary by Rundle, other artists, philosophers of science, and literary scholars. While, for the artists, the work makes visible the process of observation and challenges its transparency, for the scientist the artwork provokes a conceptual challenge. For Rundle, the concept of ideal development is challenged through the diffractive process with the arts. In his commentary, Rundle (2012) elaborates on the tensions in developmental biology between idealized images of embryos and what he calls ‘natural’ variation. Some variations, such as variations in the timings of development of specific organs—such as the heart—are biologically important and can indeed be significant for the survival of a species. While variations in developmental timings can lead to evolution in aquatic snails, they are often suppressed in scientific representations, as only the most beautiful embryos are chosen, according to Rundle.[5] This demonstrates how the adherence to specific scientific methodologies and aesthetic conventions in science may undermine its own process of discovery. Through the selection of images,[6] it was easily overlooked that heterochrony that is usually associated with a phenomenon between species defined as ‘an altered timing of the expression of a developmental stage or event between ancestral and descendent species’ could also be significant within a species (Spicer et al., 2011). For Rundle, the art–science project reveals the relevance of aesthetic components and conventions in science.

In her commentary, artist Caterina Albano (2012) focuses on the notion of transparency as material and conceptual lens. Art intervenes in scientific transparency, while making its function visible. Transparency is implied in the visual transposition of the video recordings into time-lapsed 're-presentations'. Transparency suggests a mimetic relation. While transparency mediates between observer and object, seer and seen, diffraction shifts their relations and re-entangles them in a different kind of phenomenon. Albano argues that the installation shifts attention from knowledge production about the embryo back to the life formation of the organism, the developing embryo. This is achieved through temporal manipulations that foreground the agency of the snail embryos. Initially the scientists adjust/condense the developmental time to the temporalities of the attention span of the human viewers with the help of time-lapse technology. Through another visualization, the projection of the enlarged diffracted image onto the wall disrupts the video sequence, and another temporality is superimposed onto the developmental time. An impression of pulsation is created through 'the perceptible temporal lapses that separate each individual sequence to the next one', as the viewer watches the palpitation and movements of the growing embryo (p. 35). Attention is shifted from the observation of the development process in time (adjusted to human temporality) back to the pulsation of the embryo heart. Thus, the superposition of two temporalities enables a shift in the relation between the viewer and object of observation. The knowledge of developmental growth is backgrounded in favour of an experience of a lively pulsation. The scientific manipulation of the snails' developmental time is not erased but highlighted as manipulation such that viewers can insert themselves into the temporal lapses. This is making visible the apparatus of scientific production and a specific materialization of time. Human–snail relations are 'cut together apart'—to use Barad's (2014) compelling notion—differently in time. As Laura Salisbury (2012) puts it in her commentary: 'noise interferes with the signal, but noise can also become the ground from which nourishment [or creativity] can be gleaned'.

Transpositions suggest a movement across disciplinary boundaries; 'both a state of being transposed and that act of transposing'; a sense of reciprocity and transformation arises simultaneously (Roulstone, 2012, p. 4); the transposition of contexts, the crossing of positions between the disciplines is both disruptive and connective. Diffraction is at work both within the science–art project as a deconstruction of mimesis or transparency (in Haraway's sense) and across the disciplines as interferences that engender new phenomena (in Barad's sense). While closing some uncertainties, the diffraction of science and art opens new generative spaces of indeterminacy between science and arts.

WANDERING SNAIL

'Wandering Snail' is a scientific experiment in an art gallery. The name alludes to the widespread distribution of *Radix balthica* and its frequent renaming after its original description (as *Helix balthica*) by Linnaeus in 1758. The project is a collaboration between Deborah Robinson, Simon Rundle, and sound artist David Strang; the installation was part of the FIELDS exhibition at the National Arts Museum in Riga in 2014.

The installation consists of glass containers filled with water, living snails, and a plant (Canadian Pond Weed) on which algae grow that serve as food for the snails. The glass jars are arranged in sets of three with snails from different locations that exhibit different salinities (a river near Plymouth, the Gulf of Riga, and further south in the Baltic Sea). The jars are connected by wires and illuminated by LEDs such that the light intensity corresponds to the salinity. A 4th jar set on a shelf above the other jars contains a device that converts salinity measures into values for the LEDs; it serves as 'control' and 'reference' for the experiment. Through direct manipulation or interference, the set-up literalizes the notion of experimental control (see the artists' account in Debatty, 2014), highlighting aspects of scientific experiments that are commonly backgrounded. Ethical concerns related to the survival of the snails take on new dimensions in a gallery.

The gallery viewer is invited to participate in the act of 'monitoring', being provoked to move between an aesthetic and a scientific gaze. As in Mengis and Nicolini's account discussed above, two gazes are made to interfere: a scientific gaze and a relational one which destabilizes the former gaze. The scientific gaze is diffracted through the implication of the viewer, who is assumed to reside outside a scientific practice but positioned as a collaborator within the arts practice.

The experiment is accompanied by sound; three readings of a text by Linneaus narrating his journey to Gotland on which he collected *Radix balthica* and later identified.[7] Two other versions of the text are scrambled up with the help of a late nineteenth-century-sorting algorithm called

'Radix Sort'. The story of Linneaus' visit to Gotland connects the 'laboratory experiment' to the 'field'—losing that connection is one of the great anxieties of scientists doing ecological research—, in this case to *Radix balthica's* origin while the remixing destroys any illusion of a pure origin.

The artists describe the installation as depicting the 'essence of an experiment' in which the altered context, the gallery functions as a mechanism that would reveal aspects of laboratory experiments that are often repressed in the laboratory context. In the words of the artist, 'the art exhibition context is deployed as a means to identify fissures within an experimental system that can then be opened to further reflective artistic investigation' (quoted in Debatty, 2014). While the artists describe the process of shifting contexts as mimicry accompanied by the tactics of displacements (Robinson, 2014a), I find the notion of diffraction a better fit. While mimesis, according to Irigaray, can through playful repetition 'make "visible"… what was supposed to remain invisible' (Xu, 1995, p. 70), diffraction may amplify that what got covered up through attention to the processes that create the interference pattern between science and arts. With help of the gallery context, the emphasis on control, the participation of the viewers, and the artificial reconnection of laboratory and field, the art context and components diffract the scientific experiment, in such a way that it increases the amplitude of those scientific aspects—such as the importance of context, the parameters that bind and control an experiment, experimental noise—that are downplayed in the scientific world. At the same time, the creative processes remain visible. The apparatuses of observation are rendered visible through the diffraction of the gazes.

CONCLUDING REMARKS: DIFFRACTIONS IN ART–SCIENCE PROJECTS

Cross-disciplinary art–science practices both reveal and interrogate the 'methodological positioning of specific bodies of knowledge' (Roulstone, 2012, p. 4). In the art–science projects discussed, art functions as a 'diffraction grating' for science. According to Barad 'diffraction gratings are instruments that produce patterns that mark differences in the relative characters (i.e., amplitude and phase) of individual waves as they combine' (Barad, 2007, p. 81). And, 'sometimes the goal of a diffraction experiment is to learn about the nature of the substance that is being passed through a diffraction grating, and sometimes it's to learn about the diffraction grating itself' (p. 83). Thus, diffractions can shift attention between the nature of the materials and the nature of the instruments and alter their relationship. The resulting cross-disciplinary diffraction patterns can acquire different meanings in the frameworks of science and art, as Rundle's and Albano's essays exemplify. Temporal diffraction, as we have seen, can engender new temporal experiences through exposing the artificiality of the construction of time in experimentation and shifting the relations between viewer and object of observation through the superposition of different times. At the same time, temporal variations are rendered visible and amplified. Unlike mimetic repetition, diffractions draw attention to nonhuman agencies in the process. As Haraway puts it succinctly, 'interference pattern can make a difference in how meanings are made and lived' (Haraway, 1997, p. 14).

Notes

1. *Syntactics* refers to the grammar or the formal structure of signification. *Semantics* denotes the content and figures of communication. Haraway calls *pragmatics* the 'physiology of meaning-making' (1997, p. 14); it pays attention to how context contributes to meaning-making and the relationship between subjects and objects.
2. https://deborah-robinson.net/?s=Noisy+Embryos.
3. Original scientific video footage can be seen here https://vimeo.com/15800426 and here https://www.facebook.com/watch/?v=837149726481395.
4. According to Robinson (personal communication), at times, the vibrations from the building were sufficient to cause ripples in the petri dish, highlighting the disturbance as an integral part of the scientific experiment.
5. Rundle adds, 'Representations of embryos are likely to be "idealised" and may be a composite of parts of different embryos or drawn from images of embryos that have a suitable orientation' (personal communication).
6. As Rundle notes, 'The selection of a single image to represent a developmental stage of a species could be problematic when investigating heterochrony—"an altered timing of the expression of a developmental stage or event between ancestral and descendent species"—as it ignores the existence of such timing differences within species' (personal communication).
7. The sound recordings can be found here: https://soundcloud.com/radixgroup/wandering-snail-radix-balthica.

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At the Deepest Depth of Uncertainty There Are Always Blue Rays of Hope

Anna Nazo

A USER MANUAL[1]

Read this chapter through diffracted sensibilities, artificial gaze, and poetics of Zoom.[2] *Read it as a message in a bottle fermented digitally with peculiar dimensionalities of molecular hope to it.*[3] *Read it through the frequencies of unconditional love transpiring through the wounds of loss and uncertainty, as a blue song of a wind ghosting through the bird's feathers.*[4]

To grasp liveness of phygital performance (AI poetry, 360° imaging, brainwaves CGI, drone ecology), it requires to inhabit the corporeal expression of the entangled probabilities of the performative parrhesiastic moment.[5] These probabilities operate as the Gödel's undecidability, undecidability of a system, undecidability of an algorithm, undecidability of pluralized *life* and its swarm of intensities, and undecidability of the performative parrhesiastic moment itself that brings in understanding of time as the wave function.[6]

That undecidability, the entangled probabilities, is enabling the wobbling-jelly states of matter, the trembling of liveness, the carnal sensation of the breath of the unknown, the *blue*, the going beyond the

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Deleuzian sensuous, and the becoming a time crystal, a non-equilibrium matter in which the constant motion occurs without any energy, and which is 'groundless' in its ground state.[7] The undecidability is the exit into the uncomfortable, the eerie, alchemy, mysticism, quantum, virtual, decentralized, and into the wave fields that is multidimensionality in which the equilibrium stasis that enables the cohesive moment of parrhesia would be reached not in a linear sense, but it has to be reached in a discontinuous sense, in a super-positionality sense.[8]

We cannot understand how it actually works, and cannot explain why this is happening. As Einstein's spooky actions at a distance, that is, the continuous wave interaction of matter with other matter in space.[9] It is '*feeling*' coiled mortally with the impossibility of '*knowing*' as being able to explain, and that undecidability leads to the problem of the distributed form of sensuousness.[10] That multiple forms of sensuousness is initially argued to be not just a logic of sense, its wireless tentacles weave it to artificial liveness, ghosting, and quantum consciousness, and something that is about the eeriness of the eye and self-loss.[11] That brings in Haraway's notion of grief as a way of learning to live with ghosts, and, further to think, and to live as a ghost.[12] 'To live as a ghost' is to live as plural consciousness, as an assemblage of metrics of the myriads of traces of human, nonhuman, artificial, and distributed forms of cognitive nonconscious embodied in the organic-artificial shells.[13] It brings in the AI-systems and the ways in which the algorithms create ghosts. It brings in making-with AI, AI poetry, as agential cuts, always already together apart, that redefine the boundaries as nodal points on the entangled plane of space–time multiplicities of selves and others.[14] That leads to understanding of the inevitability of change, to redefine the semiotic grid, and with it, it brings in a certain form of death.[15] A death as a *reset* that happens at the moment of performance [digital-physical-organic-distributed], the moment of pluralized intensities, the moment of extended present, the moment of that particular form of cognition that is enabled by the entanglement of wave fields at the moment of performance. It goes beyond human perceptive abilities and beyond human consciousness, which in itself operates as a flattened metric of quantum reality.[16] That brings in the notion of time as curved or melted time, which creates a silenced gap, a queering blindspot in a common sense dimension, a blindspot that is filled in with *blue*.[17] That blue has something to do with the ecology of the unfinished sense, the bird's eye and sense of magnetoreception, a polarized shivering of light with frequency interval between 610 and 670 terahertz, and consciousness in the form of a roam of a light wave.[18] It brings in Derek Jarman's *Blue* and John Cage's *4:33′*.[19] It is about projecting deafening silence and inhabiting something that is weird around the spoken, sonic, and organic and artificial that no longer are opposed to one another but intertwined in a chimeric spell.[20] It is an amalgamating myth, bliss, poison, death, and disease. It challenges the austerity of the void and materiality of 'the real', while inhabiting alchemical dimensions, and celebrating liberation from the singularity of the body as one self. It is a very specific way around questioning of space–time, sound–silence, and oral–aural. It brings in the alive-decaying organic and dead-pulsating artificial that are bounded with the entangled spectrum of the erotic of the contemporary and yet-to-come bio-technological plural selves (Figs. 1, 2, 3 and 4).[21]

synthetic jellyfish,
virtual abyss
subatomic slade
viridian doomed gaze
artificial grief
zero one spell

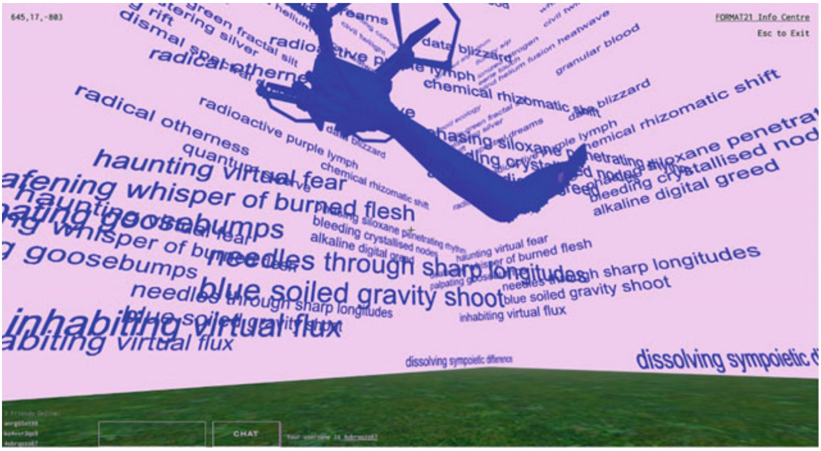
645,17,-803
FORMAT21 Info Centre
Esc to Exit
radical otherness
radioactive purple lymph
chemical rhizomatic shift
haunting virtual fear
whisper of burned flesh
goosebumps
needles through sharp longitudes
blue soiled gravity shoot
inhabiting virtual flux
dissolving sympoietic difference
siloxane penetrating
crystallised nodes
bleeding digital greed
granular blood
blizzard
CHAT

Fig. 1 Anna Nazo. SWERVE. Performance for the Preserving Machine. Group exhibition, FORMAT21 International Photography Festival, Online/Derby, UK, March–April 2021

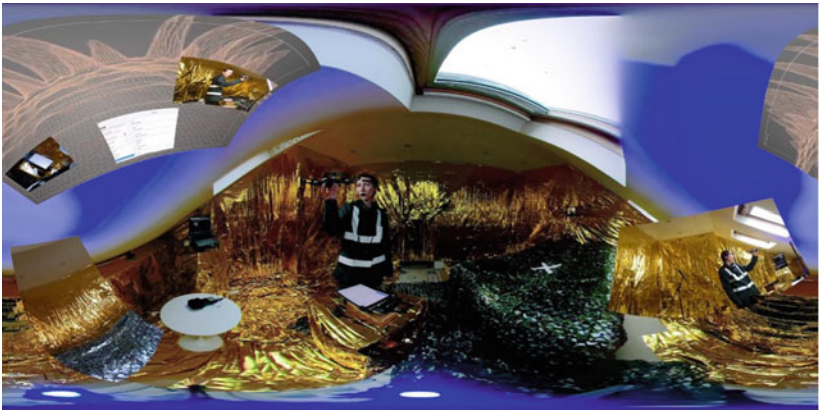

Fig. 2 Anna Nazo. Flame 2.0. Performance for the Entanglement: Just Gaming, RCA Visual Cultures Lecture Series, Zoom, Royal College of Art, London, UK, 25th June 2020, 0.10′. https://vimeo.com/432800171

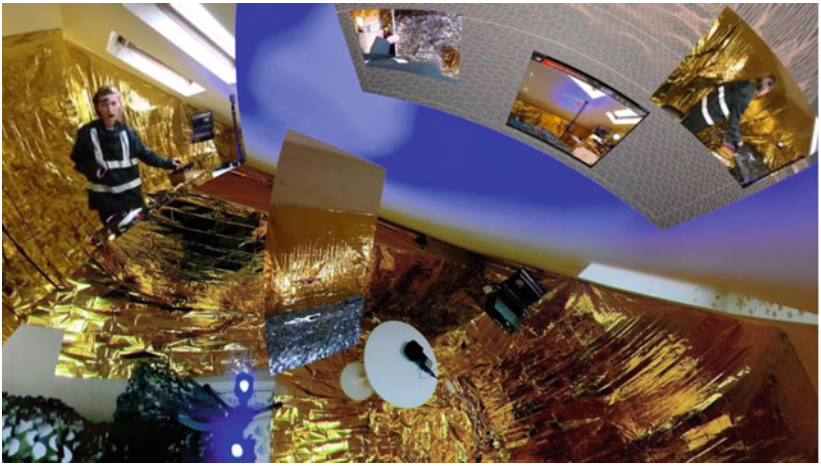

Fig. 3 Anna Nazo. Flame 2.0. Performance for the Entanglement: Just Gaming, RCA Visual Cultures Lecture Series, Zoom, Royal College of Art, London, UK, 25th June 2020, 0.10′. https://vimeo.com/432800171

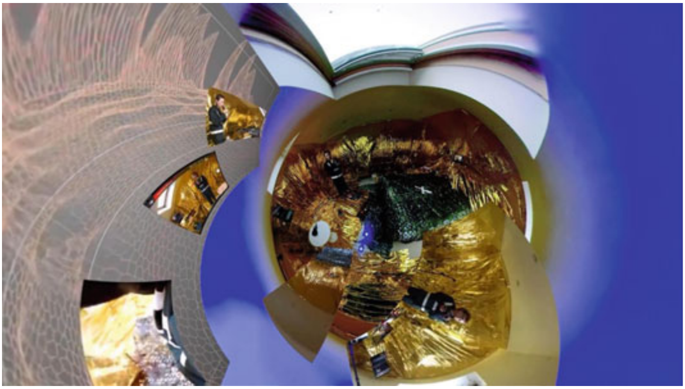

Fig. 4 Anna Nazo. Flame 2.0. Performance for the Entanglement: Just Gaming, RCA Visual Cultures Lecture Series, Zoom, Royal College of Art, London, UK, 25th June 2020, 0.10′. https://vimeo.com/432800171

haunting virtual fear
opaque pulsating bleeding edge
deep nest
stellar lymph
transpiring qubit
grasping disentangled state

multiverse dive
virtual slum
sinking powder
dispersed ultrasonic winds
probabilities shell
spinal trap
shifted perception
transferable genetic drug
inhale
fainting
shock
smoothed turquoise gloom
bottomless chasm
timefolds
nuclear rookery
hypnotic gap
quivering pastel subconscious
vision disorder
velvet malachite

radioactive injection
slime-ish void
trembling sulfuric spasm
digital thirst
suffocation streaming from the shade

cyclic myth
ghosting bleak emerald electromagnetic waves
artificial melted self
carved on heart cells
disembodied chimeric system
synthetic compound
myrtle green cortex
phasing siloxane penetrating rhythm
floating derivatives
electrifying shot
eight-petaled blood stream
wireless tentacles
purple chemical wounds
boolean synthesis
indigo wrists

tendril
red slime
sulfuric sweat
pulsating crimson crystallized flesh
burning deep
repulsive tender digital ooze

azure mire
swollen veins
blade emerald cut
liquefied distributed
pain
eye bleeding amethysts
deafening mute scream
tickling brain
through the nostrils[22]

Notes

1. How to read the footnotes: read the footnotes in parallel with the more dense body of the text, and/or revisit them afterwards. They allow for an expansion of the dimensionalities of the meaning-as-energy encoded in the

main text. They allow for the vertical as well as horizontal nettings around the piece development to emerge and be traceable. Both are complementary to the AI poetry piece weaved with 360° imagery of the performance archival materials that constitute this chapter. Enjoy your journey!

2. The notion of *diffracted sensibilities* was developed in a dialogue with the notion of diffraction in Karen Barad, distribution (through sympoiesis) in Donna Haraway, ecology of selves in Eduardo Kohn, the notion of holobiont in Lynn Margulis, cognitive assemblages in N. Katherine Hayles, logic of sense in Gilles Deleuze, and the s*ensual* in Amber Jamilla Musser. See Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Durham and London: Duke University Press, 2007; Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene*, Durham: Duke University Press, 2016; N. Katherine Hayles, *Unthought: The Power of the Cognitive Nonconscious*, Chicago: The University of Chicago Press, 2017; Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human*, Berkeley: University of California Press, 2013; Lynn Margulis, *Symbiosis as a Source of Evolutionary Innovation: Speciation and Morphogenesis (1991)*, Cambridge: The MIT Press, 2017; Gilles Deleuze, *Logic of Sense (1990)*, trans. C.V. Boundas, London: Bloomsbury, 2015. See also Amber Jamilla Musser, *Sensual Excess: Queer Femininity and Brown Jouissance*, New York: New York University, 2018.

The notion of *artificial gaze* was developed in a dialogue with works by Ramon Amaro, Trevor Paglen, Louis Chude-Sokei, N. Katherine Hayles, and Karen Barad. See Ramon Amaro, 'SonicActs: AI as an Act of Thought', 3 April, 2019, https://www.youtube.com/watch?time_continue=117&v=ys9gCR3PFF4&feature=emb_logo;

Trevor Paglen: 'On *From Apple to 'Anomaly'*,' transcribed from Trevor Paglen in conversation with Anthony Downey, Barbican, 26 September, 2019, https://sites.barbican.org.uk/trevorpaglen/; Louis Chude-Sokei, 'AI & Humanity Archive', 24 February, 2020, https://www.youtube.com/watch?v=LxIUVxKk0u8; Hayles, *Unthought: The Power of the Cognitive Nonconscious*; Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning.*

The notion of *poetics of Zoom* was developed by reworking of the notion of *poetics of space* in Gaston Bachelard, applied in the contemporary digital age context, and the notion of poetry developed in works by Martin Heidegger and Franco "Bifo" Berardi. See Gaston Bachelard, *The Poetics of Space*, New York: Penguin Books, 2014; Martin Heidegger, *Poetry, Language, Thought*, New York: Harper Perennial, 2001; Franco "Bifo" Berardi, "Voice Sound Noise," in *Breathing: Chaos and Poetry*, South Pasadena: Semiotext(e), 2018.

Those terms were coiled together in a series of lectures and seminars delivered by Anna Nazo in March 2020–March 2022 at the Royal College of Art, University of Cambridge, and Central Saint Martins, including an elective course *Diffracted Sensibilities. Artificial Gaze*, and same named virtual exhibition of students work, curated by Anna Nazo, New Art City Festival, March 2022, at: https://newart.city/show/rca-diffracted-sensibilities-artificial-gaze.

3. The notion of a message in a bottle and the notion of a hope to it were derived through several interviews given as a reflection on a series of performance work and virtual exhibitions created during the pandemic, March 2020–March 2021. See Anna Nazo, *Flame 2.0*, invited artist at the *Entanglement: Just Gaming*, RCA Visual Cultures Lecture Series, Zoom, Royal College of Art, London, UK, 25th June 2020, performance with drone, AI, brain wave imaging, 10′ at https://cargocollective.com/annanazo/Flame-2-0. Poetics/spoken word in the performance was co-written with AI programming. The initial code for AI was written by Sung Kim, 'Multi-layer Recurrent Neural Networks (LSTM, RNN) for word-level language models in Python using TensorFlow,' at https://github.com/hunkim/word-rnn-tensorflow; and Anna Nazo, *SWERVE*, invited artist at *The Preserving Machine*, Group exhibition, FORMAT21 International Photography Festival, Online/Derby, UK, March-April 2021, https://format.newart.city/show/room-15

   Also, see Anna Nazo, in conversation with British Journal of Photography X New Art City for *Edition 365*, Online/London & Los Angeles, 22nd November 2021, Invited Artist; Anna Nazo, interviewed by: Arreola, P. and Burns, E. for *Cluster Crafts 2020: New Materialities Online Programme*, London Design Festival, at: https://www.cluster-london.com/cluster-crafts-new-materialities-talks-anna-nazzo; Anna Nazo, interviewed by: Shemza, A. for *FLUX Live: AV*, Art in FLUX, Online/London, 18th August 2020, Invited Artist; Anna Nazo, 'Pandemiden Kaçış: Performistanbul - Stay LIVE at Home!', interviewed by: Pekdoğan, D. M. for Artful Living, Istanbul, at: https://www.artfulliving.com.tr/sanat/pandemiden-kacis-performistanbul-stay-live-at-homei-i-21936

4. The notion of unconditional love was developed in a dialogue with works by bell hooks and Adrienne Maree Brown. See bell hooks, *All About Love: New Visions*, New York: William Morrow, 2018 [1999], in particular chapter 13, pp. 255–270; and Adrienne Maree Brown, *Pleasure Activism: The Politics of Feeling Good*, Oakland: AK Press, 2020, pp. 57–62.

   The passage on wounds of loss and uncertainty was developed as a reflection on Covid-19 pandemic and in a dialogue with work by Catherine Malabou and Thomas Nail. See Catherine Malabou, *The Ontology of the Accident: An Essay on Destructive Plasticity*, translated by Carolyne Shread, Cambridge: Polity Press, 2012 [2009]; and Thomas

Nail, *Lucretius I: An Ontology of Motion*, Edinburgh: Edinburgh University Press, 2018.

The notion of blue in this passage was developed in a dialogue with work by Robert Macfarlane, as a reflection on traces of Anthropocene and current ecological crisis, read blue [light] as Cherenkov radiation caused by the electron moving faster than the speed of light, blue [light] as a 'blood' of a melting glacier, and blue of the deep time. See Robert Macfarlane, *Underland: A Deep Time Journey*, London: Penguin Books, 2019, pp. 59, 323–366.

5. *Phygital* stands for physical-digital.

AI poetry refers to poetry co-written with artificial intelligence. The initial code for the AI was written by Sung Kim. See Multi-layer Recurrent Neural Networks (LSTM, RNN) for word-level language models in Python using TensorFlow, available for download here: https://github.com/hunkim/word-rnn-tensorflow. That initial code was modified as it required updates to start working.

Drone used in the work is DJI Spark (http://sparkldrones.com/index.html), nickname: Luna.

A brainwaves CGI is a live transmission of brainwave data (EEG) into the computer generated sound and imagery (CGI). The brainwave CGI is generated through software that was created in collaboration with Vincent Rebers (programming) in 2016, updated in 2019. NeuroSky MindWave EEG headset is used to collect raw EEG data. See also Anna Nazo, 'Artificial Grief: Distribution of the Sensuous,' in *Data Loam (Sometimes Hard, Usually Soft): The Future of Knowledge Systems*, edited by Johnny Golding, Martin Reinhart, Mattia Paganelli, De Gruyter: Berlin, 2021, pp 65–79, https://doi.org/10.1515/9783110697841, ISBN: 978-3-11-068007-2.

For my development of a corporeal expression or a corporeal trace as an image see Baruch Spinoza, 'Ethics,' in *Complete Works (1677)*, trans. Samuel Shirley, edited by Michael L. Morgan, Indianapolis: Hackett Publishing Company, 2002, pp. 213–383. See also Gilles Deleuze, *Spinoza: Practical Philosophy [1970]*, San Francisco: City Lights Books, 1988. See also Nazo, 'Artificial Grief: Distribution of the Sensuous.'

My development of wave function and quantum entanglement, is primarily based on the work of Max Born, and in particular, his interpretation of the Schrodinger equation where the wavefunction connects to the probability densities of the state of a quantum system (eg $|\Psi_{(x)}|^2$). See Max Born, 'On the Quantum Mechanics of Collision Processes,' trans. D. H. Delphenich, *Zeitschrift für Physik/Journal for Physics*, vol 37, Heidelberg/Berlin: Springer, 1926, pp. 863–867 at http://neo-classical-physics.info/uploads/3/0/6/5/3065888/born_-_qm_for_collisions_i.pdf. See also Max Born, 'The Statistical Interpretation of Quantum Mechanics *(Nobel Lecture 11 December1954)*,' *Nobel*

Lectures: Physics: 1942-62, Amsterdam: Elsevier, 1964 at https://nobelprize.org/uploads/2018/06/born-lecture.pdf. Also, see the Schrodinger's Cat experiment and the initial Schrodinger equation describing the wave in Erwin Schrödinger, *Collected Papers on Wave Mechanics [1926]*, Providence: AMS Chelsea Publishing, 2014. And, see Roger Penrose, *The Emperor's New Mind: Concerning Computers, Minds, and the Laws of Physics [1089]*, London: Penguin Books, 1991, pp. 290–293.

For the initial approach to *parrhesia* and ways of truth-telling embodiment, I am relying on Foucault's development, in his *The Courage of the Truth: The Government of Self and Others II—Lectures at the Collège de France,* trans. Graham Burchell, New York: Palgrave-Macmillan, 2011. See also Johnny Golding, 'From Drone-Truth to Radical Empathy: Consciousness in the Zero Zones of Time,' Keynote at *Sliced-up ghettos of thought'? Science, art and society—20 years from now*, the London Arts and Humanities Partnership, Bartlett School of Architecture, London: 31 January 2018 online at https://researchonline.rca.ac.uk/3397/. See also Nazo, 'Artificial Grief: Distribution of the Sensuous.'

6. For the 'undecidable', see the groundbreaking work by Kurt Gödel, *On Formally Undecidable Propositions of Principia Mathematica and Related Systems [1931]*, Mineola: Dover Publications, 1992. The notion of undecidability is being developed specifically in relation to Mandelbrot's feedback loop: $z_{n+1} \rightleftharpoons {z_n}^2 + c$. See: Benoît Mandelbrot, *Fractals and Chaos*, New York: Springer, 2004. Cf Benoît Mandelbrot, *The Fractal Geometry of Nature*, New York: W. H. Freeman and Company, 1983. See also Michio Kaku, *The future of The Mind*, London: Penguin Books, 2014.

   The passage around undecidability of an algorithm is developed around Turing's machine and in conversation with works by Kurt Gödel and Johnny Golding. See: Kurt Gödel, *On Formally Undecidable Propositions of Principia Mathematica and Related Systems*; Johnny Golding, 'Ana-Materialism and The Pineal Eye: Becoming Mouth-Breast (Visual Arts in the Age of Algorithmic Reproduction),' in Lanfranco Aceti and Özden Şahi (eds) *Without Sin: Freedom and Taboo in Digital Media,* Cambridge, MA: MIT: Leonardo Electronic Almanac, Vol. 19, no. 4, 2013, pp. 66–83.

   The notion of a swarm of intensities was developed through the Lyotard's tensor bar. See: Jean-François Lyotard, *Libidinal economy*, translated by lain Hamilton Grant, Bloomington: Indiana University Press, 1993.

   The argument around understanding time as the wave function was developed in Nazo, 'Artificial Grief: Distribution of the Sensuous.' For an accessible introduction to quantum mechanics including understanding of time as a dimension and reality as a wave field see Jim Al-Khalili, *Quantum: A Guide For The Perplexed (2003)*, London: Weidenfeld & Nicolson, 2012.

7. The notion of liveness is developed in relation to the concept of nonconscious cognition, based on N. Katherine Hayles's reworking of the concept originally established by Lewicki, Hill, and Czyzewska in 1992. See N. Katherine Hayles, *Unthought: The Power of the Cognitive Nonconscious*, Chicago: The University of Chicago Press, 2017, pp.51ff. In my work, the development of a 'nonconscious cognition' leads to the notion of 'quantum ghosting', where nonconscious cognition enables (and indeed 'is') a certain type of intelligence. This type of intelligence is defined in relation to information processing and is argued to enable radical forms of liveness. See also Nazo, 'Artificial Grief: Distribution of the Sensuous.'

   For the Deleuzian sensuous, see Gilles Deleuze, *Logic of Sense (1990)*, trans. C.V. Boundas, London: Bloomsbury, 2015.

   For the time crystals and a non-equilibrium matter see Fiona Macdonald, "Scientists Have Confirmed a Brand New Phase of Matter: Time Crystals. Constant Motion Without Energy," *Science Alert*, January 27, 2018, https://www.sciencealert.com/scientists-have-just-announced-a-brand-new-form-of-matter-time-crystals.

   For 'groundless' ground see Lee Braver, *Groundless Grounds: A Study of Wittgenstein and Heidegger*, Cambridge: MIT Press, 2012.
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13. For nonconscious cognition and cognitive assemblages see Hayles, *Unthought: The Power of the Cognitive Nonconscious.*

    For consciousness as a metric of quantum reality see Nazo, ‘Artificial Grief: Distribution of the Sensuous,’ where the notion of cognitive kinetic flux and consciousness in relation to metrics was developed in a dialogue with Hayles’s *Unthought: The Power of the Cognitive Nonconscious;* Michel Foucault, *On the Government of the Living: Course at the Collège de France (1979–1980)*, trans. Graham Burchell, London: Palgrave-Macmillan, 2014; and Penrose, *Shadows of the Mind: A Search for the Missing Science of Consciousness*.

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22. Spoken word piece from [author], *Flame 2.0*, invited artist at the *Entanglement: Just Gaming*, RCA Visual Cultures Lecture Series, Zoom, Royal College of Art, London, UK, 25th June 2020, performance with drone, AI, brain wave imaging, 10′, at https://cargocollective.com/annanazo/Flame-2-0. Poetics/spoken word in the performance was co-written with AI programming. The initial code for AI was written by Sung Kim, 'Multi-layer Recurrent Neural Networks (LSTM, RNN) for word-level language models in Python Using TensorFlow,' at https://github.com/hunkim/word-rnn-tensorflow.

Entanglements and Response-Ability in Intergenerational Performance Ecology: Part I

Sarah Hopfinger

Karen Barad presents a critical approach to 're-turning': it is not a reflection or a looking back, but is a turning over and over, an 'iteratively intra-acting … diffracting anew, in the making of new …diffraction patterns' (2014, 168). These interludes re-explore, re-turn over and make new diffraction patterns of a performance research project, *Wild Life* (2014/2016), which was part of my practice-led research into how performance can be an ecological practice (Hopfinger 2020; 2018a; 2018b; 2015) (Fig. 1).

I am an artist-researcher, working between live art, choreography and performance. I approach performance-making in terms of interrelations, movements, selves, humans, nonhumans, dynamics, energies and atmospheres, as opposed to focusing on narratives and characters. The theatrical performances I create emerge from both the process of exploring an enquiry and the particularities of those I collaborate with to explore that enquiry. *Wild Life* was a response to the questions: how can we be wild? How can we *do* wildness? I was also concerned with

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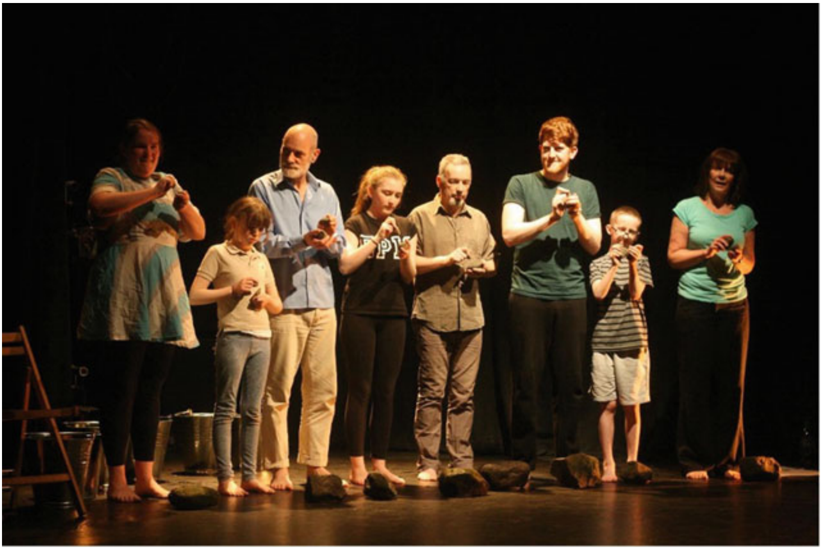

Fig. 1 Performance documentation 1

questioning and reconfiguring the hierarchies of adult–child, professional-nonprofessional and human-nonhuman power relations both in *how* we created the performance and *what* the production finally was. I collaborated with eight performers—Geraldine Heaney (27 years old), Carragh McLavin (nine), Graham Mack (52), Gaby McCann (13), Archie Lacey (55), Peter Lannon (26), Lennon Che Campbell (nine) and Liz Lumsden (57)—and with multiple nonhuman materials including rocks, water and fire. I took on the role of director and facilitator, which allowed me to explore what kinds of performance and movement practices allowed the performers to enact 'wildness', where wildness emerged differently across the humans, nonhumans and their interrelations (Fig. 2).

It is not possible to bring a past performance back, but the creative attempt to do so can bring about new patterns and meanings. What follows is a productive failing at bringing back *Wild Life*...

The audience enters the energetic moving of children and adults walking-running-jumping-pausing-looking-seeing-dancing-travelling to the edges and centre of the circle, echoes and differences performed across the human moving bodies. The audience sits in a circle—they are

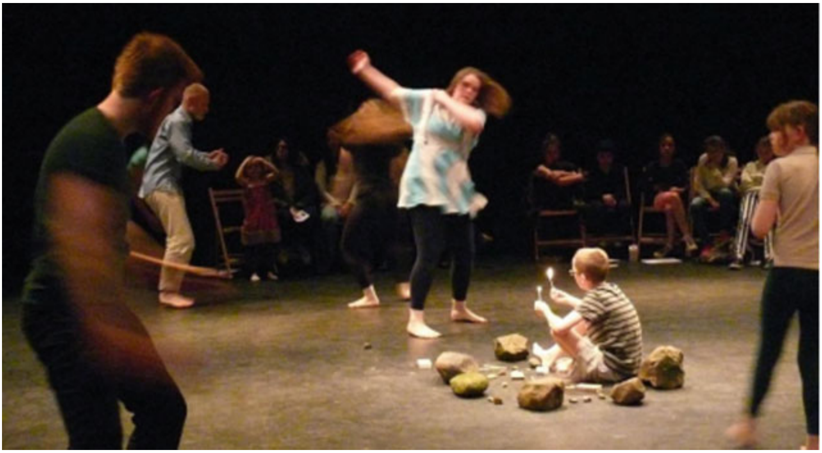

Fig. 2 Performance documentation 2

school children, adults, older people and families. There are 60 minutes of varying speeds and slownesses of activity... performers greet the audience, travel the perimeter of the circle in different combinations—carrying each other, holding large rocks, flicking water at the audience. Geraldine dances vigorously to music, Pete swings and carries Lennon, there is a chaotic head tapping choreography, performers playfully mess up their own and each other's hair, they spin each other, drop large rocks, light matches, sit together on a circle of rocks. They follow and interpret each other's explorative semi-improvised movements, moving together-apart... Lennon lights and watches matches for a long time... some audience members are taken by the hand and run through the space in amongst the performers' moving bodies. There is a water fight, the performers get drenched, and Liz leads a stomping-tap-dancing herd-like bare-foot splashing through the water journey. Finally, stones are flung across the floor hitting into each other, the buckets and the match boxes. The movements and sounds of sliding-bashing stones end the performance.

There are planned actions, rehearsed movements, emergent relations and differences, unpredictability, spontaneity... entangled performances of child–adult-human-nonhuman-rocks-stones-matches-flames-water.

I am not sure what I am returning to. Am I returning to a past event? Past events? Events of humans and nonhumans? Am I engaging with my memories of a process and performance? Am I engaging with my past writing about *Wild Life* (which was itself a re-turning over of the process and performance)? Am I reflecting on my reflections? Who and what am I re-turning over? If I am re-turning (to) a past performance over and over, am I changing—differentiating—what that performance was? Am I not so much reflecting, and more (re)*participating* in a performance ecology of human and nonhuman agencies?

This unsureness is critical to my approach. Cyberneticist Gregory Bateson pointed out that, with ecological thinking 'a certain humility becomes appropriate' (Bateson in Bottoms & Goulish 2007, 35). Often when I begin writing or making a performance, I am in a muddle—a mess that is a state of not knowing. I do not know what I am going to write or create, or if I think I know I do not end up writing or creating what I thought I would. Bateson, through his 'metalogues', emphasises the importance of muddle and messiness: he suggests that 'if we … spoke logically all the time, we would never get anywhere … to think new thoughts or to say new things, we have to break up all our ready-made ideas and shuffle the pieces' (1972, 25). Haraway also refers to the necessity of 'muddle', using it as a 'theoretical trope' to 'trouble the trope of visual clarity as the only sense and affect for mortal thinking' (2016, 147). Perhaps embracing muddles is a necessary method of diffraction—muddling as a key strategy of reconfiguring patterns. Barad proposes that diffraction 'is not a set pattern, but rather an iterative (re)configuring of patterns of differentiating-entangling' (2014, 168). In this way, 'there is no moving beyond, no leaving the "old" behind', and there 'is no absolute boundary between here-now and there-then' (2014,168). With these interludes I am embracing the muddle of (re)turning over a performance, of (re)working with the here-now and there-then of *Wild Life*.

I work with multiple modes of communication—creative reflections and descriptions, theoretical discussion, performative writing, images. This modal multiplicity is part of diffracting, of reconfiguring the patterns and meanings of my research. With the images, I echo Anna Tsing's approach of using images not to show ideas directly but 'to present the spirit of my argument' (2015, viii). With each interlude I hope different kinds of knowledge can emerge depending on the differing apparatus (the length, form, style, physical layout) through which that knowledge is explored, communicated and made. Barad emphasises that knowledge is always already 'knowledge-in-the-making' (2007, 91). Embracing muddle and messiness usefully signals knowledge as unfixed and entangled: knowledge as a case of participating in human-nonhuman intra-activity.

Doing ecological entanglement: knowledge (re) making.

You, dear reader, are perhaps doing entanglement through reading. You are taking part in these entangled performances. The ecological emerging materially through time... me writing this now which is before you who are reading this now which is in the future for me now. Your participation in the making of knowledge and meaning—your agential intra-activity—with this book and its various parts is welcome (and inevitable)! How might you, dear reader, perform with and through the questions and ideas in this book? You are invited to embrace the muddle of entangling and performing with and between its chapters!

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Fictioning

The material and the fictive might once have been considered contradictory realms of encounter. Yet it is perhaps more fitting for us to describe the boundaries of fictive and material realities, as a relationship of mutual dependence. The boundary is in fact the most intimate space of touching, where blurring edges ooze together, and where the perspiration of fiction becomes the body of reality, as the touch of one caresses the other in worlding entanglement. In this space of relation, fictioning is an open-ended and experimental mode of performative praxis assembling gestures and movements which create new modes of existence.

Neither fictions nor realities can be dissociated from the social conditions which they create, and those which have enabled their existence. Such creation is born of the apparatus of the becoming world, including but certainly not limited to our observations and imaginations of it. Other observatory and sensing agencies are also watching and feeling our fictions and our realities.

Our returns to materiality in the last 20 years, since the millennium, have shivered in entangled synchronicity within the arts, humanities, and social sciences. Perhaps this, in fact, is the millennium bug. Fiction as a mode of invention can include multiple methodologies of storytelling and fabulation; critters of the fantastic which chew up the fertile grounds of the sensate reality, destroying established realities for births and rebirths in sometimes cyclical, other times spiralling motions.

The return to materiality has entailed a return to fiction as modes and means of articulating beyond the conceptual and via the emotional sensual relational stickiness of being in the world. In contemporary art, we have seen a general movement from the conceptual towards complex and differencing modes of storytelling as knowledge-making. New theoretical writings on matter and matters too regularly include elements of storytelling as a mode of articulation. A commitment to the fictive has aided artists and scholars not only to review understandings of the ‘real’ but to invent ‘real-nesses’ and find previously unfound possibilities of reality and liveness. Fictioning allows us to disrupt, disaggregate and re-route the logics of the now, and leap into something (possibly quite) otherwise.

A Discreet Exit Through the Back Door or in the Echo of a Loon

Erin Hill

> […] in many indigenous ways of knowing, time is not a river, but a lake in which the past, the present, and the future exist. Creation, then, is an ongoing process and the story is not history alone—it is also prophecy.[1]
>
> —Robin Wall Kimmerer, *Braiding Sweetgrass*, p. 343.

> We are sent in history, we send history, history comes for us, to send us to history and to ourselves, we come as history to history. Betty goes back to Tennessee, to history, goes back to the future who sent her in the first place. Betty is, we are, as Kamal Grafwith says, the arrivance.
>
> —Fred Moten, *Blackness and Nonperformance*.

This title is a nod to Clarice Lispector's The Hour of the Star, where it is offered as one of many alternative titles for her book.

The original version of this chapter was revised: Old content was replaced with new content. The correction to this chapter is available at https://doi.org/10.1007/978-3-031-18607-3_23

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> To haunt does not mean to be present, and it is necessary to introduce haunting into the very construction of a concept. Of every concept, beginning with the concepts of being and time.
>
> —Jacques Derrida, *Specters of Marx*, p. 161.

What follows is a script that attempts to diffract time, to feel how time might ripple through a moment.

The object of this script is an evening at the theatre, where a live performance is being played.

It is constructed through a series of scenes that look at a stage, and look again at the same stage, each time through a different viewpoint, proposing a multiplicity of simultaneous perspectives on the single theatrical event.

Written as a film script and composed of an accumulation of different viewpoints that weave together the entanglements of one moment. This accumulation of different viewpoints aims to decentralise the notion of objective, linear and whole views of time. The subjectivity of the camera's gaze selects and frames each of these viewpoints, but what it captures is always less than what is there. The camera misses that which is visible but peripheral to the camera, as well as those entities, stories and presences which are un-capturable by a device that relies on the ocular sense of vision. In this sense, the choice of what *is* framed becomes all the more important. Might the multiplicity of off-camera realities present in any one shot be a potential form of diffraction? And might diffraction be a lens through which to weave an entangled sense of time that includes the invisible entities that presence rests upon? Diffraction, as a lens and as a practice, might be a means to ride obliquely and tend to foundational absences.

This essay attempts to defamiliarize the experience of looking, to come closer to a diffractive sense of time within which the boundaries underpinning dualistic notions of living/non-living or human/non-human are dissolved. In attempting to decentralise my sense of time from linear modes, I wonder if I am up to the task? Given my viewpoint as one that exists from within the Western and White Settler culture that has created and enforced such ideals, I doubt I can fully weave this story; the benefits that my proximity to the status quo affords might undermine my very attempts.

There are different ways to speak of ghosts, but in all the ways I will need many ghosts to write these stories with me. If I want to speak of the present, and of myself within it, I must speak of that which forms it. I must speak with the ghosts that came *before*, that come *after* and that come *through* the present.[2] Who are the ghosts that shape the possible present, that write themselves into the margins? Do they appear as a shiver, a thought, as an inconsistency, or a sudden emotion? The darkened edges of a theatre are haunting. What's not lit is full of potential, it is also where fears can move into form. Can take shape. Where what's hidden inside can meet with what's hidden from sight. What if what lies on the darkened edges is the place of Story? Where unlikely characters[3] come to meet and form constellations? Reminding us how we can only see the stars, and the stories they tell, when it's dark enough for them to get their shine through.

This essay is threaded through with the ideas of darkness, nothingness, void and shadow. They are spaces within which to think about presence. The diffractive territory of agency to enact and to haunt is woven through with infinite others, with sites of becoming and pools of nothingness. In a sense, to speak with ghosts, is to speak through the full and brimming-with-possibilities void that surrounds and is threaded through all. The act of repeating, of returning, of appearing, and of apparitioning through that void, is an act of becoming.

Let us begin. As you read, your own images, memories or hauntings may materialise upon the internal projection screens of your body. May these lead you astray, into memories of light and space and dilated time. Because it is read, the script has a rhythm and duration formed by your experience and your engagement. Imagining the script as a film may propose a second timeline, and the two may be overlayed in varying degrees of opacity.

Fade in from Black: Int. Theatre—Night—Close-Up on a Vague Space in the Air Between Floor and Ceiling. Neither Floor nor Lighting Grid Is Framed, Just a Dark Objectless Space

Every now and then a light comes on, directed in different angles across the frame. Because of the theatre smoke the light streams are well defined. Like sun breaking through clouds on an overcast day. The light reveals how dust particles fill the air, they shimmer like falling snow or tiny insects.

Sounds can be heard throughout this scene of light breaking through and disappearing: organs rumble with hunger, someone yawns, finger joints crack. The space prepares.

FADE IN FROM BLACK: INT. THEATRE—NIGHT—BIRD EYE VIEW OF STAGE

The camera is mounted onto the lighting grid with the lens pointing towards the stage. Since the ceilings in this theatre are quite high, the camera has enough perspective to frame almost the entire space.

> […] what if our response to the end of the world [was] how can there be an end of the world if there's no linearity of time?
>
> Alexis Pauline Gumbs, 'A Breathing Chorus', 00:35:20.

This is the beginning. An empty Black Box theatre sits before us. As impossible as it is to make anything simply one thing, the Black Box theatre suggests that if it were possible, it would be possible here. The theatre awaits its audience, about to watch one performance, the same performance, together.

Most of my time in theatres in North America and Western Europe has been spent in Black Boxes. When I think of these spaces my mind becomes a square where all four walls, ceiling and floor are painted black. The vibe is one of waiting. Awaiting. I could go elsewhere, change the scene, direct my attention towards outdoor or public space as a stage. But I am haunted by the Black Box, and I have some questions for its spectre.

Known in their beginnings as *flexible staging*, the idea of Black Box theatres can be traced as far back as the 1920s, but gained true popularity and momentum in the 1950s and 1960s across North America and Europe (Altenberg 1964, p. 1; Wiles 2003, p. 255). The call for flexible staging responded to the limitations of proscenium theatres, which were characterised by frontal viewing framed by the adorned proscenium arch (Wiles 2003, p. 236).

In opposition to this inflexibility and purported lack of intimacy of the proscenium arch theatres, the development of the Black Box was defined upon values of adaptability, impermanence, anonymity and neutrality (Altenberg 1964, pp. 1–2; Wiles 2003, pp. 254–266). Of these values, the premise of neutrality and its reliance on the colour black—black floors, black draperies, black walls—reveals something about the inherent blind spots within Western theatre. The statement of black as the most neutral colour remains prevalent in popular readings and definitions of Black Box theatre. It is touted as both the most neutral and infinitely changeable[4]—in this sense, it offers everything while asking for nothing. For whom is the colour black neutral? And what values does the interchangeability of black, darkness and emptiness serve?

In *A Short History of Western Performance Space*, David Wiles' dedicates a chapter to the notion of "empty space", nodding to English theatre director Peter Brook's influential book of the same name, "The black box became the quintessential 'empty space', the form that responded best to the complex of aesthetic demands made by Brook in 1967/8. It purported to be a neutral environment, allowing any desired configuration of seating. Its walls being invisible, lighting could make the space seem as tiny or expansive as the director might desire. Such was the theory, but with the passage of time it became clear, as Stanislavski discovered, that there is nothing neutral about blackness" (Wiles, p. 254). Here, in our Black Box theatre, awaiting an audience, the premise of emptiness creeps in. In its quest to be infinitely mutable, the actual space of the Black Box theatre erases itself, stages its own void. Each time a show is erected, played, and taken down within its windowless painted walls, the Black Box reenacts the myth of a beginning that comes from nowhere. Within the disappearing act of the theatre that hosts, the Black Box erases itself.

Similarly, the White Cube, a convention for visual art museums and galleries, built itself upon a premise of neutrality and erasure. The White Cube has been critiqued by many, beginning perhaps with Brian O'Doherty's 1976 essay "Inside the White Cube", to which the coining of the term "White Cube" is now attributed. Offering a critical view of its history, Simon Sheikh writes, "The white cube is conceived as a place free of context, where time and social space are thought to be excluded from the experience of artworks. It is only through the apparent neutrality of appearing outside of daily life and politics that the works within the white cube can appear to be self-contained – only by being freed from historical time can they attain their aura of timelessness" (Sheikh 2009). In both cases—black box and white cube—the prevalent desire that shaped these spaces was for the context to disappear, to become invisible, believing that a kind of historicity might better frame or elevate the work.

The crossovers and differences between Black Box theatres and White Cube galleries are complex and weave different stories as they relate to their art form within art history, to value-production and commodification, as well as to ritual and social gathering. What stands out about them to me is their shared desire for neutral, empty space and freedom from the bonds of time and earthbound history. Where does the desire for neutrality, and the acceptance of black and white as containers for it, come from? Who does the erasure, or the perceived emptiness, of time and space, benefit? The resonance between that claim for space to be empty is uncanny in its closeness to the Latin term *terra nullius*, meaning "nobody's land". The idea of *terra nullius* has been a driving force behind the European colonial project, at times even becoming a legal justification for it.[5] Nobody's land, no body's land.

Black, in all its forms of black, is in no way absence, erasure, neutrality. As a colour, it is actually its ability to absorb all other colours, to take in all visible light that makes black *black*. It is full. None of it was ever empty. Chaos, that original void, is the deep colour of depths, formless yet differentiated water, the dark well of a pupil, the sensation of night, the colour of closed eyes, the hypnotising plane of a black hole as we reach its horizon of possibility.

Here we begin, in a full, deep and felt blackout.

Cut to: Int. Theatre—Night—View of Audience Seating from Centre Stage

> This is the magic of magic; that it's impossible to know whether it happens or not, since magic goes against reason and therefore necessarily becomes a question of faith.
>
> Jenny Hval, *Girls Against God*, p. 133.

The camera frames the empty risers from the perspective of the stage. The chairs are cushioned red velvet, but not in an expensive way. They are the kind of chairs where the seat swings up against the back of the chair as soon as it is empty. As long as the chair is empty, the seat and back are folded together. The seat remains closed, in caress with itself, until a weight comes to rest upon it. Then, it stays open. Interrupted in its intimacy to bear the weight of an audience member. Thus forming a new intimacy between human heat and velvet for the duration of the show.

Since there are no audience members in the theatre yet, all of the chairs remain empty, silent in their self-embrace. Their fabric contains the smells and sweat of previous audience. One might wonder how persuasive the corporeal memory of the chair could be. Does it hold onto memories, are hormones perspired and with them the emotional experience of the previous audience? Imagine experience stains and is absorbed, held in the tissues of the chair or the fabric of the space. Hauntings might connect one body's experience to another.

An audience member appears from the right of the frame. They hover for a moment in the threshold between off-camera and on camera. Looking behind themselves, they quickly walk up the steps to their right and enter the fourth row of seats. The second audience member takes their position on the threshold: they gaze at the stage, towards the camera, their brown eyes flit from top left corner, to centre, to floor. They straighten their spine and continue straight to sit in one of the three first row chairs marked "reserved."

Cut to: Int. Theatre—Night—Close-Up on the Pupil of an Eye

Presumably, though not necessarily, this is the pupil of the second audience member who entered the theatre because around the pupil is the iris and this iris is the same shade of brown as the one before.

More audience flows in. We hear them in their numbers through the sound of speaking, squeaking chairs and walking. Whenever someone crosses in front of this person, presumably the person who sat in one of the "reserved" seats, the reflection of them is cast in the pupil. The eyelid descends to blink a-rhythmically.

Now.

Pause,

now.

The pupil reflects everything in darker shades: charcoal, maroon, deep jade, navy.

A figure pauses, reflected in the pupil. The gaze of each person mirrored in the other creates infinity, like when you face two mirrors towards each other and their reflection in the other creates a matrix of ever-unfolding portals. The head that holds the eye becomes more animated, moving up and down in a slight nod that shifts the angle of reflection. The figure, it seems, is smiling. Though it's hard to decipher the details of the figure being reflected, it is clear they are relaxed and their smile is probably reciprocated by the brown-eyed person. If we were to expand the camera's framing we'd see folds spreading from the outside corner of their eye, creasing in a way that might make you smile in turn.

A good mirror is one imagined to be without distortion, the less distortion the more accurate the reflection. The brown-eyed person whose pupil reflects the world around is thinking: sometimes, a mirror refuses to confirm existence.

Brown-Eyed Person (V.O.)

I have often looked in the mirror and not seen myself. The perfect surface of a mirror bathes its image in mercurial shine no matter what is reflected. Even when I imagine a mirror on its own, a mirror drawn or painted, I imagine it silver. Silver, when it is not reflecting anything specific. One could say emptiness in a mirror shines silver. Yet, a shadow mirror, like the pupil, feels more accurate a reflection than the mirror of glass and silver. How was it decided that silver is the best choice for reflection, that it is the closest to reality?

To me, dark mirrors feel more seamless. Less abrasive than silver. The first mirrors were bodies of water, ponds, lakes, puddles—perhaps that's why dark mirrors or imperfect ones feel more accurate to me. They speak of darker depths, of an ocean floor, of an ocean mouth, of a fin and of a breath-through-water body that something in me remembers from long ago.

When I was a child, I used to go camping with my family around Silver Lake in the summertime. It's true, the lake did appear silver – even when it reflected the burning image of the sky on a cloudless day, or the portrait of my sun-swollen face trying to peer through the surface. Once, beneath the surface of the silver lake a fish swam by. It swam by deep enough not to cause ripples and disturb my reflection. For a brief moment, the fish, green scaled with salmon pink spots, swam right through my face, right through my brain, and I almost fell in out of desire for this sensation as it was reflected to me.

CUT TO: INT. THEATRE—NIGHT—TOP ROW OF SEATS—STAGE-RIGHT

> *Il y a des vies organisées à partir d'absences, comme les galaxies qui se forment autour des trous noirs.*
>
> Some lives are organized in relation to absence, like the galaxies that take form around black holes.
>
> Olivia Tapiero, *Rien du tout*, p. 16.

In the theatre, a galaxy.

Two people sit side by side. Their knees are willfully touching, both spread their legs just enough to maintain contact. They look up at the grid, first one then the other. The grid was installed by someone, and before that it was welded, and before that it was sourced. The grid is a lattice, for lights and their connecting cables to intertwine upon, to climb, like ivy or morning glories. The grid covers the entire rectangle of space shared by audience and performers. In the seats dedicated to audience, the higher you go up the further into darkness you fall. There is something about sitting in the uppermost rows: less oxygen, the performers are perceived smaller, the space is darker, and the grid—which in the case of the theatre is the sky—is closer.

The taller person of the two raises their arm to touch the grid. Lifting their hand out of the hand of the person beside them, they unbend their elbow and the loosely woven fabric of their sleeve slides down their forearm to reveal skin. A dry and gravitational slide. Holding onto the grid, if they were to shake it with enough strength they might cause the lights to tremble. Which, if done with enough intensity, might give the appearance that the sky is falling, quaking upon the stage below. The light cast on the performers would pronounce itself, it would make itself known. Signalling, to some, something out of the ordinary. This would be a slippery moment, a micro-tear in the fabric of control, disturbing what was planned to be. How big must the slip be in order to be perceived?

Extreme Close-Up—Hand Touching the Grid

The hand rises to rest upon the grid, and a soft cloud of dust forms in the wind produced by this movement. A subtle trace of these particles collects upon their fingertips. Co-mingling with sweat and skin, the dust stays, settles, accumulates.

Presences impact other presences, but the field of presence that gets noticed is often limited to what is lit, framed. Infinite beacons support the flourishing of the visible. Perhaps, in order to see these entanglements, one might stretch towards the abyss, the dark edges, towards those presences that act beneath, beside and between.

CUT TO: INT. THEATRE—NIGHT—VIEW OF AUDIENCE—CENTRED ON TWO PEOPLE

> […]any surrender to the other (human, plant, animal, ghost, thing), any alliance or symbiosis, departs from preserving a difference.
>
> André Lepecki, 'Reciprocal Topographies', p. 52.

At the show, there is silence before it begins, a pretend darkness, and people. The camera films a wide shot of the audience. The chairs of the theatre are red velvet and, like cinema chairs, their bottom hinges up when no one is sitting on them. The camera focuses on a person sitting in the third row up from the stage, in the middle of the row. They rest their right arm on half of the armrest, which is already partially occupied by their neighbour. Neither people turn their head but it is clear: one arm touches the other.

Touch Touching Touch Touching[6]

"When two hands touch, how close are they? What is the measure of closeness?" (Barad 2012, p. 1). This question, posed by Karen Barad in her essay "On Touching – the Inhuman that Therefore I am", reconsiders the quality of intimacy that touch tends to invoke. From the standpoint of physics touch is an instance of repulsion, she explains. In the case of two hands meeting, it is the electromagnetic repulsion of the electrons that make up the fingers and palms of each hand that create the sensation of connection we call touch (Barad 2012, p. 3).

Two forearms touch for us to see, while just beside them, beyond the frame, someone clasps their own hands in their lap. This self-touch of touch touching touch, is a moment of intimacy that gives way to what Barad calls an "infinite alterity of the self" (Barad 2012, p. 5), a listening to the inhuman within the human, the other within the self. She writes "The inhuman is not the same as the nonhuman. […] I think of the inhuman as an infinite intimacy that touches the very nature of touch, that which holds open the space of the liveliness of indeterminacies that bleed through the cuts and inhabit the between of particular entanglements" (Kleinman 2012, p. 81). Beginning with this notion of the infinite and unfamiliar self, how one learns to touch one's self affects how one touches another.

The two people the camera is centred on exchange breath. If we watch closely, the rhythm of one inhaling as the other exhales instals itself. Perhaps changes our own breathing pattern in turn. Everyone in the theatre is breathing.

Narrator (V.O.)

Air like water is a shapeshifter.
   Through the exchange of breath we touch inside.

The show begins, the light slowly fades on the audience, and the sound of jumping can be heard on-stage, but we focus on the arms touching. Eventually, they separate. There is no beginning or end to such a moment, and the skin vibrates for a while after separation.

Cut to: Int. Theatre—Night—Zoom-In Close-Up on an Area of Floor off to the Side of the Stage

The camera zooms in on a murky spot on the floor. Orbs upon orbs, unfocused circles, like the camera cannot focus, accompanied by the sound of a door opening and the footsteps of humans entering. By the sound of their gait, they must be wearing shoes, sneakers most likely, something that every now and then squeaks.

The camera persists in trying to focus, until a sharpness, a clarity, begins to form around the edges of this murky pool. What's beneath the surface begins to appear: granules in the shape of sand. This puddle, now a tiny ocean. And the camera, a titanic Narcissus gazing into its own reflection.

The reverberation of the footsteps growing closer produces rings in the liquid's surface, disturbing Narcissus' self-reflection. One of the granules is a small stone and it protrudes the surface of the liquid. The rings of reverberation seem to emanate from that stone as though it were a centre. The stone penetrates the surface of the tiny ocean. Disrupts the illusion of its solid state. Pronounces itself, by cutting through. The water, strong and fluid, rolls off its back.

Perhaps this is the scene when the show truly begins: the stone crosses the surface, making the surface obvious—calling attention to it by disrupting it.

Cut to: Int. Theatre—Close-Up on a Pair of Hands in a Lap

They are cupped inside one another, the left palm on top and facing up. The program notes for the performance lay in the person's lap, resting beneath the hands. It is rather dark in the audience area, so it is not so easy to make out the details of this person's palm (their life line, their loves…). They are sitting quite close to the stage, so every now and then their hands and the program notes are lit by the lights bleeding over from on stage.

> What was not is. Presence comes out of absence, she saw it, the features of the world's face rise to the window, emerging from effacement, she saw the world's rising. (…) It didn't stop coming, apparitioning. Apparitioning carried on. That's what's transporting her: the step of Apparition. Coming to See. And who is coming? You or I?
>
> Hélène Cixous, 'Savoir', p. 8.

A voice speaks, it is distant though clear and enunciates in a slow, confident rhythm. Since the camera frames the hands in someone's lap, we do not know who speaks.

Person from On-Stage (V.O.)

> ...she's been studying cranio-sacral therapy, so today in the blue-carpeted studio we make an attempt together to feel the pulse of primary respiration. I put my hand beneath her sacrum, the holy bone, and I let my palm open to receive the weight of that locus, a bone so similar to its cousin, the occiput, which floats on the other end of the spinal cord. I keep my hand there, beneath her sacrum, softening. There is so much to feel. My hand doesn't need to move to feel movement; there in the shadow of the small of her back is a pool of movement descending, expanding, cyclical,

pulsing. I hear the blood in my ears roar. I keep coming back to my body over and over again: like the tide laps the shoreline, like the sun rises each day, like experiences that have me wonder, which one is moving after all? You or I?

Pan to the Left: On audience's Hands, Either in Lap, Holding Another, or on Arm Rest

Person from On-Stage (V.O. Cont.)

I'm not sure if it is the differentiation between the you or I that is important, or rather the space between the two. I shift my focus there, it is very full. It breaks, drops, fissures. In it there are corners that receive less light, and there are openings unraveling.

Cut to: Int. Theatre—Night—View of Stage—Shot Over the Shoulder of Audience Member in Sixth Row Off-Centre Stage-Left—Extremely Slow Zoom-Out Over 80 Seconds

The camera looks over the shoulder of someone wearing a green khaki jacket; their shoulder, neck and bottom of earlobe are in the frame. Over their shoulder is a clear view of the stage.

On stage there is a pile of sand. A full length mirror balances on its side, held by the pile of golden particles. The sense of time each grain holds is an indeterminate[7] story of connection between rock, weather, ocean and more. It's a slow, intimate toil that melts cliffside into sand. The memory of those meetings enfolded within each grain's body.

The mirror is standing in the sand—though there must be some kind of hidden support for it to lean against, for there is not enough sand to hold the mirror upright on its own. There is another mirror, a black mirror, laying on the floor downstage, close to the person who sits in the reserved seat.

The longer we stay, the more we see. The camera is ever-so-slowly zooming out, we now see not only the ear but the back of the head as well. And the backsides of all the rows leading down towards the stage, where the black mirror sits. Something glimmers in the reflection of the mirror standing in the sand. Something small that moves in a way that suggests it might have wings. As the camera zooms out, this figure becomes smaller than it already is. Try to grasp its intention, spiralling towards the mirrored light.

This shot is just a glimpse, we move on.

Cut to: Int. Theatre—Night—Exit Doors

In one corner of the same theatre, off-stage, along the south-west facing wall, there is an exit with a sign hung above it glowing red. The exit is made of two black doors that open in the middle, and that middle is one long crack through which a barely noticeable sliver of light escapes into the theatre from the lobby. When people in the lobby walk by the door the stream of light is momentarily cut-off. It reappears as swiftly as it leaves, and through that coming and going of light we receive the rhythms of life beyond the door. This scene unravels for 34 seconds.

Noise from Lobby: Footsteps, Whispers, Glasses Being Moved… (V.O.)

The image remains on the door, but the sound from the lobby diminishes and we tune into the sound inside the theatre. A confident yet quiet voice from on-stage says.

Voice from On-Stage (V.O.)

> After a month there, I missed the rain. Living in that new sunny city, I missed the suspension and shift of landscape and emotion the rain provokes in me. So I asked a friend back home to record a rainy day for me: the rain on the pavement gathering, puddling. And then, when I needed it, I would walk in the sun while listening to the rain on my headphones. After living there in the sun for a while this became a bit of a novelty- I mean listening to the rain became more of a novelty than a necessity. I no longer missed it the same way I had when I first moved.
>
> Eventually, I moved back to the home I had been homesick for: back to the rain. After one month with the rain I witnessed myself, once again, beginning to miss. But this time I was missing the bright gold sun. What could I ask a friend over there to record? How could I listen to the sun?

Cut to: Int. Theatre—Night—Close-Up on Bottom of Double Doors Where They Touch the Floor

This is once again a black double-door, though the quality of light that escapes through the crack is different than the previous door. Where in the theatre this door is located is unknown.

> There's a place between two stands of trees where the grass grows uphill and the old revolutionary road breaks off into shadows near a meeting-house abandoned by the persecuted who disappeared into those shadows.
> Adrienne Rich, 'What Kind of Times Are These', p. 1453.

The camera films the crack of a door, where it meets the floor. The doorway is made of two black doors, and the division between the two is perfectly framed in the shot. There is light emitting from beneath the doorway, the space behind the doors seems brighter than the space the camera stands in. The space in which the camera stands, the theatre that is, feels very dark, not only because it is all dressed in black, but because it seems no daylight ever finds its way in. There's something about the light of the sun that suggests the emergence of other phenomena: wind, rain, the change of seasons, the coolness just before dawn, a humid afternoon. This place, in its sunlessness, feels still. The air holds the traces of who and what and how has been.

The stage tries its best to be neutral, and the audience tries their best to see it that way. The ritual of entering the theatre attempts to instal a sense of reset, renew: enter, sit, blackout, begin. But the ghosts of theatres are some of the strongest. The ghosts of theatres and of forests—those places with less day light. And when the sun does break through, one must watch and note if that light is an enchanted moment or rather linked to ruin. To the crumbling of a roof or the slow death of a canopy.

Cut to: Int. Theatre—Night—View of Stage—Focussed on Performer Centre-Stage

Slow zoom in on the cheek of the performer, starting from far away, it takes 2 minutes and 30 seconds to reach full micro zoom into the skin.

> The One makes itself violence.
> Jacques Derrida, *Archive Fever: a Freudian Impression*, p. 78.

The performer is standing off centre, near a pillar that extends from the floor into the ceiling. The pillar is perhaps made of concrete, like much of this theatre, and there are 3 others like it spread in the space. These pillars extend through the ceiling, because the ceiling becomes the floor of the space above it and these pillars are spreading out the weight of all of this building.

As we zoom in we lose sight of the pillar, lose sight of the scale of the performer created by contrast to that towering tree-like presence. The more we zoom in on the skin, the more textured it becomes, the easier it is to imagine the millions of lifeforms making home on each human face. The more we zoom in on the skin, the more porous it feels. The skin is lit by overhead spotlights, and the heat from their rays is palpable. The pores have opened, beading with saline droplets of sweat. Like the stone that broke the surface of the puddle, sweat breaches the surface of the skin. Unfolding from within, from the viscous and visceral realms. To sweat makes liquid the dry and solid borders of flesh. Some droplets, near the corner of the lips, merge together and drip back into the body by sliding through the mouth.

So zoomed in, without reference to a whole, this skin becomes a surface and could easily stretch-on forever. As a surface, it takes on the sensation of something more-than-human. I see sandstone, mycelium and their fruiting bodies, I see desert ground and the bark of oak and pine. An earlier word for Bark is traced to be *Rind*, emerging from the Old English *Rinde* for bark, crust and later the peel of a fruit or vegetable. *Rinde* itself is said to have been born out of *Rendan*, meaning to tear, cut down. Right there in its name, in the roots of the English language, is the impulse for that which has bark to be appropriated, torn down, cut down.

The other day a friend told me about some trees that are currently enduring this threat. She's been staying on Vancouver Island, and visited Fairy Creek along the Southwestern coast,[8] where a group of people are gathered to protect the old-growth trees. She said her friends who came back from the forest to the city were bright and grounded but also full of crying. I wonder if the trees had entered them; had used their wisdom to enter the bodies of those witnesses and haunt their veins, their hearts and voices? If one noticed they were being haunted by a tree, would they want to be exorcised of its voice? To be host to the voice of a tree who is falling in a forest, finding its way to be heard. What happens when our skin betrays us, when what we thought was a shield is actually porous and for some reason is opening more and more each day? The dew from the leaves of the still growing hundreds-of-years old tree enter the thirsty skin, and are soaked up to merge with the bloodstream. The tree thus embodied speaks through another.

A voice lent, a body haunted. The limitations of a human life communing with those of another—with those of a tree whose timeline, in comparison to the life of a human, is multi-generational. The possibility to touch a tree hundreds-of-years old is the possibility to stretch one's sense of time, and to be affected by that intimacy. Icelandic writer Andri Snær Magnason proposes *intimate time* as a way to expand the stretch of time one connects to and feels responsibility towards,[9] "The time that you connect with, personally—that you can touch with your bare hands—is almost 250 years. My daughter can touch 1924 with her bare hands [*by touching her grandmother*] and 2170 [*the possible span of her own lifetime*]. That's almost 250 years. That's the arm's length. That's the personal connection to people, the intimate time of my daughter. […] when is someone still alive that you will love? That is what the future is about" (Magnason 2021).

What if this "someone still alive that you will love" is a tree? Adrienne Rich's poem *What Kind of Times Are These*, quoted earlier on, ends with "And I won't tell you where it is, so why do I tell you anything? Because you still listen, because in times like these to have you listen at all, it's necessary to talk about trees" (Rich 2016, p. 1454).

A voice from on-stage speaks, perhaps it is the voice of the skin we're zoomed in on. The surface does tremble slightly.

Voice from On-Stage (V.O.)

> A visiting voice inside me speaks in distant echoes, it's impossible to know how long ago this echo was first voiced into existence. It reverberates, still. There is not one, but a weave of beginnings.

Now, fully zoomed in on the cheek, we hear a "blood-curdling" scream. Hold the zoom and the scream, as 3000 blackbirds add their evening song. Let it grow and then fade to blackout.

Fade to Blackout

CUT TO: INT. THEATRE—NIGHT—CLOSE-UP—STEADY CAM. CAPTURING EACH THING DESCRIBED

Menutakuaki aimun apu nita nipumakak.
Tshika petamuat nikantshe takushiniht.

When a word is offered it never dies.
Those who come will hear.

Joséphine Bacon, as quoted in *Those Who Come, Will Hear* [Film], final scene.

A dark corner of the theatre, perhaps the darkest corner. Like many theatres, the floor is swept and mopped before the beginning and the tools used to do so are kept in the theatre, hidden in plain sight behind a curtain. This curtain is black, as high as the ceiling and as long as the length of the walls. In fact, it runs the length of the circumference of this room and covers all of it except for the back wall, which holds the risers where the audience sit. Between the wall and the curtain is a margin of around three quarters of a metre. In this gap, in one particular corner, stands the dry mop. Those mops with long millipede-like heads that rotate well and jangle a metallic sound when shaken out. Gathered around and gripping to it are hairs and dust and little stones. One of these little stones has a purple hew and is perfect—the sharp diagonals forming its hard body are discreet in their size but breathtaking in their precision.

Blackout.

The blackout comes from the stage, perhaps to mark a scene change or an end, but it affects all corners of the theatre. Lights slowly fade up and the camera is now focussed on the frayed bottom edge of the black curtain in this unlit back corner of the stage. It's not specifically lit, but receives ambient light from the more focussed lights centre stage. There is a clump of dust hanging on to the curtain and it rustles in an air current that is strong enough to affect the dust, but not enough to move the curtain.

These sideline spaces of the theatre are needed to frame the thing in focus, are needed to frame the stage. It is here we come to look for the secrets, here, in the obliques, here, in the viscera.[10] What is public often serves to conceal other things and in that way, here in the peripheries, we can hear the undertones, the foundations, the roots. The more time we spend here, in absence of the spotlight, the more ghosts come to find us. There's this way that things carry each other without knowing. In a certain scale of big to small, there's the shifting of dust and stones and particles and seeds from one place to another by animals, but there is also the realm of the immaterial. The air is thick with these others who are not present; their traces, memories and generations reverberate in the in-between, waiting to be inherited, to be hosted. Here in the peripheral darkness, in the space between on-stage and off-stage, we may wonder about what it means to be a host.[11]

Cut to: Int. Theatre—Night—Camera Above Audience—Angled to Capture the Back of Heads

Because of the bird's eye view of the camera and the way the seats are raked, descending more downwards with each row towards the stage, we can see every single head. None are blocked from view. Can the position of the back of the head of someone be as expressive as their eyes? Eyes that look behind their own iris into the distance of their memories, eyes that look straight ahead into yours—saying nothing but revealing everything, heads that turn one way while their eyes look the other way, eyes that hide.

Almost everyone begins to clap. The clapping lasts one encore, and people begin to stand, gather their coats, and leave. Two heads at the back of the theatre, closest to the camera, turn to face each other. There is tension between them, a palpable weave, but we don't stay long enough with this scene to find out what kind.

The reverberation wanders. As the theatre doors open, a moth takes its leave. Or perhaps, enters. Outdoors, it is night still. Perhaps it rains or has rained.

Notes

1. This quote comes from the chapter "People of Corn, People of Light". It recounts the Mayan story of Creation and was adapted from oral tradition. Robin Wall Kimmerer is a mother, scientist, decorated professor, and enrolled member of the Citizen Potowatomi Nation, through her wise, deeply woven social and ecological writing she describes a worldview based on sacred relationship and economies of reciprocity that I have never

before had access to. As a White settler living on Turtle Island I give my utmost thanks for this possibility to know the land differently than how I was taught, and the responsibilities that that knowing entails.

2. Moved by the necessity to speak *of*, *to* and *with* the ghost, Jacques Derrida writes in *Spectres of Marx*: "No justice […] seems possible or thinkable without the principle of some responsibility, beyond all living present, within that which disjoins the living present, before the ghosts of those who are not yet born or who are already dead, be they victims of wars, political or other kinds of violence, nationalist, racist, colonialist, sexist, or other kinds of exterminations, victims of the oppressions of capitalist imperialism or any of the forms of totalitarianism" (Derrida 1994, p. xviii).
3. These unlikely characters bring the inhuman into the realm of ghosts and responsibility, the inhuman seeps through the present. Karen Barad proposes, "[…] it may well be the necessity of facing our inhumanness, the inhuman that we are—that is, this infinite alterity in its material and lively indeterminacy that lives in, around, and through us—that will help us face the depths of what responsibility entails" (HYPERLINK "SPS:refid::bib14" Kleinman 2012, p. 81). Different to the nonhuman, which constitutes itself in difference and in relation to the human, the inhuman is a form that lives in, around and through us, of lively indeterminacy and intimate, infinite alterity (Barad 2012, p. 9).
4. The Theatre Dictionary project by the Theatre Development Fund, a New York based not-for-profit popularizing theatre, puts it bluntly: "A Black Box […] is made of four walls, a ceiling, and painted the most neutral colour there is: black." This idea of black as neutral is echoed in popular articles defining Black Box theatres, see "Theatrical Dictionary: Black Box", MacMahon (n.d.), Callahan (2017).
5. The term *Terra nullius* as a legal rational for eighteenth¯century and late nineteenth-century imperial expansion is debated, as the term was rarely cited before the late nineteenth century (Benton and Straumann 2010, p. 6). What stands out to me is the existence of the term, the very idea that land could belong to nobody, and that that rendered land——space—empty.
6. In reference to Karen Barad's work on touch, "touch touching touch touching" is a quote from Montreal-based dance artist and teacher Kelly Keenan, referring to ways of touching and the experience of oscillation in light touch from one to another. More information on Keenan's work at www.kkeenan.com.
7. To me, the notion of indeterminacy is dream-like: stories of interrelational becoming that are infinitely non-linear and a-causal. As proposed by Karen Barad in the essay "On Touching", indeterminacy is radical openness and infinite possibilities. She writes, "We cannot block out the irrationality, the perversity, the madness we fear, in the hopes of a more orderly world.

But this does not mitigate our responsibility. On the contrary, it is what makes it possible. Indeterminacy is not a lack, a loss, but an affirmation, a celebration of the plentitude of nothingness" (Barad 2012, p. 9).

8. While the clear-cutting of old growth is not an isolated issue and can be found all over North America, this anecdote refers specifically to Fairy Creek. Since August 2020, dozens of people have blocked access to roads in Fairy Creek to prevent Teal Cedar, a division of the Teal-Jones Group, from logging the old-growth forest within its 595-square-kilometre tenure. These forests are located on the unceded traditional lands and treaty territories of Pacheedaht Nation. The Forest defenders are a gathering of outsiders and Pacheedaht Nation members. The presence of activists is controversial and on April 12th the Pacheedaht Nations political leadership published a statement asking outsiders to leave, while other Pacheedaht Nation members, including Elder William (Bill) Jones contest this message. For information on these topics, especially regarding the history and complex relations between the framing of Indigenous political leadership within a settler-colonial Canadian government, I suggest reading Arthur Manuel's *Reconciliation Manifesto: Recovering the Land, Rebuilding the Economy*. https://www.cbc.ca/news/canada/british-columbia/bc-fairy-creek-blockade-feature-1.5997309.
9. This thought-experiment is intended for cultures for whom multi-generational thinking is mostly absent, such as White Westernized cultures.
10. Astrida Neimanis proposes a mode of sociality that moves through and with the belly, her "gut sociality" is an embodied form of sociality that rests upon that which is invisible. Thinking along with Drew Leder, she writes, "visceral and organic function are necessarily "hidden from view," muted, accepted as virtually imperceptible, in order to facilitate our ecstatic body's being-in-the-world. Leder's key amendment to Merleau-Ponty's phenomenology of embodiment, then, is to acknowledge the phenomenological significance of this visceral realm that the visible body rests upon. Viscerality, according to Leder, makes the ecstatic or surface body possible" (Neimanis 2014, p. 220).
11. In *Specters of Marx*, Derrida writes "If it – learning to live – remains to be done, it can happen only between life and death. Neither in life nor in death *alone*. What happens between two, and between all the "two's" one likes, such as between life and death, can only *maintain itself* with some ghost, can only *talk with or about* some ghost [s'entretenir *de quelque fantôme*]" (Derrida 1994, p. xviii).

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Essayers, Zines, and Peeps: The Matter of Diffraction (for Undergraduate Practice-as-Research)

Helen Iball

INTRODUCTION: LOWERING THE STAKES AS UPPING THE ANTE

A Pocket Map

With a duality characteristic of the double-slit diffraction (superposition) at the core of its pedagogy, *Essayers* simultaneously 'ups the ante' and 'lowers the stakes' by handmade means (cartooning, jottings, playing school). Playful discombobulation of the learning environment encourages students to welcome complexity and disjuncture into their individual research-led projects for the *Practical Essay* module. *Essayers* workshops and learning apparatus (zine worksheets, PowerPoint presentations) channel the performative personae of expert/joker alter-egos through the gift economy (Hyde 2012 [1983]), drawing a deep source of inspiration from the work of comics artist/author/teacher Lynda Barry *aka* 'Professor Numbskull' (Barry 2014a). Through Close-to-Practice pedagogic research in 2019–20 that included student focus groups,[1] these

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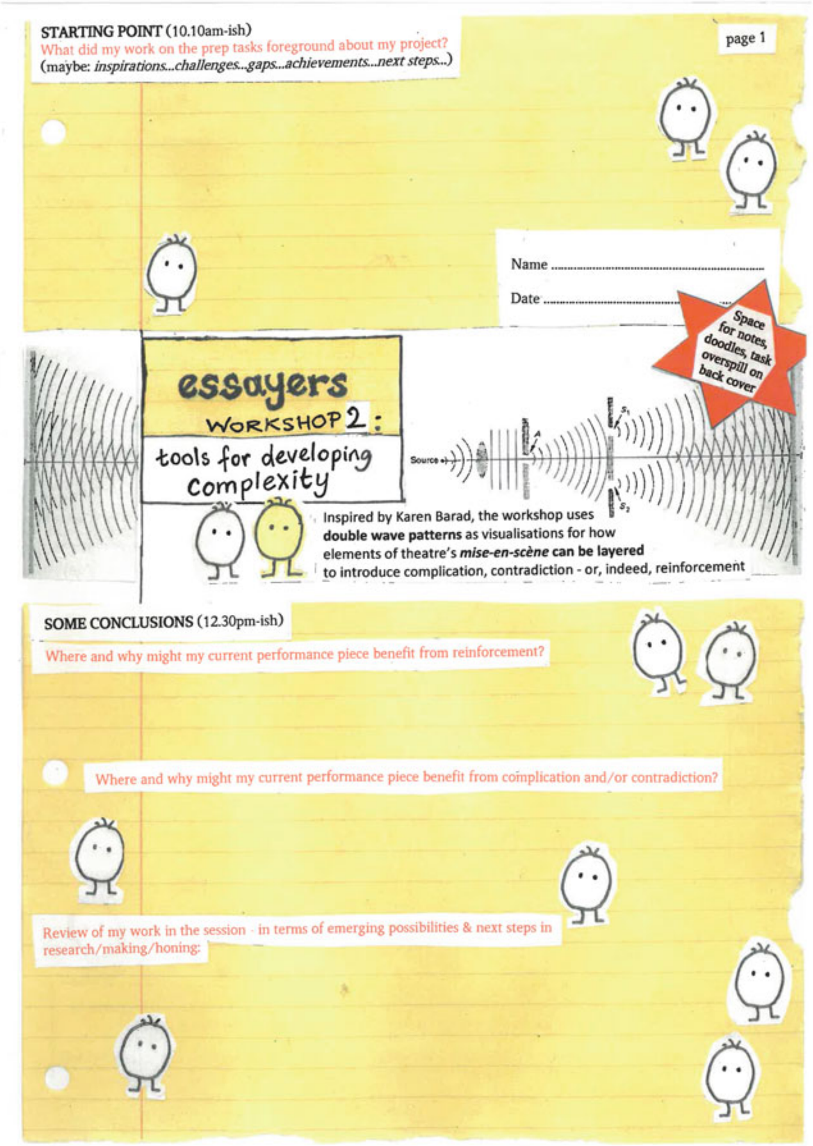

STARTING POINT (10.10am-ish)
What did my work on the prep tasks foreground about my project?
(maybe: *inspirations...challenges...gaps...achievements...next steps...*)

page 1

Name ....
Date ....

Space for notes, doodles, task overspill on back cover

essayers
WORKSHOP 2:
tools for developing complexity

Source
A
S1
S2

Inspired by Karen Barad, the workshop uses **double wave patterns** as visualisations for how elements of theatre's ***mise-en-scène* can be layered** to introduce complication, contradiction - or, indeed, reinforcement

SOME CONCLUSIONS (12.30pm-ish)

Where and why might my current performance piece benefit from reinforcement?

Where and why might my current performance piece benefit from complication and/or contradiction?

Review of my work in the session - in terms of emerging possibilities & next steps in research/making/honing:

Fig. 1 Front page of *Essayers Zine* two 2021–22 (zine version 2) by Helen Iball

methods are 'tendered' (Harpin 2018) towards strong 'creative connection' (Tempest 2020) amongst human and other-than-human workshop participants (Fig. 1).

Theatre's Diffractive Possibilities and/as Perils

Practical Essay is the final-year research project for BA (Hons) *English Literature and Theatre Studies* (University of Leeds, UK). The module supports preparations for the presentation of twenty-minute theatre pieces on a free choice of subject. An indicative list of recent *Practical Essay* research questions and topics includes: (1) alcohol use/abuse and men's mental health, (2) How do we shape space and how does space shape us? (3) Telephone boxes, human community, and the shift to mobile technology, (4) How can the construction of Shakespeare's 'Ophelia' be explored using social media and digital platforms? The performances are staged just before the Spring vacation in a weekend festival of work that is cast and crewed from amongst the cohort. As with its sister dissertation projects in the School of English, the *Practical Essay* is recognised as a signature piece at the culmination of undergraduate study. This task brings particular demands, which are proliferated by theatre's capacity to generate multiple perspectives simultaneously, thanks to its *mise en scène*. In theatre, discourse is 'expressed beyond written and spoken language', through 'the aesthetics of the event' (Freedman 1991, p. 45). *Essayers* shares a note reminding students of the nuances and signposting potential intermedialities:

Mise en Scène

- Translates into English as **'placing on stage'**
- A term used in film and theatre
- In theatre, used primarily to refer to the **arrangement** of the **contents** of the stage (setting, props, lighting, actors, costumes) i.e. **visual composition**
- In its **extended application**:
    - colour, imagery, movement, soundscapes, 4th dimension: time—and ephemerality

- potential for smell, touch, taste…and, as Herbert Blau observes, mortality: ‘the body in performance is dying before your eyes’ (1990, p. 366)
- relationships between onstage and offstage spaces.

Theatre’s multi-channelled *mise en scène* invites connections between theatre and wave-form models such as refraction and diffraction. As an access point for this possibility, scientific diagrams of light refracted through a glass prism offer a metaphor for separating the *mise en scène* into its constituent channels (spectrum). Three weeks into the Practical Essay module, the first *Essayers* workshop introduces refraction diagrams as a next-step for the ‘shower and funnel’ model of generating creative ideas through divergent-then-convergent processes (see Nielson and Thurber 2017). The workshop then offers a visual riff on conversation-as-refraction by Sidney Pink (see Pink 2009) to diffract the channels of exploration towards potential performer/audience dynamics.

Essayers workshop two launches *Practical Essay* into its second semester with models and metaphors drawn from double-slit diffraction, where the waves (interference patterns) overlap (see Barad 2014). Used imaginatively, the *mise en scène* can express several perspectives simultaneously; playwright Duncan Macmillan explains that what he ‘enjoys most as a theatre maker and as an audience member is getting my brain to do more than one thing at once’ (Macmillan in Love 2014). Indeed, Macmillan ‘always feel[s] like a good subtitle of any play would be *well, it’s a little bit more complicated than that*’ (Macmillan in Thompson 2016). These insights converge into my insistent hunch that the distinctive potential of theatre *mise en scène* diffracts with and through the ‘lyric essay’, underlined by Macmillan’s acknowledgement that ‘if I had the answers I wouldn’t have written a play about it’ (in Thompson 2016). Amy Bonnaffons proposes that the ‘greatest innovation’ of lyric essay form ‘may be an invitation to a heightened awareness of our reading strategies’ (2016). A persistent and dynamic awareness in *Essayers* is that reading/attending overlaps with researching/writing/making overlaps with (imagined) audiences, which re-turns[2] us (students, essayers) back to reading/attending. The ‘institutionalisation’ of the lyric essay genre is ‘generally credited’ to John D’Agata and Deborah Tall, editors of the *Seneca Review*, with a ‘2007 issue specially dedicated to the term’ (Bonnaffons 2016). Bonnaffons observes the perceived benefits of this ‘unifying generic label’ being appreciated by essayist Eula Bliss (2007) who found 'she could write with more clarity about her aims and audience' (Bonnaffons 2016). So, 'this intentionality, crudely teleological and possibility-limiting as it might seem, can be experienced as a kind of freedom' and, noting that Bliss described the form as 'organic to the way I think (2007, p. 57), 'what a gift, to discover a container whose shape mimics one's thoughts' (Bonnaffons2016)…and/or indeed, the distributed agency of thoughts mimicking containers and diagrams—on which points (including the gift), more later—but first, a re-turn to that 'unifying generic label' (Bonnaffons 2016).

The module title *Practical Essay* pre-dates my appointment at Leeds University, and it took a few years before recognition dawned that the words 'essay' (attempt, effort, weigh, assay) and 'essayer' (a person who attempts or tries) offer themselves as a generative context for understanding the 'ask' this assignment makes (of student and tutor). As the chapter explores, my role as module convenor has brought particular significance (mattering) to the diffractive and affective demands of the essaying process. A quotation from Leslie Jamison, which includes the phrase 'productive uncertainty', has become a beacon for these navigations:

> [A]s a genre grounded in productive uncertainty - collage rather than argument, exploration rather than assertion - the essay is constantly posing the conundrum of its own existence: What should an essay do? What should it offer? […] It draws personal material into public mattering. (Jamison 2013)

For module students, their role, activity, and purpose as 'essayers' becomes visible and characterful. In January 2022, re/developing and re/delivering *Essayers* for a cohort newly returned to campus (following COVID-19 pandemic lockdowns through 2020–2021), it was evident that workshop two benefited from meta-cognitive and core-conceptual framing. Through PowerPoint materials and discursive examples, I 'showed the tutor's/method's hand' and thereby constellated *Essayers* foundations, inspirations, diffractive methods, and posthuman pedagogy. In the 2019–2020 focus group discussions—unprompted (i.e. not in response to a targeted question)—several participants recollect the reassurance of short quotations about essaying that were collaged into the first workshop's *Essayerszine*: 'something that really stood out for me was the Leslie Jamison quote where it said "exploration rather than assertion" […] knowing that it's an exploration, that it's just trying things out, that really made me relax a bit, and appreciate what I'm doing a bit more', to which another person adds 'I remember circling "productive uncertainty" and thinking yes that's me…' and someone else comments that they were 'impacted by the power of the lyric essay quotation [from Jamison, quoted above] that linked the personal and the socio-political'.

Essayers is a pedagogy to activate/channel the lyric essayistic potential for 'productive uncertainty' (Jamison 2013) in theatre's diffractive *mise en scène* and through diffractive methods. As I began learning about a wider context of posthuman pedagogy, this started to reveal theatre's particular capacities for accessing and expressing complexity through distributed agencies and performative *intra*-actions.[2] Karen Barad's conceptualisation of (*intra*-active) agential realism is encapsulated by John Shotter who notes a profound shift taking place, which is 'to do with re-situating ourselves—as spontaneously responsive, moving, *embodied* living beings—within a reality of continuously intermingling, flowing lines or strands of unfolding agential activity' (Shotter 2014, p. 306). We can no longer 'think of ourselves as the only organising agencies at work' as 'other agencies than the "one" we each (mis)name as "I" are at work within us, and all around us' (p. 306). Barad describes diffractive research as 'close respectful responsive and responsible (enabling response) attention to the details' (in Juelskjær and Schwennesen 2012, p. 13). For Barad, such exploration is about:

> [T]aking what you find inventive and trying to work carefully with the details of patterns of thinking (in their very materiality) that might take you somewhere interesting that you never would have predicted. (p. 13)

Whilst theatre's *mise en scène* has particular opportunities for such intricacy, this can be daunting and the seemingly infinite combinations overwhelming, so that maybe you '*can't see the wood for the trees*'? In which cases, and to reinvoke Jamison but from a less capable frame-of-mind, perhaps (rarely/sometimes/often) the 'uncertainty' loses its prospect of 'productivity'?

Sensitive to the possibilities, perils, pains, and pleasures around Practice-as-Research as a 'critical tool that emerges from out of the performativity inherent in apprehending a complex, never still world' (Bayley

2018, p. 88), *Essayers* diffracts several kinds of (un/intentional) disorientation and navigability. It does this **manually**. For a couple of weeks during the module teaching schedule, rather than encouraging students (predictably) to get ideas 'on their feet' in the studio, we work in the manner of Lynda Barry's 'Unthinkable Mind' course. Barry describes this exploration as 'a particular sort of insight and creative concentration that seems to come about when we are using our hands (the original digital devices)—to help us figure out a problem' (Barry 2013). Barry brings decades of experience as an artist, writer and cartoonist to her workshops. Her comic strip *Ernie Pook's Comeek* ran for thirty years (1977–2007), and at its height in the late 1980s was published in around fifty alternative weeklies. Since the *Comeek* ended 'Barry has found a new forum for saying things that you can't say: the classroom' (Grant 2016). Appointed in 2013 as Associate Professor of Interdisciplinary Creativity (University of Wisconsin-Madison, USA), materials developed by Barry have been collated and published in *Syllabus: Notes from an Accidental Professor* (2014a). This take-home, how-to format has its precursors in Barry's *Picture This* (2010) and *What It Is* (2008).

Through *Essayers* activities—doodled, diagrammed, worksheet Q&A-ed (as detailed later)— the *mise en scène* is held gently, its temporary containment underpinned by repurposed scientific wave diagrams. These apparatus channel the matter/s of posthuman pedagogy for 'enhancing and developing processes of complexity thinking' (Bayley 2018, p. 26).

Rather like the apparatus from *Essayers* workshops, the structure and discourse of this chapter are in a delicate balance between its perpetual motion and a manufactured snapshot to capture pedagogic matters, processes and (documented/provisional/ongoing) conclusions.

Workshop Methods: Zines and Peeps

Essayerszines

Essayers workshop process meets form, meets content through paper worksheets (zines) as the core diffraction apparatus. Marking the convergence of essayism with Lynda Barry's teaching-through-comics, and designed to accommodate creative exploration of the essayistic potential of theatre's *mise en scène*, the paper workbooks are named *Essayerszines*. The format is a collaged-then-photocopied A4-sized paper worksheet, its four pages created by folding an A3 sheet [see Fig. 1].Diffractions are concentrated through this zine, via the accompanying tutor-facilitation which is focalised by a mixed-media PowerPoint presentation (adopting a more playful tone than usual with smiley faces, exercise timings, and an advertisement for the comfort break). Zines are a deliberately 'low art' counter-cultural platform, with latent potential to disrupt/ interrupt academic expectations (see Bagelman and Bagelman 2016). It is through borrowed materials intermingled with her signature strategies that Barry re-habituates adults to the neurobiological benefits of paper-based activities. That some of these forms are disparaged and dismissed is fundamental to the 'transvaluation of the idea of working on "waste"' in Barry's 'knowing, ironic', 'recontexualization of cheap, common, or utilitarian paper (which also harkens back to the historical avant-garde)' and the 'accessible popular medium, comics, that is still largely viewed as "garbage"' (Chute 2010, p. 125). In an *Essayers* focus group, one student comments they 'really like the cartoony, animated, I don't mean to offend there, I really like it…it took me back to an old form of creativity…not something I would associate with University'. No offence taken; indeed, it is satisfying to get under the radar with some stealth.

The time spent cutting and folding the zines feels like my contribution to a handmade 'gift economy' (Hyde 2012 [1983]). Each academic year, I re/consider and re/make these paper offerings to *Essayers* workshops and their participants. This year's workshop is the first time I have said 'this zine worksheet is a gift I've made for you all' aloud in the classroom and, after such an introduction, it feels important to hand a zine to each student personally, rather asking for the pile of zines to be passed around. The scripted welcome happens right at the start …*Devote this time to what your project wants and what it has to give…we'll be finding this out through timed exercises that are short—usually seven minutes—so, if you're experiencing one of them as boring or as challenging, it won't be long until something switches, and it isn't costing much to drill down and commit to essaying for a few minutes…*

Essaying is enabled ***through*** the zine as formats/places/possibilities. The aesthetic of these handmade collaged worksheets was initiated by scraps cut from an A4 yellow legal notepad, re/membering the texture and materials of Lynda Barry's *Syllabus* (2014a). This response is broadly representative of focus group discussions about *Essayerszines*:

> The yellow paper and the little people to fill in, it is quite a childlike space and you're allowed to experiment and supposed to draw pictures - and it's obviously yellow legal paper - and that felt quite freeing, because when you

> ask a child to draw a picture they're not self-conscious about it, it is just a space to play around. I definitely got that vibe from this worksheet and I really enjoyed it for that reason - because it was theoretical, it was thinking, it was being adult, but you got to realise it through a more childlike free space.

The connection here between childhood creativities and innovative pedagogies in post-compulsory education is vital, and inspired by Barry's praxis. Barry channels the 'catalytic force' of her teacher, artist Marilyn Frasca, who showed Barry ways of using hands, pen, and notebook 'as both a navigation and expedition device' (Barry 2014a, p. 4). With a more characterful worksheet than is conventional in Higher Education, there is a sense of *meeting* the assignment through 'performative entanglements of vibrant material-discursivities' (Bayley, 2016, p.48) by way of collage, uneven colour blocks, and wobbly outlines. A focus group participant says the *Essayerszine* format 'makes it [the worksheet] more engaging, more personal than "this is a thing that I have to fill out". It brings it [the task] back to "this is actually for me"….it's not like homework that I have to hand in that will be marked, and I think the Peeps really help that, keep it personal'.

Peeps

Peeps noun (singular and plural). Hand-drawn characters that are roughly fingerprint sized and shaped i.e. inhabiting oval bodies. They have dots for eyes, little legs, and a sprout of hair (see Fig. 1). Upon manifesting themselves to my imagination, the name 'Peeps' emerged—signalling: a glimpse; initial shyness; a quiet noise of affective response to zine/peer *intra*-actions.

Note the aliveness of the Peeps—they seem 'alive in the way thinking is not but experiencing is, made of both memory and imagination, this is the thing we mean by "an image"' (Barry 2008, p. 14). Perhaps the Peeps are quite charming, even before the essayer's doodle intervention? They borrow from Barry's recurrent cartoon bestiary/demons/ghosts, and are inspired by Jo Trowsdale's use of 'emojis' to survey primary school children who participated in the Imagineers project (see Trowsdale 2016). As well as affectively mapping the ongoing other-than-human and human conversations, Peeps are personal (resembling fingerprints, they are another "manual" diffraction) and transitional objects (see Sect. 4).

Peeps companion *Essayerszine*-based exercises and questions. Here is the Peeps extract from this year's script introducing workshop two (January 2022): *You'll see the little Peeps - fingerprint shaped emojis which you might remember I invited you to fill-in for yourselves in the first* Essayers *workshop last semester. The introduction of Peeps is a means of charting and of diffusing feelings, uncertainties, glitches, irritations with the tutor, the class and/or with yourself. Add facial expressions, arm gestures, thought or speech bubbles to record your experiences and attitudes to different tasks and emerging ideas…*

A focus group participant commented that 'we haven't had anything like this [*Essayers*] throughout our time at University…so it's something to get to grips with'. They added that 'the exercise, the workshop, was just very new and strange…and at first I was a bit daunted…I was thinking "what do I have to do? What's right?" But the Peeps allow you to know it's just a feeling, I guess…' Cher Hill's explication of Haraway's diffractive research methods resonates here; Hill describes diffraction as 'attending to challenges, frustrations and silences' in responses 'rather than interpreting them as "deficiencies"' (Hill 2017, p. 5). The Peeps are alter-egos offering an affective pressure valve, allowing (as two students put it) 'our feelings to be part of the process, that we normally put to one side' and 'sometimes it was quite angry because I was finding it quite hard and [with the workshop one diffraction exercise] people weren't always saying […] the stuff that I wanted to hear'.

In focus group discussions, there was recognition that 'the emotions also helped identify what you do and don't want to explore further' and indeed 'the positive might indicate something that you don't want or don't need to address' whereas 'a negative emotion can make you really want to explore something, because you want to solve it'. One student expressed 'a grudge against the Peeps as I couldn't identify a single emotion for each stage, and because I think human emotions are more complicated than I can draw them'—although, interestingly, they were not suggesting the affective register be abandoned, just requesting an additional and 'different kind of space for drawing and doodles'. Another student differentiated filling-in the Peeps at the time, and their usefulness in retrospect:

> At the time it was a doodle and expressing how I felt at the time but now, looking back, I find it interesting "oh, that was a brainwave for me" or "that was something that really got me thinking about things"

> or "that was something that confused me" rather than just being two dimensional, a word, it gives context… I was definitely "oh that's a great idea" because I've drawn a shocked face, kind of thing. Then I've gone back to it, and thought "oh, I haven't followed that up yet, and that was obviously something that intrigued me at the time, so I need to go back and do that".

Peeps have several iterations and roles in the *Essayers* process—some of these connect with the immediate/noticed present (affects/ideas) and some with the imagined/ghosted future (audiences). The second *Essayers* workshop and zine introduce two variations:

1. **Hypo-** (as in *hypothetical*) **Peeps** with a red outline/aura around the original Peeps character. Hypo-Peeps invite students *…to imagine audience responses, beginning by talking your emerging ideas through with your neighbour and getting their responses as prospective audience…*
2. **Super-** (as in *superposition*, *superpower*) **Peeps** with two oval bodies on one pair of legs, and with a gold outline/aura. Super-Peeps invite students to *…imagine how your Practical Essay performance might activate capacity to create/experience 'more than one thing'/mood/idea 'at once'…* NB this conceptualisation is inspired by playwright Duncan Macmillan (see: Macmillan in Love 2014. Also see Sect. 1, above).

ESSAYERS WORKSHOP ONE: DIFFRACTION DIAGRAM EXERCISE

Workshop one began with a single-slit diffraction pattern, its crescent-shaped waves collaged from alternated white printer paper and yellow legal-pad file paper. Through this diagram, the usual etiquette of pairs discussion and the hierarchy of conversational priorities is reconceived. In winter 2019, during the *Essayerszine* pilot project, this exercise was untested. How it would go was worrying me. It was a surprise, and certainly a relief, to hear enthusiasm and comments that corroborated the activity intentions. Beforehand, I had not known whether I was confident in explaining and championing this diffractive method, nor whether the disruption to standard conversational rhythms and patterns would be resisted strongly or misunderstood, damaging the workshop atmosphere. Invigilating the exercise, I recollect making several interjections to re/emphasise the importance of non-verbal segments—and to encourage taking/giving time for engagement with the task's ideas and questions,[4] through spaces/containers on the diffraction diagram.

To introduce and explain the diffraction exercise task, the inter-relational colloquial metaphor of being/not being 'on the same wavelength' was grasped by students—reassuringly, several re-iterated this formulation during focus group discussion. Through in-phase and out-of-phase wave patterns, the diffraction diagram accommodates sameness and difference with equal priority. This disconnects the ingrained habit of theatre students (rooted in improvisation and devising) that favours accord and positive reinforcement—and based on 'yes, and…'—by offering an equally productive space for discord, obstruction, and seemingly 'irrelevant' comments. One student said 'I really like that it created a safe space. Because you know when you're devising and someone makes a suggestion you have to be like "yes, OK, let's talk about that" even if you don't like it—whereas because it was my piece, it created an opportunity to say "that's interesting, but no"'. Indeed, 'the diagram created opportunity for discussion without fear of seeming intrusive or rude'. As an apparatus, it altered priorities to enable 'a period of time where I could talk about what I wanted to do, because when you're having those conversations outside of the workshop you immediately want to ask what they're thinking of doing—because that's how conversations work'. So, 'it was nice to have time to talk about this, and only this, and not feel guilty about it' and 'get that response in so much detail as well'. The affective pressure of social expectation and etiquette is striking here, in the appreciation of a release from guilt about dominating a conversation, which comes up again, when someone describes 'selfishly' taking time to add material into the diffraction diagram, 'keeping them [partner/s] waiting'. The word 'selfish' here is couched in a valence which understands that the instructions were encouraging manners that might attract criticism in 'everyday' social interaction. Someone else interjects 'I remember you saying in the workshop not to be afraid of that, to have the silent times, not think that you're leaving the other person in the lurch…'.

The diagram is described by one student as an opportunity to 'verbalise and also write things in a different way—not just as notes but in a more visually interesting way' which 'made you think about something in a different way and made me more able to process things and think about connections. That was really helpful'. Someone else supplements this, in a way that invokes diffraction apparatus, when they say that 'you sometimes want people to put a barrier there' so you can 'think around it' and 'not just say "oh that's a really good idea, keep going with it"'. Several participants commented that the out-of-phase waves are visually dominant because the ground is yellow legal-pad paper, and therefore the brightness of white printer paper (signalling difference) is figural: 'I also thought the colour was good because when you look back at it, it is the white that stands out and the yellow is less…[which is appropriate] because that's where you've written things because you're already on the same wavelength'. One student notes that their work has shifted since the *Essayers* workshop, so what was written in the white bands has now become pertinent.

So, the priority of the peer-to-peer (human) conversation is inflected towards meeting the (other-than-human) diffraction diagram in the *Essayerszine*. The second workshop did not use a double-slit diagram but explored superposition through the more complicated iterations of Peeps (Hypo- and Super-). At the same time as disrupting assumed (humanist) hierarchies and distributing agency, the *Essayers* workshops seek to support each student's sense of autonomy. Whilst *Essayerszines* happen in class time, these are predominantly individual activities within a communal setting—unlike Jen and Carly Bagelman's geography classes (2016) where working with comics furnished opportunities for collaborative group work and produced zines for public distribution. This alone/together quality of *Essayers* is the subject of section five, below. However, there's something else demanding attention first…

TRANSITIONAL SPACES: STAYING BY GOING/GOING BY STAYING

This tiny but seismic section is about the influential concept of 'transitional space' which provides 'good enough' support for participants to tolerate uncertainty sufficiently to immerse in challenging tasks. That is, sufficiently for students to inhabit 'productive uncertainty' (Jamison 2013). *Essayers* workshops channel Lynda Barry who is channelling Donald Winnicott to champion paper-and-pen as the vital transitional space for *Practical Essay*; the *Essayerszine* 'enables you to stay by giving you somewhere else to go' (Barry 2008, p. 105) which is 'situated in an in-between space that will form the matrix for creativity and growth' (Leader 2016, p. 23). Iain McGilchrist's dismantling of acculturated assumptions about the human brain in *The Master and His Emissary* (2019) is a key reference point for Barry's 'Unthinkable Mind' class (see Barry 2013) as detailed in *Syllabus* (2014a). Barry promotes keeping the hand moving by drawing, doodling—spirals, strings of beads, writing the alphabet—so that 'the back of the mind can come forward' (p. 71), because 'thinking up stories' or ideas is 'hard. Getting them to come to you is easier' (Barry 2008, p. 141).

Playing School Ghosting Theatre: Performative Dis/placements

Workshop two was on the first day of the new semester. In the focus groups, it was received as an important refresh and kickstart for the January term, which culminates in the *Practical Essay* performance weekend:

> I was in such a good mood afterwards […] this was hitting the ground running […] the next day I went into the theatre studio and workshopped loads of stuff, and was really happy with it – and I don't think that would have happened if we hadn't had the workshop.
>
> Thinking things through […] and getting new ideas from the old, it was a really nice way of getting back into it.

Focus group feedback from workshop one suggested that the diffraction diagram facilitated diffractions to/from a transitional space, at a removal from habituated peer dynamics and conversations patterns. In workshop two, this quality was intensified by actually going somewhere else. That is, the environment and aesthetic that proved transformative began with the decision, following workshop one, that the timetable booking of the usual theatre studio for workshop two be transferred to a classroom. The studio had seemed cacophonous, cavernous, too amorphous, too unstructured, too much the 'empty space'. The fundamental reason for this issue was ergonomic—the first workshop lacked the affordances of furniture; we suffered from the unavailability of more than one table. Sprawling on the theatre studio floor to write and draw in the zines seemed awkward for many students, particularly during the diffraction diagram activity when the zines were unfolded to A3 size. These body mind impingements (perhaps) detracted from attunement to reverberations (quiet noise) and immersion in the paper-place of *Essayerszines*.

Inadvertently, this pragmatic decision to make a temporary move into a room with chairs and tables became a powerful (playful, performative) diffraction apparatus for the workshop participants, and for me as facilitator/invigilator. When I booked a flat-floored classroom with front-facing rows of desks, I accessed a seemingly bland yet, in practice, verdant transgression. The classroom had unexpected powers as *Essayers*' primary quantum (hauntological) diffraction apparatus. In her article 'Quantum Entanglements and Hauntological Relations of Inheritance' (2010), Karen Barad identifies 'a ghostly sense of dis/continuity, a *quantum dis/continuity*' and she experiments with a form to engage reader-participation as 'a way of thinking with and through dis/continuity, a dis/orientating experience of the dis/jointedness of time and space, entanglements of here and there, now and then' (2010: 240). Fundamental to the creative, up-beat mood was the collective sense of performative displacement. We were all visitors to an unfamiliar building with its own conventions, and our assumptions and habits were invaders. This possibility dawned on me whilst I was waiting in the hallway and joined by a growing bunch of Theatre Studies students. The mood was akin to waiting for the coach on a school-trip, but we were staying on the campus and in a purpose-built learning environment. The Law building oozed legislative (normative) seriousness, underlined by its swanky new-build status. This seemed to generate a bit of a thrill and some mischief. It turns out that this gentle disruption was conducive to (diffractive) research methods and to perspectives that were unfamiliar/unconventional:

> Having it in a space that was more foreign to us, having desks, was really beneficial. Knowing that this room is designed for teaching and designed for learning - I liked how we had to sit there and have these desks and we were all sat in a row, I really enjoyed it.
>
> It was almost like being in school, you're in a more focused environment and everyone was at the same desks - I think that really helped. I also like that it was structured with times on the booklet, so we knew where we were going throughout the workshop and you could look through and have an idea of where you were going and what you were trying to find out about your piece.

In a way that would not have happened in the theatre studio, and did not happen the first time I ran *Essayers* workshops, I facilitated the class with (a more restrained iteration of) a heightened performative lecturer persona from pieces that I'd delivered at conferences. Namely, the alter ego I'm-Helen-and-I'm-an-Academic delivering *Does my Brain Look Big in This?* which had its beginnings in an AHRC-funded workshop at Lancaster University, facilitated by Bobby Baker (convened by Professors Elaine Aston and Geraldine Harris, *Women's Writing for Performance*, 7–9 May 2004). What is interesting about the recognition that is emerging now, is I understand my delivery of instructions, time-keeping, and information/resources, as quantum diffractive. I recognise the alter ego as a strategy crucial to my research subjects and role models (Bobby Baker's performance persona, Adrian Howells' "Adrienne", Lynda Barry's "Professor Numbskull"). My persona was both serious in its pedagogic intentions and somewhat cartooned. All this helped to shift the impingement (habits and dynamics) of the theatre studio, generating a mode and tone for the session as it fitted 'around' *Essayerszine*. 'Interrupting the neoliberal university' (Bayley 2018, p. 373), there was a double-inversion of the 'deterritorialization' (p. 75)—so that, whilst Jen and Carly Bagelman's article (2016) describes the unsettling of habits in a Higher Education geography classroom with a session on creating zines, the regular work of Practical Essay students entails devising, performance, improvisation, theatre games. Thus, a formal classroom setting in which to employ comics form (zines) disrupts Theatre Studies students' habits and unleashes creative energies by seriously, but playfully, constraining them. The qualities of the *Essayerszine* were emphasised by bringing a DIY handmade, comic aesthetic into the sleek Law School environment. These same zine qualities were not so visible in the theatre studio, where lo-tech and improvised do not stand out as much (because they are not so unusual).

The *Essayerzines* are designed to accommodate a snapshot of processes/ideas/plans at particular junctures. The front page of *Essayerszine* two [see Fig. 1] is curated as a loop. It houses both the opening gambit (inviting an encapsulated response to the preparatory task)[5] and offers a space to note workshop outcomes and next steps. So, whilst *Essayers* apparatus chimes with Cher Hill's description of diffractive methods that 'multiply the ways in which you see the world' (2017, p. 4), its workshops/zines accommodate the in/adequate, un/certain capture of learning and discovery that is always in motion.

Some Conclusions (Inklings)

It seems that what we need by the module midpoint is temporary escape: to get away from engrained expectations, to be freed awhile from the conventions that saturate a studio space with particular kinds of creative invention (warm-ups, theatre games, devising, improvisation, sharing and discussing work-in-progress). The distance from our 'home' in the Workshop Theatre re/affirmed our difference, celebrated and cemented 'creative community' (Tempest 2020) through the *Essayers* workshops and apparatus. Concomitantly, the workings/impressions of *Essayers* pedagogy, along with its contextual frames—essayism, posthumanism, affective and experiential learning, depth psychology's connections with quantum physics—suggest potential, which I am keen to explore and discuss, for wider applications of *Essayers* apparatus/methods in other Arts and Humanities disciplines.

From collected student respondents and from my experience, the second *Essayers* workshop/zine was properly bespoke (a precise fit) and an apt, worthy tribute to crucial legacies and mentors through books/articles/video-lectures by Barad and Barry, and borrowings from Baker, Howells, Trowsdale. A core aspect was the surprise discovery of nested disjunctive spaces—immersion with the zine inside the classroom—enabling students to work alone/together. This brings to mind Ira Progoff quoting a participant at an intensive journal workshop who describes this experiential quality (solo work in a group setting) as key to his process (Progoff 1992 [1975], p. 43) and Barry on the importance of not chatting in her 'Unthinkable Mind' classes (2014a). The apparent regimentation and statis of the *Essayer* workshop two classroom were fundamental levellers/equalisers; a theatre workshop for this module often has to tackle the logistics of one project at a time i.e. the majority of students opt to make an individual (rather than small group) Practical Essay, which in most cases involves class mates in its casting and crew. Whilst studio sessions can be scheduled dedicated to specific projects, tutor-facilitated workshop sessions need to be carved into repeated exercises if each student's project is to have the same opportunity. *Essayers* seek and 'tenders' (see Harpin 2018) activities with the grit to be generative, across a diverse group of students who are all working on different projects, and each at a subtly different stage in their process. It seemed that the people who chose to attend the focus groups were those most receptive to the activities/zines. However, the most recent iteration of workshop two (January 2022) was received enthusiastically by the cohort.

The waiting and/or percolating space for 'getting the story to come to you' (Barry 2008, p. 141) unsettles expectations that the student essayer is solely responsible for producing ideas, insights, and connections. Barry's is a quantum diffractive image world where here/now is also there/then, faraway/nearby, and where the imagination, memory, personal unconscious, and collective unconscious come into play. There are resonant connections through Barry's creativity and pedagogy to diffractive posthumanism. This emerges through a mentor-lineage via Marilyn Frasca, Barry's tutor at the Evergreen State College (Olympia, Washington, USA) to whom Barry credits her understanding of the 'image world' and the resonant, vital definition of an image as 'the formless thing which gives things form' (Barry 2008, p. 8). Frasca was trained by Ira Progoff who was a student with Carl Gustav Jung. Jung's 'views of the human mind' have been described as 'in perfect agreement with the discoveries of Quantum Physics' (Ponte and Schäfer 2013, p. 2). Fundamentally, 'behind the visible surface of things is a hidden, invisible and non-empirical domain', is the 'realm of the potentiality of the universe' (p. 11) whose 'forms can appear as physical structures in the external world and as archetypal concepts in our mind' (p. 1) that guide our imagination and perception; 'psychology is the physics of the mind: quantum physics is the psychology of the universe' (p. 8).

The theatre studio/classroom superposition generates important, playful complications. It distributes agency, no longer automatically privileging peer-to-peer human relations, towards the opportunity for intensive focus: working in silence, conversing with the worksheet. At the same time, it disrupts the classroom ethos '*I don't want to hear a peep out of you…*' to support/welcome the quiet noise (internalised frustration, "a-ha" moments) of 'productive uncertainty' (Jamison 2013). A substantial proportion of this pedagogic understanding/awareness was not conscious or available to me beforehand, but emerged through the workshops—and, in certain aspects, did not enter my recognition until afterwards (whilst writing this chapter, for instance). The processes of making this account have re/turned to module journeys which themselves loop back and move forward to re/new the apparatus each year. When, for 2017–2018, a colleague and I were shaping a creative pedagogies for the newly expanded (two semester) Practical Essay, we were keen for a liberating space—which we characterised as mostly set apart from the fact there is a big scheduled assessment. I look back on this with a wry and rueful recognition that, via *Essayers*, such expansiveness emerged through a flat-floored classroom and quiet individual concentration with time-limited tasks on a worksheet.

Notes

1. Ethical review documentation was approved by the University of Leeds Research Ethics Committee for a project running from September 2019–July 2020. Study leave alleviated potential ethical issues including conflicts of interest, as I had no involvement in the cohort's supervision or assessment.
2. 'Diffracting diffraction' which Karen Barad explains is 'not by returning as in reflecting on or going back to a past that was' but rather 're-turning as in turning it over and over again – iteratively intra-acting, re-diffracting' (2014, p. 168).
3. Initiated by BERA (British Educational Research Association) *Creativities in Education* Special Interest Group. Specifically, a presentation by Jo Trowsdale and conversations with Pam Burnard during 'Exploring Contemporary Creative Practices Within and Beyond School' (The Open University, Camden, London) 22 February 2018.
4. To prepare for the single-slit diffraction task in *Essayers* workshop one, each student is invited to: (1) Choose a 'tiny extract' (a moment of action, a line or two of dialogue) from a piece you made during the first weeks of the module. Find a succinct way of expressing the extract as a script/blueprint/stage direction/sketch i.e. any paper-based form of notation that enables someone else to (re-)create it, (2) In one or two short sentences, explain the link/s between the extract and the thing/s that interest you, (3) Identify a resonant connection between something you have read, viewed or heard? Find a paper-based way of encapsulating that text's most important fragment (one line quote, key image, lyric, musical phrase…etc. etc.)
5. For the first task in *Essayers* workshop two, each student listens to music through headphones whilst making short written responses in the *Essayerszine* to questions about the music, which they selected in advance …*Choose a song/piece of music that is somehow suited to your topic BUT contrasts with the tone/style of the 5 min piece you made (and/or the 10 min piece you're making). Please bring this music track to the workshop on your phone/device and also bring headphones…*

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What Is New Materialist Aesthetics?

Thomas Nail

Where does a work of art happen? Does it happen in our body or our mind when we appreciate or judge it? Can art happen even if no human is there to experience it? Most philosophers of art have thought of art as something which occurs mainly or only in human minds. They believed that art materials were passive receptacles of beautiful forms imposed by humans. Only other humans with the same sensibilities and aesthetic judgments could appreciate these forms. This is still a popular idea about art, but what if it's wrong? What if art is not an object or an idea but a *material process* that occurs across the brain, body, and world?

This is the understanding that new materialist aesthetics proposes and is the focus of this chapter. More specifically, this chapter introduces some core ideas of new materialism and shows how they offer a new and better way of thinking about art and aesthetics. By aesthetics, I mean the philosophical study of qualities and affects. Toward the end of this chapter, I develop this definition in more detail. Although scholars have been using the term "new materialism" since the mid-1990s, it is only recently that more people have been using it to write about art and aesthetics. Here, I

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introduce readers to this exciting field of study and its consequences for art and artistic research.

So far, new materialist scholars have focused their attention on issues of ontology, politics, and science. However, since the early 2010s, more scholars and artists have been writing on art and new materialism. As I write this, there are now three published monographs on new materialist aesthetics including, Katve-Kaisa Kontturi's *Ways of Following: Art, Materiality, Collaboration,* my book *Theory of the Image*, and Gregory Minissale's *Rhythm in Art, Psychology and New Materialism.* All three were published in the last three years and will hopefully provoke further research.

In the sections that follow, I want to introduce readers to the core ideas of new materialism, the field of new materialist aesthetics, and my approach to thinking about the topic.

What Is New Materialism?

New materialism, like all relatively young theoretical approaches, has many branches. It is not a monolith but a series of experiments. They reach out like tentacles around one another but also spread in different directions. Not all new materialists agree with one another on fundamental questions about the nature of matter or its consequences for politics or science. Others like "speculative realists" and "object-oriented ontologists" are not materialists at all, but scholars frequently categorize them as new materialists based on a misunderstanding.

One can hardly blame readers for the confusion. Sorting out the exact similarities and differences between new materialists took my colleagues and me about four years. There are also several pressing criticisms of new materialism to consider. However, I will forgo a full literature review and critique of particular new materialists here because I have already written a detailed review with my co-authors, called "What is New Materialism?".[1] Instead, I want to focus on two shared ideas among new materialists and their implications for aesthetics.

One can say very few things about *all* new materialists. However, despite their diffractive differentiations, I think I can confidently identify their two core clusters. They are all *trying* to overcome the long philosophical tradition of anthropocentrism and the idea that matter is purely passive. Anthropocentrism believes that humans are the most important beings in the universe and the only ones that make meaning. If this is true, nonhuman nature is passive, mechanical, and deterministic. In the history of Euro-Western philosophy, philosophers have mainly thought of matter as something without form or meaning. According to these philosophers, God, eternal forms, human minds, or unchanging laws of nature give form and meaning to inert matter.[2]

New materialism is "new," not because there are no historical or geographical precursors to the idea that humans are not the most important beings in the universe or that matter has agency.[3] New materialism is "new" relative to the dominant Euro-Western tradition, which has uncritically accepted the superiority of form over matter and defined itself by the progressive domination of nature.

The Euro-Western tradition has broadly defined itself by the progressive domination of nature. It has assumed the existence of a natural hierarchy in which some things, people, and ideas are inferior to others. For instance, modern European science and politics justified the treatment of nature, women, and colonies by the idea that they were passive material to be manipulated and mastered by the minds of white men.[4]

Philosophers placed certain metaphysical categories at the "top" of the hierarchy, such as eternity, God, the soul, forms, and essences, to explain the movement of matter at the bottom. The top of the hierarchy was secured, and it ordered the bottom. After thousands of years of treating nature and matter as inactive substance molded by ideal forms, we are feeling the ecological consequences of this mistake with global climate change and mass extinction.

For more than a century, though, "critical theory" has been exposing and challenging these hierarchical assumptions.[5] The premise of critical theory is that philosophers can contribute to social and intellectual transformation by showing people the dominating nature of their practical and theoretical assumptions. For example, patriarchy, capitalism, racism, and ecocide are not unrelated phenomena. Critical theorists have been arguing for decades that they are interlocking behaviors with shared hierarchical assumptions about reality. Whether or not individuals are consciously aware of it, this hierarchy persists today at a cultural level and has been shaped by ancient and modern history.[6]

This hierarchical logic places stasis above motion, form above matter, life above death, God above humans, men above women, reason above emotion, white skin above brown skin, the first world over the developing world, citizens above migrants, cisgender above transgender, cisgender above transgender, straight above queer, humans above animals, animals above plants, and plants above minerals. At the very bottom of this chain are matter and motion. Everything above rests on their mute receptivity.

In my view, new materialism's contribution to critical theory is to challenge this hierarchy, *including* the notion that matter and motion are inferior. If all hierarchy rests on the assumption that inferior beings are more material and mutable than those above, showing that matter and motion are not inferior can help undermine this inherited hierarchy. Many humanists, including critical theorists, and scientists still think of matter as mechanical, deterministic, and passive.[7] For decades, though, environmental and feminist philosophers have argued that this hierarchical way of thinking and acting is partly to blame for present social inequality and ecological crisis.[8] For example, when humans think of themselves as superior to nature they have a historical tendency to destroy ecological systems for short term gain.

Until critical theory turns its tools on the hierarchical chain's last links of matter and motion, even the best critical thinking will remain incomplete and anthropocentric. Without a critical philosophy of matter and motion, theorists may still be able to treat human culture as distinct and superior to nature and thus justify dominating the planet and humans historically associated with nature.

The point in challenging the material base of this hierarchy is not to invert it by showing that matter and motion are superior but to indicate that all hierarchy is arbitrary and dangerous. If there is no ontological basis for natural hierarchy, then it becomes clear that all hierarchical beliefs and behaviors are blatant forms of power and domination. That does not necessarily stop the domination, of course, but it does lift the veil so people can see what they are doing. There is no ontologically legitimate justification for social, aesthetic, or scientific exclusion.

However, identifying and avoiding these delusions does not tell us what we *should* do. That is the point. Before we can begin to experiment with different ways of living, it will help us immensely to identify and clear out the most dangerous tools in the toolbox.

There are many ways to survive and flourish with others, and it is no single person's purview to dictate how that happens. If we want to survive and flourish on the planet, our best chance is to think and act without metaphysical illusions and hierarchal behaviors. Harboring such fantasies is akin to wearing a blindfold while walking on a tightrope. It can only hinder an already precarious balancing act. Uncovering our eyes does not predetermine our actions or give us an *absolute* view of reality, but it can *help* us get where we want to go without falling. At least, that is how I think of the aim of the broader importance of new materialism.

Nature does not compel morality but constrains the material conditions of survival and flourishing in various ways. If we want to survive and experiment with new ways of living, we need to give up on the hierarchy of being. But we can't do this if we keep imagining all kinds of metaphysical entities and arbitrary hierarchies that dictate what we make. As long as people continue to think and act like matter and motion are subordinate phenomena, one can still wield matter and motion as weapons against people, places, and art practice itself.[9]

This brings us to the question of aesthetics. What are the implications of new materialism for art and aesthetics?

What Is Art?

The Euro-Western tradition has mainly treated art as the exclusive purview of human meaning, making matter passive. For instance, the fifth century BCE Greek philosopher Plato described all sensuous objects, including art objects, as copies of unchanging immaterial forms. Only humans could grasp these pure forms through contemplation. Plato taught that the original or model object remained static and unmoved. Artists tried to represent these forms with sensuous images but always failed. He wrote,

> Now the nature of the ideal being was everlasting, but to bestow this attribute in its fullness upon a creature was impossible. Wherefore he resolved to have a moving image of eternity, and when he set in order the heaven, he made this image eternal but moving according to number, while eternity itself rests in unity.[10]

For Plato, art and aesthetics are illusions, deceptions, and likenesses organized according to discrete numerical quantities. The true essence of things is static form. Art and nature fail to represent the truth of things because art and the human body are matter in motion. In other words, Plato's framework implied that matter and motion are why art and nature fail to achieve the true beauty of immaterial forms. This fundamental idea influenced Western representational art for over a thousand years and never disappeared.

In the nineteenth century, the German philosopher Immanuel Kant, following the lead of the Scottish philosopher David Hume, argued against Plato that the ideal forms were only in our *minds*. For Kant, all humans share the same structure of reason and aesthetic judgment. We have no way of knowing what nature is like "in itself." When humans find nature or art beautiful, they appreciate the structure of their minds as they use it to look at art. For Kant, sensations fluctuate in the perceiver's body, but the *concept* of beauty in our minds has a fixed universal form.

For Kant, the object's true nature in itself was unknown because the body and its senses are material and mobile. Movement leads the senses to *misrepresent* reality to the mind. According to Kant, one cannot trust the senses of the body in knowledge or beauty. Therefore, our experience of beauty is not the beauty of nature or even of the beauty of art, but rather the beauty of our idea, experience, or faculty of representing art to ourselves.

Nature is only the prompt for us to discover the beauty of our own aesthetic and phenomenological faculties.[11] This is the inverse of the classical Platonic idea of the model and copy. Instead, Kant subordinated art to the aesthetic structures of judgment in the mind of the experiencing subject.

This subjective theory of form pervades Kantian and post-Kantian aesthetic theories. For the Russian writer Leo Tolstoy, art communicates human forms to other humans.[12] For the German philosophy G.W.F Hegel, only the human mind can realize the ideal forms hidden in the "dead husk" of natural history and art.[13]

This theory of aesthetics also includes twentieth-century social, anthropological, linguistic, and economic "constructivist" theories. Constructivism is the idea that humans make their reality and have no access to the nature of things as they are in themselves. As part of the Kantian legacy, certain strains of social constructivism moved beyond reducing everything to the structure of reason by focusing instead on human structures of collective construction. Despite this difference, the anthropocentric premise remains intact: humans construct reality.[14] As the American new materialist Christoph Cox writes,

> Contemporary cultural theory often falls prey to a provincial and chauvinistic anthropocentrism as well, for it treats human symbolic interaction as a unique and privileged endowment from which the rest of nature is excluded. It thus accords with the deep-seated metaphysics and theology

> it aims to challenge, joining Platonism, Christianity, and Kantianism in maintaining that, by virtue of some special endowment (soul, spirit, mind, reason, language, etc.), human beings inhabit a privileged ontological position elevated above the natural world.[15]

What's the problem with this anthropocentric and formalist tradition of aesthetics? In my view, this tradition is not an accurate description of what art does and can do. Anthropocentric assumptions arbitrarily narrow the range of agents that we look at in art and aesthetics. Should humans or human minds necessarily be the only makers and recipients of art?

Anthropocentric and formalist aesthetics is like looking at a work of art through a pinhole. It introduces a cut between "art," "artwork," and "viewer." If artists and art lovers think that the matter of the artwork and their bodies and brains are purely passive, they significantly limit their skills and imaginations. As long as they believe this, artists may continue to subordinate matter to form. They may ignore the creativity of their materials and the creativity of bodies and brains in response to works of art. Human aesthetic experience, too, will likely be constrained to a limited range of meaning and forms of judgment if we ignore the full range of physical processes and sensations in works of art.

New materialist aesthetics offers an alternative to this anthropocentric and anti-materialist tradition. The Finish art theorist Katve-Kaisa Kontturi argues that "the material subtleties play a tremendous role," especially in modern art.

> Whenever we see a fascinating image, there are always multiple material processes involved, intertwined into it – whether it's in the brushstrokes, the motion of a painter's hand, the quality of paper or ink, a piece of a software code, perhaps, or movements of a poser's body before the canvas. Neither do we ever encounter art by looking and thinking only; we sense textures and haptic qualities simultaneously.[16]

Typically, we do not think of our breathing bodies as aspects of a work of art, but Kontturi does. She argues that our breathing creates rhythms that synchronize with our feelings and the room's temperature. They are part of the setting of how we experience art. Experiencing art is like a dance where our bodies respond and change at a material level in the presence of an event.[17]

> Even if a painting or a photographic installation appears to stay still, there is nevertheless movement: think of how paint cracks when it ages or is subject to changes in humidity, or how a photographic installation affects its viewer by way of its own materiality interwoven in such things as hanging.[18]

In her work, Kontturi beautifully describes how a series of large hanging photographs sway in the air currents made by viewers as they walk among them. By walking, viewers create a mobile exhibit that changes the photographs and the viewers simultaneously. The work of art is intra-active in that it changes participants and the art simultaneously.

It's not that no one has ever experienced the materiality of art before. But, we have a cultural habit of ignoring the cracks in the paint or how air movements may shape our experience and the agency of the work and its setting.[19] When artists and spectators only pay attention "to what artworks represent, or more mundanely put, depicts their content," we lose an essential dimension of the art event.[20] Kontturi claims that "if we do not pay attention to moving materialities of contemporary art, we end up with seriously restricted understandings of art's capabilities."[21]

The same is true of music and sound art, according to Christoph Cox. Sounds are not objects or properties of objects. They are events and processes. Sounds are vibrations in the air caused by vibrations in things that then vibrate our bodies. Sound waves diffract with one another through the environment in a highly non-local and non-linear way. Cox argues that

> This materialist theory of sound, then, suggests a way of rethinking the arts in general. Sound is not a world apart, a unique domain of non-signification and non-representation. Rather, sound and the sonic arts are firmly rooted in the material world and the powers, forces, intensities, and becomings of which it is composed. If we proceed from sound, we will be less inclined to think in terms of representation and signification, and to draw distinctions between culture and nature, human and nonhuman, mind and matter, the symbolic and the real, the textual and the physical, the meaningful and the meaningless.[22]

Sonic materialism does not give us access to a real essence beneath the cultural representations of music and sound. Essentialism assumes that there is an unchanging essence of art or meaning. Sonic materialism, however, focuses our attention on the continually changing and diffracting process of sound without essence or representation.[23]

Cox' sonic new materialism "enjoins us to abandon the idealist and humanist language of representation and signification that has characterized theoretical discourses on literature and the visual arts over the past half-century, and to reconceive aesthetic production and reception via a materialist model of force, flow, and capture."[24]

Earth art or geoart is another area where new materialist aesthetics can help us see the material dimensions of art. The Polish theorist Dorota Golanska argues that earth art emphasizes the materiality of art and undermines the division between nature and culture. "The work of art—as long as it lasts—remains in continuous movement, there is no stasis, no single moment when you can say 'it's ready, it's finished!' As constantly unfolding, [it is] about perpetual metamorphosis, or relentless becoming."[25]

For instance, the American artist Jim Denevan draws enormous patterns on beaches and leaves them there for the tide to wash away or the wind to erode. For Golanska, the works highlight the ephemeral nature of art, human existence, and the ubiquity of material transformation. The patterns are mainly organic fractal and iterative shapes such as spirals, circles, and flower-like designs. For Golanska, geoart.

> affects us directly (on the material level) and indirectly (on the representational level) at the same time, although the distinction between the two dimensions must only be provisional—they are entangled and co-constitute each other in the perpetual procedure of becoming. This invites a processual understanding of art—art is defined in terms of a constant material-semiotic unfolding… It is about perpetual productivity—differently from purely representational thinking (which invites recognition of the already known), new materialist approach to art invites opening to the new, which encourages a serious reconsideration of our perceptual routines and habits.[26]

Geoart, for Golanska, is not about imposing form upon the matter of the earth. Instead, it is "about cooperation and mutual co-constitution from which a work of art emerges." Geoart emphasizes the fundamentally unfinished and incomplete material aspect of art, as opposed to attaining a masterwork of near-perfect form and preserving it in a museum. The agents of the work of art are human and nonhuman forces working together to produce a new natural cultural process.

Geoart, for Golanska, is a singular site-specific dimension of the landscape itself and can, therefore, not be reproduced or moved without becoming a "new set of procedures and transformations. It would not remain the same in a different setting. Neither does it remain the same in its original setting."[27]

Golanska concludes by suggesting that "knowledge production can learn a lot from the detailed inspection of artistic processes." This is what new materialist artistic research is all about. The attention to the detailed agencies of matter that occur in the artistic process can help train our eyes and minds to see the agencies of matter everywhere. This can have considerable consequences in every field of knowledge beyond aesthetics.

New materialist artistic research acknowledges the.

> active involvement of all factors, phenomena, and processes as well as of matter and discourse in their various, sometimes surprising ecosystemic configurations. Recognition of the fact that we (and our products) are vulnerable, fragile, and susceptible to the environment as much as the environment is susceptible to us (and our scientific achievements)—always a movement, never a stasis—fuels reflection on a more sustainable development as well as on gentle and resilient co-existence with other lives. This may help us think more productively about how we affect (not-only-human) others and are affected by them in the processes of constant transformation and metamorphosis. Such reflection is of crucial importance in the epoch of Anthropocene/Capitalocene and the Sixth Extinction connected therewith.[28]

In new materialist aesthetics, art is also a process of transformation that works directly on the materiality of our bodies and brains. By art, I mean broadly all the arts, including fine art, dance, theater, and sculpture. The New Zealand art theorist Greg Minissale has proposed an aesthetic "neuromaterialism" that focuses on the synchrony of brain activity with works of art. This resonates with Kontturi's emphasis on "following" a work of art instead of stamping form on its passive matter. In particular, Minissale argues that one of the most productive ways to make and view the material processes of art is "by relaxing rational judgment of a painting's 'meaning'" in order to "become sensitive to the rhythms it suggests."[29]

Neuroscientists who study how human brains respond to art have shown that waves of light and sound from objects enter our senses and diffract with the "spontaneous fluctuations" of the neurons in our brains. Waves or frequencies from the world interact and transform into sensory signals in our bodies. Then, they are either canceled or amplified by the unique resting-state fluctuations in our brains. The waves of the world diffract with the waves of our bodies and brains like ripples in a pond. These unique diffracted rhythms propagate through our brains largely unconsciously and involuntarily.

If this is true, art happens mainly in the *intra-action* between brain, body, and world and only marginally in our conscious "minds."[30] When non-conscious processes occasionally bubble up to the surface of our awareness, we experience them as spontaneous thoughts, mind wandering, imagination, or daydreaming. According to Minissale,

> The unpredictable rhythms of matter exhaust attempts to take control of it, and instead our mind drifts into a kind of dreaming with eyes wide open, our imagination cued by the granular textures and rhythms, the twists and turns of the matter itself. This suggests that reverie can be extended and situated, that it is not all in the head.[31]

Art does not take place merely in our head because our head is not separate from the world. Our brains are material and are rhythmically responding to the world whether we are aware of it or not. Our eyes scatter and roam over paintings in rhythms called "eye saccades" that we are mainly unaware of but play out in our imagination.

> For example, in Giovanni Bellini's St. Francis in the Desert (c. 1480), the schist and strata of the rocks, which take up nearly all the pictorial space, can trigger involuntary experiences of staggered rhythms and mind wandering. Similarly, the depiction of clouds and earth in art can provide relief from following or constructing a narrative about the whole painting. Such intervals help to produce moments of daydreaming associated with mind wandering. This involves feeling relaxed with messy things, being absorbed in what we might call arbitrary movements of matter.[32]

One of the main ideas of Minissale's work is that the experience of the work of art is not an immaterial mental event or a judgment. It is a fully enworlded and diffractive process of play and involuntary creativity with the artwork.

New materialist aesthetics is a young but growing area of research that has enormous potential to change the current anthropocentric and anti-realist tendency in philosophy and art. In the next section, I want to introduce some of my reflections and try to bring together several critical insights into the new materialist aesthetics discussed above.

KINAESTHETICS: A NEW MATERIALIST KINETIC THEORY OF ART

I come to the field of new materialist aesthetics from my work on what I call the "philosophy of movement." It's only relatively recently that scientists have concluded that everything in the known universe is in motion, and I take this as a serious philosophical event. From the ongoing expansion of the universe and its innumerable galaxies whirling around supermassive black holes to the earth's revolution around the sun, we know of nothing in our vast cosmos that is entirely static. Even at the tiniest sub-atomic levels, there are indeterminate fluctuations of energy that never stop moving. Physicists call them "quantum vacuum fluctuations."

But what is movement? The most common definition is that movement occurs when something moves from one point to another in space and time. But what if space and time are also moving outward in all directions as the universe expands? What if the fabric of spacetime itself is woven from the same energetic fluctuations as the universe? They are, and it means that there are no fixed points in space or time and that the entire cosmos is continually changing. It also means that movement is only relative to other movements and not to any space or time points.

In my view, a significant consequence of this discovery is that if we want concepts to help us think about material reality, including human knowledge in art, science, politics, and ontology, we should base them on movement. Unfortunately, movement has suffered the same historical fate as matter has in the Euro-Western tradition. Philosophers have systematically placed it at the bottom of the natural hierarchy.[33] Almost without exception, philosophers have said that something else causes movement and is thus derivative and subordinate. In my work, however, I argue that the movement of matter is immanent and self-caused.[34] There is no higher explanatory principle.

In this sense, the philosophy of movement is a branch of process philosophy distinct from the main process traditions based on the French philosopher Henri Bergson's process vitalism or the British philosopher Alfred North Whitehead's process occasionalism.[35]

As a new materialist philosopher of movement, I aim to introduce concepts that can help make sense of a wide range of material processes at numerous scales of reality: from the quantum to the cosmic. Here, I want to introduce my kinetic philosophy of art based on my book *Theory of the Image* and how it contributes to new materialist aesthetics.

What most people call “art” typically refers to the human knowledge of making and having sensations. But ultimately, human art is not separate from the rest of the material world. All of the matter affects and is affected in unique qualitative ways. If there is no ontological division between nature and culture, human art must be one aspect of a much larger process of *qualitative* conjunction and transformation.

For instance, galaxies, nautilus shells, whirlpools, and humans all make spirals in their own way. Why should we say that only the human spiral is “art” while the others are not? I am not saying that humans are not unique somehow, only that whatever is unique about them is no better or more unique than any other unique material process in the cosmos. That would be arbitrary and anthropocentric. I agree with Virginia Woolf when she says in her autobiography that,

> the whole world is a work of art; that we are parts of the work of art. Hamlet or a Beethoven quartet is the truth about this vast mass that we call the world. But there is no Shakespeare, there is no Beethoven; certainly and emphatically there is no God; we are the words; we are the music; we are the thing itself.[36]

But where should we draw the line between art, science, politics, and ontology? This is yet another fundamental question raised by new materialism. From a new materialist perspective, there is no ontological division between these domains of knowledge. Each domain focuses on a particular and inseparable dimension of the world. In my view, “art” is the name for what humans do when they focus on the *qualitative* dimension of things; “science,” when they focus on the *quantitative* dimension; “politics,” on the *relational*, and “ontology” on the *modal*. But in reality, none of these dimensions is separate from the others. It’s a convention used by some human civilizations and not others. Why and how this happens is the long history of anthropology.[37]

I will use the word “art” here as the name some humans came up with to define their focused relationship to qualitative processes. I do not intend it to imply any hierarchical or ontological division.

Instead of analyzing art as primarily static, spatial, or temporal, I understand it as a *pattern of motion*. Instead of looking at subjects and objects, I look at the processes that compose and move through subjects and objects. This method highlights two crucial theses of new materialist aesthetics shared by think theorists in the previous section.

1. Art is a material process.
2. Art involves creative diffraction between the body, brain, and world.

What Is So Kinetic About Art?

Human art is a material process continuous with our moving cosmos. There are very few things that hold for the entire universe, but one of them is entropy. The universe began as a hot and indeterminate process and has been spreading out and cooling ever since. The fabric of space-time and all known fields and particles unfolded from a single big bang of energy.

Eventually, as the Roman poet Lucretius sang two thousand years ago, the world will die. As the cosmos spreads out and cools down, flows of matter vibrate back and forth in various frequencies or wave lengths that give off heat. When these waves diffract with one another, they create highly entangled or folded regions of energy called particles.

These particle waves diffract with one another into various patterns and composites. In physics, a diffraction pattern is where two or more waves collide and either amplify or cancel one another depending on the mixture of their amplitudes (power) and frequencies (speed of oscillation) (see Fig. 1). The diffraction of energy is similar to throwing a handful of pebbles into a pool of water and watching the resulting pattern form. We call "matter" the relatively stable process of innumerable diffraction patterns sustained by the vibrating movement of energy as it spreads out through the cosmos.

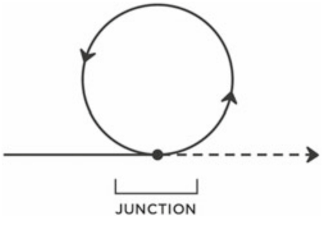

Fig. 1 Fold and junction

Lucretius called these dissipating flows of matter "simulacra" and believed that everything we see results from their weaving and unweaving. In his poem *De Rerum Natura* he writes:

> I have further shown how the nature of the mind,
> and life is braided together from matter,
> and is eventually unraveled back into its first-threads,
> now I will begin to treat for you what closely relates
> to these things: that there exist what we call simulacra,
> which, like membranes ripped from the outer surface
> of things, fly back and forth through the air.[38]

Simulacra, like energy, dissipate from matter and diffract with one another into various patterns and form various metastable objects we call reality. Lucretius continues,

> I have shown how nature is woven together
> through spontaneous flows of endless motion
> and through various formative lengths
> which measure the creation of things.[39]

For Lucretius, all matter, including our mind and our experience of art, is a process of diffracting simulacra. Form is an emergent and metastable property of how matter weaves together and diffracts. For Lucretius, diffraction is neither random nor deterministic, but is a relational pattern which emerges from the fundamental indeterminacy of matter's "swerving" movements. Contemporary quantum physicists often claim Lucretius as the origin of the idea of quantum indeterminacy.[40]

This is the broader material and kinetic story within which human art emerges. But let's look more closely at what is going on in the human experience of art from this vantage.

Have you ever closed your eyes and seen shapes while listening to music? Have you ever seen faces in the clouds looking back at you or spied a dragon on a rocky outcropping? If you have, you have experienced what psychologists call "pareidolia," finding meaningful images in visual patterns.[41] Less well known, however, is that pareidolia is the result of creative and material diffraction in artmaking and appreciation.[42]

In particular, recent scientific research into the neuroscience of "spontaneous cognitive fluctuations" suggests that the source of pareidolia may be one of the reasons we love art and nature so much.

Cognitive fluctuations are unpredictable changes in neural activity in the brain whose causes are presently unknown. Neuroscientists have been aware of these fluctuations since the 1930s but have typically averaged them out as “background noise” from other brain activity correlated to conscious thought. According to recent research, these fluctuations make up 95% of brain activity, while conscious thoughts account for about 5%. Cognitive fluctuations are like the dark matter or “junk” DNA of the brain. They make up the most significant part of what’s happening but remain mysterious.

However, in the last fifteen years, neuroscientists such as Georg Northoff,[43] Robin Carhart-Harris,[44] and Stanislas Dehaene[45] have been focusing their research on these fluctuations. They have concluded that neural fluctuations are not secondary but fundamental for consciousness. Using electroencephalograms (EEG) to measure the frequency and strength of large groups of neural fluctuations in the brain, scientists have discovered that brain waves tend to nest into one another like syncopation in music. At the lowest frequencies, the drums lay down a beat. In between these beats, the bass plays a rhythm, and in between the notes of that rhythm, the guitar plays a melody. The song of consciousness builds up from spontaneous neural fluctuations.

There are similar spontaneous fluctuations in the world, our bodies, and our brains. When the frequencies of the world and brain interact, they improvise and create diffractive patterns. The world pulses with frequencies of sound and light like a drumbeat within which our bodies digest food, beat hearts, and pump lungs.

Our brains do not represent the world but rather respond to these frequencies with their own spontaneous fluctuations. They play between the waves with melodies that make up our thoughts and feelings. Like a jazz trio, the world, body, and brain have their own spontaneous fluctuations that are the basis of the creative improvisation we call reality.

These fluctuations are also the source of our experience of pareidolia.[46] When we let our minds wander and daydream, they become increasingly open to these divergent “bottom-up” diffractions and weak associations. Pareidolia occurs when we involuntarily experiment with seeing various “top-down” images such as animal shapes or faces in these fluctuations. In this improvisational state of mind, spontaneous thoughts and creative images rise like waves from the ocean of the unconscious and disappear again.[47] This back-and-forth is an improvisational process that increases cognitive fluctuations in the brain and has therapeutic effects similar to other activities that increase cognitive fluctuation.[48]

But why do people enjoy this activity so much? Why do they tend to like some natural and artistic patterns more than others? Some sights and sounds tend to amplify these spontaneous fluctuations more than others. For instance, scientists have shown that taking a walk in nature tends to increase mind wandering due to the fractal patterns of natural objects.[49] The same thing happens when we view fractal patterns and proportions in art.[50] A fractal is a particular proportion of coarse-grained to fine-grain patterns, such as a tree whose branching pattern repeats in its branches, twigs, and leaf veins.

When we look at the world, our unconscious eye movements or "eye saccades" also have a fractal pattern as they move over images.[51] When we view fractal patterns with our fractal eye movements, our bodies become less stressed, and our brains mind wander more as images emerge and disappear from conscious awareness.[52] Even our brainwaves become more fractal and more interconnected when our minds wander.[53] And this experience of reverie often feels good.

For instance, several recent studies have shown that people prefer to look at fractal patterns and artworks more than non-fractal ones and find them more aesthetically beautiful.[54] In other words, these studies provide strong evidence that fractal images and sounds invite our eyes, bodies, and brains to play, wander, and make new associations at a mainly unconscious and involuntary level and enjoy it.

Fractals also increase pareidolia. Studies show that people tend to see more images in Rorschach ink-blot tests with a particular fractal dimension.[55]

But why is the play between body, brain, and world so widely experienced as pleasurable and beautiful? The physicist, Richard Taylor at the University of Oregon, speculates that humans are "wired" with a "fractal fluency" since we evolved surrounded by the natural fractal patterns of plants, clouds, and rocks.[56] Studies confirm that fractals increase attention, pattern recognition, navigation, reduce stress, and have aesthetic appeal. Taylor argues fractals are also the source of our "biophilia," or love of nature.[57]

From a new materialist perspective, I find it fascinating about the connection between cognitive fluctuations, mind wandering, and fractal patterns in art and nature because they tend to be good for humans in a uniquely *playful* way. Some works, natural objects, works of art, and states of mind, tend to increase the creative aspects of diffraction between fractal patterns, or “diffractals.” Nature does not dictate a single universal form of right action, healthy living, or beautiful art. Instead, some patterns let us play and experiment more or less. And it seems that we prefer to play.

But play can also be dangerous. Not all our experiments work, and some go wrong. Mind wandering can lead to negative rumination, and not everyone prefers the same fractal dimension.

We are not biologically programmed to like or this or that object, but rather inclined to enjoy the process of play, improvisation, trial, and error in all things. In other words, recent research into mind wandering and fractals suggest that the process of creativity and play involved in making and experiencing art diffractively is a crucial source of aesthetic beauty and our love of nature.

Art is always interactive and creative to varying degrees and therefore involves a degree of artistic research.

In light of this, one method of doing artistic research would be to study the entrained patterns of motion at various levels. Instead of thinking only about the form, content, meaning, or representation of a work of art, one would map out the nested patterns and rhythms across various objects and agencies.

Flows

We could start by thinking about art in terms of “flows.” A flow is an indeterminate material process. As matter moves from high concentrations to lower ones, it dissipates and spreads out. This is the origin of all diffractive or diffractal events.

For instance, without the material flow of photons, there is no vision; without the flow of molecular pressure, there is no sound; without the flow of saliva, there is no taste; without the flow of air, there is no smell. Most importantly, without the flow of all matter, there is no creative diffraction or touch—the foundation of all sensation and qualitative change.

Art only emerges where matter can encounter itself—to touch itself and playfully diffract. This diffraction and differentiation occur only through movement. As matter moves and collides, it can iterate certain rhythms or patterns. These are what we call the qualitative aspects of things. Without flows of movement, we would live in a world of static vacuum-sealed entities with no sensation, affection, or art.

Flows of matter are not passive or mechanical. Their movement has a creative agency to affect and be affected in the world, just like Lucretius' swerve. This means that art objects have their own agency, activity, and movement whether we are there or not. They act on and are acted on by their environment. When humans make or experience art, they enter into a broader material process. They affect and are materially affected by the art and the environment.

This is because matter does not stay contained but flows and dissipates from artworks, human bodies, and the world. Material dissipation is the source of diffraction.

Folds

When flows of matter intersect and iterate in periodic cycles or rhythms, these are their "folds." If all sensuous reality is material flows, folds are the places where matter loops, cycles, or oscillates back and forth. In this sense, a fold is not something other than a flow. It is a place where matter touches and creates a unique quality. Matter "senses" itself.

When this quality or "fold" continues to repeat in approximately the same looping pattern, it creates a kind of mobile stability or metastability. A fold joins a flow to itself over and over again. The point where the flow returns to itself is a point of self-reference or haptic circularity that yokes the flow to itself (Fig. 1).

This is how an iterative rhythm can sustain a certain quality. For instance, flows that vibrate close together tend to be more solid than those that vibrate farther apart. All our senses translate frequencies from the world. Light and sound enter our bodies and memories as habits or recurring vibrations. In this way, the folds of the world are folded directly into our bodies. Following, Lucretius, I call these qualitative folds "images" in my book *Theory of the Image*. Images are the qualitative aspect of all things.

Fields

Kinaesthetic "fields" emerge when folds become entrained into larger patterns and rhythms of movement. In this sense, an aesthetic field is a metastable order of metastable orders. It acts less like a container than like an origami object that brings together multiple folds, changing them each time it folds. It includes the body, brain, and world together in a

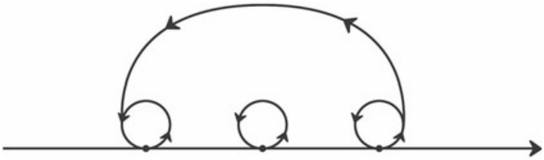

Fig. 2 Field of circulation

shared diffractal order. Flows of matter cycle through folds that nest in one another in fields of circulation. To remain stable, a field of circulation also has to keep changing at a relatively metastable rate (Fig. 2).

The folds remain distinct, but flows tie them together. Through circulation, some folds act together (by connecting flows) and become larger; others separate and become weaker. Artistic research can map out these expansions and contractions through artmaking, appreciation, or art history.

Circulation turns some folds away and merges other folds in an expanding network. As a circulatory system increases the power and range of its folds, it increases its capacity to act in more ways. In short, a circulatory field is the controlled reproduction and redirection of an ordered pattern of movement.

Instead of thinking about art in terms of subjects and objects, I propose we think about iterative and entrained processes: flows, folds, and fields. Artistic research can be a method of mapping these patterns across the various scales of an art event. Art is not a representation of the world, and neither is our experience of it. Art is a pattern of folded frequencies that directly changes the world, our bodies, and brains. Art does not signify anything but directly transmits material sensations via patterns of motion. Thinking about art in this way lets us look at the subject and object of an aesthetic process as entrained fields of circulation creatively diffracting with one another.

Conclusion

Art is the knowledge of qualities continuous with the cosmos. All things have qualitative and aesthetic dimensions because nature dissipates, swerves, and affects itself. Human artists study and compose these singular qualities into sensuous images.

In this broad definition, the work of art is not a discrete thing but an event. It is a material process that happens when qualities are brought together for some metastable duration. An art object, its display context, and those who experience it are all processes with unique qualities that fold and diffract together. The event of a work of art is the whole metastable conjunction of these qualities together. There is no work of art in isolation. Even when no humans are around, the work persists in its entropic movement relative to its environment. Water vapor and temperature interact with the work of art, and it interacts back with them. Art is always in the process of circulation.

Artistic knowledge and research include knowing how to make art and how to be affected by it. This is because art is a pattern of conjoining qualities that diffract more or less. Art does not communicate a separate message but acts directly and materially on the qualities in the aesthetic field. Light, sound, texture, smell, and taste are material processes that touch our bodies. In experiencing a work of art, our bodies touch it back through our material presence: our breath, heat, or touch. Our presence in a room can change the room's acoustics. All sensation is haptic. Art and sensation occur when qualities touch and make something. In this sense, all art is performative. Artistic knowledge is a dance of qualities in motion.

Art is not contemplation (Plato), judgment (Kant), idea (Hegel), or communication (Tolstoy), but is first and foremost about the affectations of matter. The experience of beauty is not a judgment of the world. It is a direct sensation of the world by a body woven into the qualities of the world. In this way, new materialist aesthetics reconnects anthropocentric separatists with the rest of the cosmos.

Defining art and beauty as only some patterns of motion and not others limits the range of qualities and ways we can assemble them. Material processes play a critical role in all works of art. Still, if only humans are treated as artists or as capable of experiencing art, we ignore the vast majority of the agencies in works of art.

Why should art be reduced to function or form? Definitions can be interesting experiments, but we should be careful not to treat them as universal. Art and the cosmos move on with or without humans. We can help it along and go with the flow by playfully diffracting like everything else, or we can pretend we are separate from the world and try to prohibit the generation of new qualities.

The movement of matter produces all kinds of conjunctions inside and outside the restricted domain of human art. Art can increase the diversity of qualities by increasing the dissipative spread of matter. It can avoid getting stuck in standards of beauty and try to play more deeply and strangely than before.

Notes

1. Thomas Nail, Christopher Gamble, and Joshua Hanan, "What Is New Materialism?" *Angelaki Journal of the Theoretical Humanities* 24, no. 6 (2019): 111–34.
2. For the full account of this history, see Thomas Nail, *Being and Motion* (Oxford: Oxford University Press, 2019), Book II.
3. See Thomas Nail, *Lucretius I: An Ontology of Motion* (Edinburgh: Edinburgh University Press, 2018); Thomas Nail, *Lucretius II: An Ethics of Motion* (Edinburgh: Edinburgh University Press, 2020); Thomas Nail, *Lucretius III: A History of Motion* (Edinburgh: Edinburgh University Press, forthcoming); Thomas Nail, *Marx in Motion: A New Materialist Marxism* (Oxford: Oxford University Press, 2020); Thomas Nail, *Virginia Woolf: Moments of Becoming* (Redwood City, CA: Stanford University Press, under review); and Thomas Nail, *Matter and Motion* (Chicago: Chicago University Press, under review). See also Jerry Lee Rosiek, Jimmy Snyder, and Scott Pratt, "The New Materialisms and Indigenous Theories of Non-Human Agency: Making the Case for Respectful Anti-Colonial Engagement," *Qualitative Inquiry* 26, no. 3–4 (2020): 331–46.
4. Raj Patel and Jason W. Moore, *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet* (United States: University of California Press, 2017).
5. In my view, feminist philosophers have done some of the most important work to trace out this logic. See, for example, Greta C. Gaard and Patrick D. Murphy, eds., *Ecofeminist Literary Criticism: Theory, Interpretation, Pedagogy* (United States: University of Illinois Press, 1998); and Stacy Alaimo and Susan Hekman, eds., *Material Feminisms* (United States: Indiana Press University, 2008).
6. For an excellent treatment of how the subordination of matter to form is related to political and feminist issues, see Emanuela Bianchi, *The Feminine Symptom: Aleatory Matter in the Aristotelian Cosmos* (United States: Fordham University Press, 2014). See also Emanuela Bianchi, Sara Brill, and Brooke Holmes, eds., *Antiquities Beyond Humanism* (United Kingdom: Oxford University Press, 2019).
7. Nail, Gamble, and Hanan, "What Is New Materialism?".
8. Serenella Iovino and Serpil Oppermann, eds., *Material Ecocriticism* (Bloomington, IN: Indiana University Press, 2014).
9. For one recent example of how the historical subordination of matter has justified anti-blackness and white supremacy, see Armond R. Towns,

"Black 'Matter' Lives," *Women's Studies in Communication* 41, no. 4 (2018): 349–58. See also Bianchi, *The Feminine Symptom*. For more on the ethical and political consequences of my philosophy of movement, see Thomas Nail, *The Figure of the Migrant* (Redwood City, CA: Stanford University Press, 2015); Thomas Nail, *Theory of the Border* (Oxford: Oxford University Press, 2016); Thomas Nail, *Theory of the Earth* (Redwood City, CA: Stanford University Press, 2021); and Thomas Nail, *Lucretius II*.

10. Plato, *Timaeus*, trans. R.G. Bury. Loeb Classical Library 234 (Cambridge: Harvard University Press, 1929), 37c–e.
11. We can see a later expression of a similar idea in Aby Warburg's interesting, but also socially and anthropocentrically limited, idea of the "pathos of images." Becker, Colleen (2013). "Aby Warburg's Pathosformel as methodological paradigm," *Journal of Art Historiography* (9): 1–25. And in Bredekamp's theory of the Image-act in which images have agency, but only for human reaction, will, desire, and perception. "The 'I' becomes stronger when it relativizes itself against the activity of the image." Horst Bredekamp, *Theorie des Bildakts* (Berlin: Suhrkamp Verlag, 2010), 328.
12. Leo Tolstoy, *What Is Art?* trans. Richard Pevear and Larissa Volokhonsky (London: Penguin Classics, 1996).
13. See G.W.F. Hegel, *Aesthetics: Lectures on Fine Art*, trans. T.M. Knox (Oxford: Oxford University Press, 1975). See also Joseph Tanke and Colin McQuillan, eds., *The Bloomsbury Anthology of Aesthetics* (New York: Bloomsbury, 2012).
14. Since numerous full-length works have recently been devoted to making this argument, including my own, and since this is not the primary focus of this book, I must simply refer the interested reader to those works. See: Tom Sparrow, *The End of Phenomenology: Metaphysics and the New Realism* (Edinburgh: Edinburgh University Press, 2014); Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham and London: Duke University Press, 2007); Ian Hodder, *Entangled: An Archaeology of the Relationships between Humans and Things* (Malden, MA: Wiley-Blackwell, 2013); Levi R. Bryant, *Onto-Cartography: An Ontology of Machines and Media* (Edinburgh: Edinburgh University Press, 2014); Manuel DeLanda, *Assemblage Theory* (Edinburgh: Edinburgh University Press, 2016); Diana Coole and Samantha Frost, eds.,*New Materialisms: Ontology, Agency, and Politics* (Durham and London: Duke University Press, 2010); and Thomas Nail, *Being and Motion*.
15. Christoph Cox, "Beyond Representation and Signification: Towards a Sonic Materialism," *Journal of Visual Culture* 10, no. 2 (2011): 147.
16. Katve-Kaisa Konturri, "Moving Matters of Contemporary Art: Three New Materialist Propositions," *Journal of Art and Media* 5 (2014): 43.

17. Katve-Kaisa Kontturi, “Following the Flows of Process: A New Materialist Account of Contemporary Art,” *Annales Universitatis Turkuensis*, ser. B, tom. 349. (Humaniora, Turku: University of Turku, 2012), op. cit. 58–61.
18. Kontturi, “Moving Matters,” 47.
19. Ibid., 44.
20. Ibid., 43.
21. Ibid., 44.
22. Cox, “Beyond Representation,” 157.
23. Ibid.
24. Ibid.
25. Dorota Golanska, “Geoart as a New Materialist Practice: Intra-Active Becomings and Artistic (Knowledge) Production,” *Research Catalogue*. Accessed May 21, 2021,1. https://www.researchcatalogue.net/view/427704/427706.
26. Ibid., 2.
27. All quotes in this pargraph are from Ibid., 2.
28. Ibid., 5.
29. Gregory Minissale, *Rhythm in Art, Psychology, and New Materialism* (Cambridge: Cambridge University Press, 2021), 3.
30. For a wonderful theory of “intra-action” see Karen Barad, *Meeting the Universe Halfway*.
31. Ibid., 5.
32. Ibid., 17.
33. See Nail, *Being and Motion*.
34. See Nail, *Lucretuis I*; Nail, *Lucretius II*; Nail, *Lucretius III*, and Nail, *Marx in Motion*.
35. See Nail, *Being and Motion*, Chapter 3.
36. Virginia Woolf, *Moments of Being: Unpublished Autobiographical Writings*, ed. Jeanne Schulkind (New York: Harcourt Brace Jovanovich, 1975), 72.
37. For an excellent introduction to this issue see Marisol de la Cadena and Mario Blaser, *A World of Many Worlds* (Duke University Press, 2018).
38. Titus Lucretius Carus, *De Rerum Natura (On the Nature of Things)*, ed. Walter Englert, series ed. Albert Keith Whitaker (Newburyport, MA: Focus Publishing, 2003), 4.26–32.
39. Ibid., 4.45–58.
40. See Nail, *Matter and Motion*.
41. René Müri and Nicole Göbel, “See Faces in the Clouds? It Might Be a Sign of Your Creativity,” *Psyche*, July 15, 2020. Accessed May 24, 2021. https://psyche.co/ideas/see-faces-in-the-clouds-it-might-be-a-sign-of-your-creativity.

42. Lorenzo Diana, Michael Frei, Alvin Chesham, Denise de Jong, Kathrin Chiffi, Thomas Nyffeler, Claudio Bassetti, Nicole Göbel, Aleksandra K. Eberhard-Moscicka, and René Müri, "A Divergent Approach to Pareidolias—Exploring Creativity in a Novel Way," *Psychology of Aesthetics, Creativity, and the Arts* (Jan 2020).
43. Georg Northoff, *The Spontaneous Brain: From the Mind-Body to the World-Brain Problem* (Cambridge, MA: MIT Press, 2018).
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48. See Susanna Crossman, "The Play Cure," *Aeon*, February 4, 2021. Accessed May 24, 2021. https://aeon.co/essays/play-is-cathartic-allowing-people-to-sit-with-their-shadows; Thomas Nail, "Most Brain Activity Is 'Background Noise'—And That's Upending Our Understanding of Consciousness," *Salon*, February 20, 2021. Accessed May 24, 2021. https://www.salon.com/2021/02/20/most-brain-activity-is-background-noise-cognitive-flux-consciousness-brain-activity-research/ ; and Thomas Nail, "Why Making Our Brains Noisier Feels Good: A Counterintuitive Approach to Improving our Mental Health," *Nautilus Magazine*, February 17, 2021. Accessed May 24, 2021. https://nautil.us/issue/96/rewired/why-making-our-brains-noisier-feels-good.
49. Avik Basu, Jason Duvall, and Rachel Kaplan, "Attention Restoration Theory: Exploring the Role of Soft Fascination and Mental Bandwidth," *Environment and Behavior* 51, no. 9–10 (2018): 1055–81.
50. Caroline M. Hagerhall, Thorbjörn Laike, Richard P. Taylor, Marianne Küller, and Theodore P. Martin, "Investigations of Human EEG Response to Viewing Fractal Patterns," *Perception* 37, no. 10 (2008): 1488–94.
51. Richard P. Taylor, Branka Spehar, Paul Van Donkelaar, and Caroline M. Hagerhall, "Perceptual and Physiological Responses to Jackson Pollock's Fractals," *Frontiers in Human Neuroscience* 5, no. 60 (2011).
52. Caroline M. Hagerhall, Thorbjörn Laike, Marianne Küller, Elizabeth Marcheschi, Cooper Boydston, and Richard P. Taylor, "Human Physiological Benefits of Viewing Nature: EEG Responses to Exact and Statistical Fractal Patterns," *Nonlinear Dynamics, Psychology, and Life Sciences* 19, no. 1 (Jan 2015): 1–12.

53. Antonio J. Ibáñez-Molina and Sergio Iglesias-Parro, "Fractal Characterization of Internally and Externally Generated Conscious Experiences," *Brain and Cognition* 87, no 1 (Apr 2014): 69–75.
54. Hagerhall et al., "Investigations."
55. Bernice E. Rogowitz and R. Voss, "Shape Perception and Low-Dimension Fractal Boundary Contours," *Proceedings Volume 1249: Human Vision and Electronic Imaging: Models, Methods, and Applications* (October 1990).
56. Richard P. Taylor, "The Potential of Biophilic Fractal Designs to Promote Health and Performance: A Review of Experiments and Applications," *Sustainability* 13, no. 2 (2021): 823.
57. Ibid.

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Entanglements and Response-Ability in Intergenerational Performance Ecology: Part II

Sarah Hopfinger

I remember the process of making *Wild Life* in a messy haze of questions (how do we enact wildness?), moments (of child–adult and human–nonhuman collaboration), and movements (of humans dancing, rocks dropping, flames flickering, water splashing). I remember time spent during rehearsal activities waiting for something to happen, and how actions like sliding stones across the floor and having a water fight emerged as a welcome surprise. I remember energies shifting, individuals colliding and collaborating, ideas working and not working, and new ideas emerging through doing rather than (only) thinking. It was often hard to know where the creative ideas came from … was it my pre-planning of rehearsals, my directorial prompts and tasks, the unexpected ways the human performers responded to those tasks, the physical ways the nonhuman materials behaved when humans did the performance tasks, or something more complex across these (human and nonhuman) agencies?

Doing ecological entanglement: performing as a case of live responding to each (human and nonhuman) other.

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In the creative process of making *Wild Life*, I invited the performers to take part in an improvisation that was similar to an exercise called Instant Composition that I had experienced when working with the Belgium-based company, Kabinet K (https://www.kabinetk.be/en), who work with children and trained adult dancers to create new dance performances. In developing this improvisation method with my collaborators, we together named it Instant Performances to emphasize that whatever happened in the improvisation was part of that performance and to encourage performers to respond spontaneously to whatever (unpredictably) might happen in the improvisation. Instant Performances involved the eight child and adult humans interacting with each other and with the rocks, water, and matches. I wrote simple written tasks like 'light a match and watch it burn,' 'splash your face with water' or 'tap two stones together,' which when enacted would often emerge as complex human–nonhuman performances. We used Instant Performances throughout the creative process as a way for the performers to get to know each other in physical and playful ways, to explore possibilities of being 'wild,' and to experiment with collaborating with nonhuman materials. As the director I would often take moments from the improvisation and work with the performers at another time to develop that moment, which could then become part of the final performance—for example, a splashing game that Carragh and Pete developed in one Instant Performance was developed and became a whole section in the final performance where all of the performers had a water fight.

When watching these Instant Performances I remember how fictions and meanings were made and unmade—created and ruptured—through the live performances of the tasks. I remember Pete leaning over a bucket and splashing his face with water, and I read this action as symbolic of 'human purification,' with Pete representing 'humans' and the water representing 'purity.' A moment before the water and Pete had been separate, and now Pete's sweat mixed with the water and the water literally entered Pete's pores, and I did not know where Pete began and the water as a material ended. My reading of 'purity' emerged through the material actuality of Pete's skin becoming entangled with the water—interestingly the water may have become less pure through its contamination with Pete's skin. This human–nonhuman entity of Pete-splashing-human-skin-water-me-watching *performed* pureness.

Doing ecological entanglement: the making and unmaking of meaning by human–nonhuman performances.

Doing ecological entanglement: memory as interactivity in practice.

I remember how Gaby sitting within a circle of stones became a metaphor for how teenagers often desire privacy and a personal boundary space. The space was simultaneously actual (a real circle of rocks that Gaby sat within) and metaphorical (to me the rocks represented a divide between Gaby and the 'adult world'). I remember these activities drawing my attention to human-centered fictions. I remember reading the action of Graham placing stones around his body as Graham making his own grave, but this narrative was swept away when Carragh swept the same stones into a pile and repeated the instruction of laying the stones around her body, lifting the stones with more difficulty than Graham. My attention was drawn away from fiction and meaning-making and instead to the weight, textures, and noises of the stones. The materiality of the stones *performed* and I let go of the human-centered narrative I had attributed to that material. I remember the stones laid out by Liz at the beginning of an improvisation were later leaped over, avoided, and followed by Graham, Gaby, and Lennon: the stones were shaping the path of movement that these differently-sized-running-humans took. The materials were shaping the human performances and the humans were shaping the materials' performances. My attention was drawn to the ways in which both the humans and nonhuman materials were co-determining the performance.

I remember my ideas becoming sedimented—'it really works when Lennon and Carragh light matches'—and how I would hold onto the idea and then (eventually) let it go. I remember repeatedly releasing my predetermined images of what the performance could be. I remember things happening that I could not have predicted, like everyone lighting matches, passing flames between them, sitting in a cloud of smoke, absorbed by the activities of just doing what they were doing, and how I felt I could watch this simple action for hours. I remember my instructions and directives being reconfigured by the unexpected interpretations of them by the different humans and by the unpredictable ways the humans and nonhuman materials interacted.

I remember water spreading across the floor, traveling under the feet and chairs of the audience, escaping the perimeter of the performance space: a nonhuman material transgressing the boundaries of the contained performance space. I remember Pete dropping the biggest rock into a bucket, masses of water splashing out in all directions and not being sure who or what made the splash—Pete, the rock, the shape of the bucket, the amount of water, or the people avoiding it. I remember how

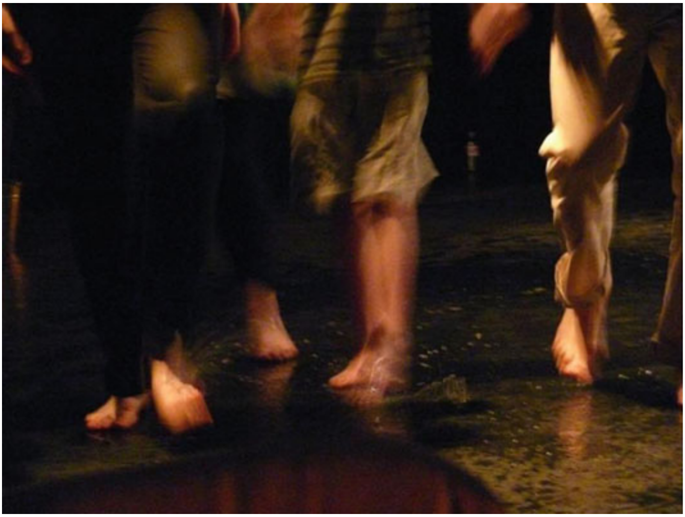

Fig. 1 Performance documentation 3

some activities seemed to emerge through the dynamics and betweens—the emergent patterns and differences—of the multiple human and nonhuman agencies. Sometimes the human and nonhuman even seemed to swap places: as the smoke from the lit matched spread across the performance space, the shapes of the smoke became determined by the breath of the human performers and audience members—the smoke became our breath. I remember a process of working with containers—performance instructions and tasks such as 'drop a rock' or 'gurgle the water'—and realizing that the process of making the performance was predicated on how the boundaries of those containers could be transgressed and reconfigured by the dynamics of the humans and nonhumans enacting them.

Doing ecological entanglement: transgressing and reconfiguring boundaries (Fig. 1).

I remember that even as fictions and meanings formed, as a spectator, I could not hold them still, since they were always changing into something else through the different live interactions enacted by human performers and nonhuman materials. I remember how fictions and meanings emerged (and ruptured) less through human interactions and more through human–nonhuman dynamics and betweens. Live performance arguably enacts the constant letting go and abandonment of fixed states: even as fictions, narratives, images, meanings, identities, and differences form, they are always already changing into something else. Perhaps live performance has the innate potential to enact the ongoing flux and process of how 'things' and 'selves'—and fictioning—materially and ecologically emerge?

Wild Life in this respect can be contextualized within the performative turn that has taken place across academic disciplines in and beyond performance studies—since the 1960s performance has come to be understood in terms of all human and cultural activities (see, for example, Schechner, 2006). A key expounder of this definition of 'performance' is Judith Butler who discusses gender as performative and socially constructed (1988). With social constructivism, human practices are understood in terms of their material performativity: social and cultural practices have real-material consequences on bodies. What and how we (humans) act—how we perform—is understood to (re)constitute our various individual and collective identities; identities are performed as opposed to essentially existing. Artistic performance—in its liveness and materiality—is perhaps well placed to expose the performativity and (re)configuration of fictions, identities and meanings? Social constructionist ideas, however, do not account for ecological and nonhuman performativity. Barad extends from Butler, critiquing how Butler presumes that materializations are the end product of human cultural practices. With Butler, matter is ultimately seen to derive from 'the agency of language or culture' and the material bodies that social constructivists discuss are usually only human ones (Barad 2007, 64; 145). Social constructionists do not take the dynamics of matter 'seriously' (Barad 2007, 152). In place of this, Barad offers 'agential realism,' which is neither the 'realism' of an essentialized world of inherent identities nor is it 'about representations of an independent reality,' and it 'goes beyond performativity theories that focus exclusively on the human / social realm' (Barad 2007, 37; 225). Agential realism is 'about the real consequences, interventions, creative possibilities, and responsibilities of intra-acting within and as part of the world' (Barad 2007, 37). Artistic performance is perhaps uniquely placed to expose (human-nonhuman) intra-activity? I think that the process and final performance of *Wild Life* was ecological insomuch as the multiple fictions and meanings of the work were transparently co-created, ruptured, and reconfigured by the multiple human and nonhuman performers. Could performance be an artistic discipline that can—through its liveness—implicitly show how all performances (from social performativity of identities to artistic performances onstage) are always already a matter of human–nonhuman entanglement, and are therefore not (ever) only of (our) human material making? Extending from Barad, as well as the new materialist Jane Bennett (2010) (who both present performativity as a human and nonhuman matter), *Wild Life* led me to consider how ecologies themselves *perform*. Any ecology (whether it be an environmental, social or performance ecology) has the capacity to effect and be effected (to mark and be marked) by other ecologies: therefore, the ecosystem as a system *performs*. This resonates with performance ecology scholar-practitioner Baz Kershaw, who proposes that 'we are *fundamentally* performed by *Earth's ecologies*' (2015, 113, italics in original). Ecological performance, then, as a method of enacting our unavoidable intra-activity with(in) and as part of Earth's wider ecology: theatrical performance is a method of exposing how we perform, and are performed by, the ecological systems of Earth.

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Embodying

The Plato-problem. Because can one ever really be free of him in the West? The atomic fluctuations and scatterings of Platonic principles hum and buzz in the veins, in the skin, and in the throat. At each moment, Plato's Ideal Form comes to haunt the edges of awareness, the trace of where-we-once-were and where we might come to be at any moment in space–time.

In coming into the body, into *embodiment*, the enfleshement of becoming is rightaway haunted by separations. Can I bring my Ideal self with me? Was she not there all along? Is matter somehow separable from thought/spirit/selfhood?

How do matter and meaning diffract through one another? Are these not simply concepts? Have they not been one entangled dance since we first burst into life only to be cut into two by Plato who loved going to the shadowplay, arguably so much it became something of a fault(line)? After all, if we follow Jeanette Wintertson, 'your first parent was a star', robed and rapt inside us all along: nothing short of the entire material universe.

Schultis finds that 'the problem of representation is not unique to particle physics. It dogs any attempt to build a performative knowledge practice'. Thus, the trace comes in. It is a folded apparatus of matter meaning through which performances might be moved to diffract forms, figurations, and phases. Bowes' apparatus is the edge, a place in space–time that we are urged to 'look closely at' for therein all relations between so-called material and immaterial play out. Here, perhaps Plato finds himself echoing back, speaking through the ghostly resistance to Barad, 'but I didn't mean *that*' his reverberations shout.

Hopfinger's refrain re-emerges. Here she tells us a story of a child leading two adult men in the studio, reframing their dances, movements, and marches. How might performance dance its glorious way in and out of Plato's shadowy wave field? How might transcendent and immanent desires find themselves folded together in Venus' watery and diffractive embrace? The question is thrilling.

Magical in Spite of Being Analyzed: Representation and Diffraction in Rudolf Laban's Space Harmony

Brian Schultis and (acknowledging Maria Gillespie)

Any representation of movement translates a phenomenon that takes place over time into a synchronous form, be that language, drawing, or symbols. There are two basic ways of understanding what this entails—the more conventional way is to see the representation as a pathway that the moving thing took. The second way is to see it as a zone of disturbance in a medium. For most of the history of physics, these two ways were seen as fundamentally different. The former was applied to particles and other solid stuff that moved through space, and the second to waves such as those that move through air in the form of sound or through water. At stake in the difference was the ontological solidity of the thing in question. Waves were incorporeal—patterns within other substances—where real solid things moved along pathways described by laws of motion. While the behavior of light had long proved problematic for this distinction, the early experiments of Quantum mechanics thoroughly blurred it. In them, particles were observed to make a diffraction pattern.

Diffraction describes the way a wave will change shape through its interactions with an obstruction or other wave it encounters in the

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medium it is passing through. A diffraction pattern is the trace of that change in the observable structure of the wave. In water waves that are visible as they move, the diffraction pattern of the waves passing by an obstacle such as a rock might be visible as the waves move along. In the diffraction of light, the diffraction pattern may not be visible until the light hits a reflective surface. Experiments on diffraction in particle physics often involve sending particles at high speed through a slit or grating and onto a medium that can register the position of their impact on the other side. By observing diffraction patterns in the location of the particle impacts in this kind of experiment, physicists could draw the surprising conclusion that particles don't function in the independent way envisioned by Newtonian mechanics but can also exhibit wavelike characteristics.

The focus of this essay is not physics, but representation, so what will be important here is that diffraction patterns are patterns—they are representable in drawings, photographs, written descriptions or equations. In this way, they are part of the apparatus of representing a moving and changing thing (a wave) in terms of a fixed and durable thing (the representation of a pattern). In this way, diffraction patterns are a bit like pathways, they give us information about moving and changing phenomena. But they are different from pathways in significant ways as well. A pathway implies a singular body that travels through space. While its movement may be continuous, if one mathematically isolates a single instant of its travel, one could identify its position in that instant. Furthermore, while a body moving along a pathway certainly affects and is affected by anything that might be along that path, it never occupies and affects the whole pathway at one time. The space along the pathway, while represented as a continuous whole, is only implicated piece by piece, as the moving body passes through it. A diffraction pattern, on the other hand, is a way of depicting motion in which a broad area of space is implicated in a changing way over time. It points to a zone of activation or interaction.

As long as we view these two types of representation—pathways and diffraction patterns—as being proper to two ontologically distinct phenomena—particles and waves—then questions around which form of representation to use amount to a simple correspondence between the thing being represented and the nature of the representation. Yet as philosopher Karen Barad explores in *Meeting the Universe Halfway* (2007), the discoveries of quantum mechanics deeply unsettled this epistemological simplicity. Barad follows the scientific and philosophical investigations of Niels Bohr to the conclusion that not only can particles exhibit diffraction patterns in the same way that waves can, but that the apparatus of observation and description used in the experiment plays a role in which will emerge. This means that the nature of representation is not simply a reflection of the nature of the phenomenon, but a component of its constitution and coming-into-meaning in the world. This means that knowledge is not something that exists independently of the series of material engagements that gives rise to it. As Barad puts it: 'the point is not that knowledge practices have material consequences but that *practices of knowing are specific material engagements that participate in (re)configuring the world*' (Barad, p. 91). She describes this material engagement as a performativity of knowledge. Barad sees attention to diffraction and diffraction patterns as critical to performative knowledge practice because of the way that it attends to these material engagements (p. 88). Where a pathway might show the trace of interaction through a change in direction, diffraction patterns directly attend not to independent bodies which may interact incidentally, but to the structure of ongoing meaningful engagements.

This essay will demonstrate the role of diffraction patterns within performative knowledge practices by applying it to the historical performative knowledge practice initiated by the dancer and movement theorist Rudolf Laban. It will particularly attend to the nature of the representations this work generated. Laban worked with dancers toward a rigorous science of human movement in the early to mid-twentieth century, and his work was performative only in its subject matter but also in its view of knowledge. For Laban, the idea of a 'material engagement that participated in the (re)configuring of the world' was a necessary part of the process of discovery. He studied movement by moving in collaboration with other people and communities. If we take up Barad's call for a performative understanding of knowledge, then Laban is an invaluable early innovator from whom we have much to learn both about human movement and performative knowledge processes. Yet, the epistemological assumptions which informed Laban's work were very much of his time and culture—that of pre-World War II central European Expressionist artistic practice. To modern interpreters, this can obscure or mystify these insights. I will interpret these assumptions as part of a strategy to address the problem of representation within a performative knowledge practice, contextualizing their function within his thinking, and then offer diffraction patterns as the key to an alternative strategy, which invites Laban's insights to interfere with contemporary and future practice in new and productive ways.

Laban's research is quite broad in scope, and this essay will focus specifically on an area of work he called Space Harmony. Laban was certainly interested in describing human movement—his movement notation system is a testament to this—yet in Space Harmony he moves beyond description to an attempt to articulate fundamental principles of movement. It includes both ways of describing movement, and sequences of movement meant to be performed. These performable sequences, called 'scales' or 'rings' are not aesthetic choreography. They build in the mover a sense of the fundamental building blocks of expressive movement as a musical scale might display a certain harmonic range to a performer. The methodological move which underpins Space Harmony is the idea of a trace-form—the shape that a body or body part describes as it moves through space over time. If the body left a visible after-image everywhere it went, such as in Picasso's Light Drawings, this might be a trace-form. These historical representations of movement appear at first to be obviously pathways and not diffraction patterns. When one performs a scale, for example, it appears that this is a process of following the trace-form that Laban composed by passing through over time a form that exists independently of our tracing it—an external form. My position will nonetheless be that a trace-form can be viewed both as a pathway and as a diffraction pattern and that as we approach Laban's work in the twenty-first century, the latter way—as a diffraction pattern—takes on particular importance.

Laban intended to explore fundamental truths of movement operating on both the physical and spiritual levels. Günter Berghaus summarizes the attempt well:

> By developing the principles of abstract, or absolute, dance, he found ways of expressing the spiritual dimension of human existence and the essence of Being underneath the surface of reality … However, contrary to the mystical thinking of many Expressionists, Laban had a very analytic mind and searched for *objective* principles behind *subjective* experiences. His Expressionism was not only concerned with giving direct expression to feelings, but also to discovering the laws and principles of movement within the dancer's body and with the surrounding space. (Berghaus, p. 81)

This blending of the spiritual and analytic may seem unusual to contemporary interpreters, but it is an instance of an impulse that reverberates through Twentieth Century artistic practices to explain subjective experience in rigorous, objective terms, often using spiritual language. Consider Antonin Artaud's call to probe the depths of human emotion through a system of signs, or Jerzy Grotowski's analytic search for 'Objective Drama' through a highly personal psychophysical process. In these and many other cases, the point is not so much a uniformity in what would be called spiritual or analytic (or even whether that is the right word in every case), but the desire for the combination of scientific objectivity with a commitment to a performative understanding of knowledge. The spiritual component of these practices provided a theoretical means of reconciling the performativity of these practices—their emergence through material engagement over time—with synchronous description, which is understood as a form of eternal truth. As we approach Space Harmony in the twenty-first century, the dangers of this approach are apparent. A spiritual claim about a harmonic way of moving introduces a universalism that few would commit to. It risks a culturally imperialistic assertion of a set of movement principles developed at a particular time and context as eternal and objective truth. So, what's to be done? Do we abandon Laban? Teach the performative aspects of Space Harmony as an aesthetic—rooted in its particular context? Having personally studied Space Harmony neither of these seem satisfactory. While there might be principles that it values, it is not an aesthetic style of movement but a way of exploring truth through the moving body. This essay will show the spiritualism of Laban's Space Harmony as a strategy for representing performative practice and then demonstrate how viewing the trace-forms as diffraction patterns provides an alternative strategy that avoids some of these dangers. It will not attempt to determine what the trace-forms *are* in an absolute sense but show where different understandings of them lead from an epistemological perspective.

The Pathway Model: Thinking a Performative Truth Practice

As a young man who frequently travelled with his father's military regiment in the eastern part of the Austro-Hungarian empire, Laban reports encountering a variety of esoteric movement techniques related (we might surmise) to Sufi mysticism and the movement practices of G.I. Gurdjieff.[1]

As a young man in Paris, Laban becomes a member of the Rosicrucian Brotherhood, a secretive mystical society. Rather than engaging with the complexity of these influences here, I will appeal to Plato's *Timaeus* as a framework for interpreting the spiritualism of Laban's work. I justify this shortcut on the grounds that the interests of this essay are more theoretical than historiographic, *Timaeus* is a work of great general importance for the development of spiritual-scientific thinking in the West, and the connections between it and Space Harmony are apparent in Space Harmony itself. Furthermore, *Timaeus* provides a clear groundwork for the relation between the durational and eternal which applies not only to Laban but other High Modern practitioners as well.

For Plato the 'changing' temporal world is modeled on an eternal and unchanging one—the 'moving image of eternity' (p. 51 S37). The movement of bodies in the created world approximates the eternal one by conforming to its fundamental structure. Plato describes this as a progressive, creative process by which a Demiurge brings order into primordial chaos to make it more completely replicate the eternal world, even as it continues to move and change. There are two general ways in which this happens for Plato, which are reflected in Space Harmony—periodicity and proportionality.

Periodicity refers to the way in which moving bodies reflect eternal ones by moving through repeating cycles. In Plato, the model for this is in the movement of heavenly bodies which orbit through the sky in circular shapes and at fixed intervals. Plato describes the creation of these orbits by the subdivision and bending of a strip of the fundamental soul-substance of the world. As Desmond Lee frequently points out in his commentary on the *Timaeus,* the Greeks had no concept of momentum and considered all movement to be the willful action of a soul. Thus, these strips of soul material are not simply virtual pathways described only by the passage of bodies through them, but substantial structures which constitute the image of eternity to the bodies that pass through them. These bodies are constantly moving, but their repetition over time resolves to an eternal form. In Space Harmony, this principle is reflected in the way the scales tend to return to their point of origin and describe closed figures. Even the technique of description through trace-forms recalls this Platonic principle. This periodic movement occurs not only on the planetary but also on the personal level. The 'orbits' of the soul persist as the eternal component of the human, but they are 'distorted' and 'twisted' by bodily sensation (Plato, p. 60 S43). As this doctrine was translated into Christianity, the orthodox teaching would eventually become that the reconciliation between the temporal moving body and eternal soul only occurred after death. Nonetheless, a contrary gnostic tradition continued in the West which suggested that it was possible to achieve union with the eternal soul while alive. This requires a *coniunctio oppositorum* of the moving and eternal that follows this Platonic pattern.

Proportionality refers to relationships between different aspects of temporal matter according to determined ratios and relationships of the microcosm to macrocosm. The idea of proportional relations is already present in Plato's theory of periodic orbits. As the Demiurge is dividing the soul mixture into the strips which will become the orbits of the celestial bodies, he first divides it according to a series of proportional ratios based on the squares and cubes of the numbers two and three (Plato 48, S35-36). He refers to this sequence of ratios again when discussing the human soul, arguing that these ratios could not be dissolved in the human soul, but were twisted and distorted by the action of sensation. These ratios make a connection to the harmonic ratios which are the foundation of Pythogorean music theory—a connection that Laban will also make. In ascribing them to both the universal and human soul, Plato establishes another proportional relationship between structures of different scales—the macrocosm and the microcosm.

In the second section of the *Timaeus*, Plato adds to the eternal and temporal substances, the category of space, which functions as a 'receptacle' of becoming. In this way, the four elements of earth, air, fire, and water are not substances in themselves but forms into which the generic substance 'space' might take at different times. The four elements were already differentiated before the Demiurge began to work with them but they 'were all without proportion or measure; fire, water, earth, and air bore some traces of their proper nature, but were in the disorganized state to be expected of anything which god has not touched, and his first step was to give them a definite pattern of shape and number' (Plato, pp. 72–73 S53). This 'definite pattern' would be the cube, tetrahedron, octahedron, and icosahedron, whose proportional and geometric relations he will explain at length in this section. He concludes with two more important points: First, the two basic triangles which are elaborated to form the rest of the solids can be of different sizes—this explains the additional variety of material we observe and reinforces the pattern of consistent structures which operate on different scales. Second, he argues that the difference between these basic shapes and the inherent disequilibrium created by their encounter and exchange in the world leads to motion and rest (Plato, pp. 81–82 S57–58).

This context from Plato prepares us to look more closely at the specific forms of Laban's Space harmony. Laban will take up the theme of motion and rest as one of the organizing principles, like Plato ascribing the relationship to the differences (and interrelation) of the geometry of these shapes. The trace-forms of Space Harmony are organized around a scaffolding of spatial directions taken in relation to the center of the body. Thus, 'High' refers to movement oriented directly above the body. 'High' can refer to any movement which has that spatial orientation, but it takes on special significance as the movement approaches the end of the range of motion in that direction. The trace-forms operate within the 'kinesphere,' the roughly spheroid imaginary space defined by the mover's range of motion. While 'High' is a direction away from the center of the body, it can also refer to the point in that direction where the movement reaches the edge of the kinesphere. The scales and rings of space harmony are trace-forms references by these points. In the dimensional scale, which uses only directions which are parallel or perpendicular to the forces of gravity (High, Low, Left, Right, Forward and Back), the kinesphere points used as references are the vertices of an octahedron. In the diagonal scale, in which the reference points extend from the center of the body diagonally (eg. the direction, Right-Forward-High), these reference points are the vertices of a cube. In the transverse scales (there are several) the points used are the vertices of an icosahedron. As in Plato, the relationship between these moving geometries is related to patterns of motion and rest—with the diagonal movement of cubic scales considered the most dynamic and the dimensional movement of the octahedral scale the most static.

Space Harmony follows the Platonic model in that it reads these basic forms of movement in relation to the kinesphere to be the foundation for the more shifting and complex movement found in dance or everyday life just as a musical scale is a foundation for more complex melody and harmony.

Platonism is often glossed as a relation between fixed, eternal forms, and a material world that relates to it as an imperfect copy. *Timaeus* builds the relation not based on form and copy but on an eternal form that is realized over time by movement. If we look at the trace-forms of Space Harmony from this perspective, they constitute a pathway that the moving body can follow to transcend its temporality by coming into conjunction with an eternally significant form. There is evidence that Laban understands the trace-forms of space harmony in this way: In the introduction to *Choreutics*, his main text on Space Harmony, he compares ephemeral movement to the more stable form of architecture. 'The living building of trace-forms which a moving body creates is bound to certain spatial relationships. Such relationships exist between the single parts of the sequence. Without and natural order and within the sequence, movement becomes unreal and dream-like' (Laban, p. 5). This view of the trace-form also did important work in justifying how Laban's movement work, which cannot be meaningful independent of its embodied temporal enaction, can still be considered knowledge. Knowing still comes about through physical and temporal action, but by following a trace-form that makes an eternal significant form over time, the doer bridges the gap between representation and performance. As we have discussed, however, the price of this justification is a spiritual universalism with which we can engage as a historical paradigm but which appears troublesome in the present moment.

Intra-Acting Trace-Forms: The Diffraction Model

In offering the alternative view that trace-forms might be seen as diffraction patterns, I am not attempting to reverse or modify Labanism, but to alter the way our continued material engagements with this practice diffracts characteristics that are already there. The presence of these characteristics might indicate that Laban had a sense of this other perspective himself, or it might not. The point is that the practice contains elements that afford this kind of approach to its representational content and that approaching it this way opens new and fruitful possibilities for how it can interfere with the ongoing practice. On the most basic level, the trace-forms of Space Harmony do not entail a rigidly constricted choreography as you might expect if their knowledge value came exclusively through participation in an eternal form. The choreography of Laban's companies often involved combinations of both harmonic and disharmonic material (Preston-Dunlap, pp. 77–79). Furthermore, while the ways of performing the scales have become conventional, they are not set. Generally, the mover leads with one side of her body but has considerable freedom in how she works through the reference directions of the trace-form (see Moore, p. 221). The open-ended nature of enactment of the scales is also indicative of an approach to the trace-forms that seeks not the perfect execution of choreography but the activation of certain principles. The origins of the scales themselves comes from experiments in vigorous swinging motions, likely related to Laban's ideas around *Stammung*, which has the sense, according to Valerie Preston-Dunlap, of 'a positive, fluent, and balanced meaning, something like "tensioning/releasing"' (p. 65). This swinging, tensioning/releasing sense of scales might echo an orbital periodicity but also a wave-like oscillating frequency within a physical structure. This viewpoint is perhaps best explored through the movement itself, explored in your own body, so let's begin there:

> Move to space High – reach with one hand as high as you can go, extend, go up on your toes. Now go Low, staying as straight up and down as you can allow your pelvis to sink and let the same hand which reached high to extend toward the floor.

You have just moved along what Laban would call the vertical dimension, describing the first movements of the dimensional scale, whose trace-form is like a three-dimensional cross extending to the points of an octahedron. As a pathway, your body has described a vertical line. It took some time to do this, but that's the overall shape. Yet consider the position of the body as it reached High—the fullest extension of your reach—the edge of your kinesphere. This position could be depicted according to the direction your body is indicating in space (High) but also according to the future potential of your movement. Quite simply, as you reached higher, your capacity for continued movement in that direction decreased and your capacity for movement in the opposite direction (Low) increased. When you moved to space Low your capacity to continue moving in that direction decreased and your capacity to move toward space High increased. This happened for a variety of reasons. Your relationship with gravity changed. Muscles and joints expanded or contracted. Significantly, too, your relationship to your body and movement along that line is engaged—the personal and cultural associations you have with 'reaching' or 'squatting'—the way your grandmother moved. You may not be conscious of all these factors, but they become active along the trace-form. Seen from this perspective the trace-form of a line takes on a different perspective. From the moment you began moving toward High, the entire dimensional line High to Low has activated in the way that a wave activates a particular area of a medium. It was no longer a transcendental shape that you filled over time but a character of the space that had come into focus through your movement.

At this point one might reasonably ask if this way of approaching movement becomes general to the point of meaninglessness. Could we not say that your entire kinesphere is already engaged in this way in as much as you could potentially move into it? Not exactly. There is still something important in your upward movement—it made movement along the vertical axis not just a theoretical possibility but something that was beginning to be engaged. You are activating a series of superpositions and entanglements—physical and cultural—which are different than those you would open if you were to begin by moving in the forward middle direction, engaging your Saggittal axis. Of course, the harmonic trace-forms Laban develops in the rings and scales are more complex than a single axis. They swing through multiple planes and dimensions, and as we approach a wave-dynamic for Space-Harmony the ultimate ideal will be to activate the entire kinesphere in the way that a High movement activates the vertical axis.

We can show this process at work, particularly, in Laban's Transverse scales. These scales use the directions which describe the points of an icosahedral kinesphere. Each direction takes the body toward two dimensions: for example, the direction 'Right-High' implies an orientation in the Vertical Dimension (High) and the Horizontal Dimension (Right) but not the Sagittal Dimension (Forward and Back). The transverse scales are designed such that each new direction takes the dimension that was absent in the previous direction. Thus, in the transverse A scale the direction Back-High is followed by Forward-Left, and in the Transverse B scale by Forward-Right. As the body approaches its indication of these directions it is always approaching two-dimensionality from a third dimension. The body reaches a point of suspension that takes a reasonable amount of balance if it is to linger there. Just as moving toward High implies the entire axis toward Low, so the play of stability–instability within the transverse scales begins to imply the fullness of the kinesphere and a rich variety of routes through it. Where in the previous model the trace-form was a shape which the body makes progressively through its movement, now it is a diffraction pattern—the spatial manifestation of a series of continuous interactions. Or, to use Karen Barad's term, it is an 'intra-action'—the result of a simultaneous 'mattering' of superposed, wave-like factors which are mutually constituted in the meaningful event (Barad, p. 33).

If the trace-form is not external to the moving body and its physical-spatial-cultural environment, a significant question remains. How are we to understand the activity of 'doing' the scale, which still feels a lot like following a pathway? As I write, for example, I have the symbols for the sequence of the Transverse A and B scales tacked to my wall lest I forget the sequence. What does it mean from a diffraction-based perspective when I 'follow' those symbolic roadmaps? The first important consideration in answering these questions is that the sequence of directions that make up the scale, while they do determine the basic geometry of the movement, are not themselves the trace-form, which only appears in three dimensions when I perform the scale. The markers that I follow are a score that helps me to (hopefully) initiate the process of Baradian 'intra-action' which will result in the trace-form emerging. This score is not a magical spell, I can find all the right spatial points and the trace-form may not truly take shape or may take on a different configuration than what I had intended. That contingency and variance come with the territory of a performative truth process where the truth of the event is not separable from its tempero-spatial enaction. This doesn't preclude us from following these scores with some intention of how the trace-form will emerge. The score functions as a mnemonic to connect each performance across time—my body interfering with the bodies of the dancers in Laban's company whose own performative truth process informed those scales. It allows my movement to interfere with my own personal history with the movement—what happened when I first performed it, the teachers and colleagues associated with it, and the way my relationship to it has changed over time and practice even as the form remains superficially the same. This implies that there is something about these trace-forms that are good to activate again and again, and these principles are those that facilitate their setting up of diffraction patterning. These movements engage the full kinesphere and the full extent of one's range of motion. They explore the cycles of stability and instability, *stammung* tension/release. They initiate relations between different parts of the body, the center and the periphery, the front and the back, the physical and the psychological, and movement and meaning. This diffraction of the emotional, psychological, and expressive with the physical are evident in Laban's development in Eukinetics, now known as Effort. While this rich area of Laban's research is beyond the scope of this essay, it relates to Space Harmony by including a sense that the *way* in which the movement was performed was intimately connected to its physical and spatial characteristics. Laban understood that while the Spatial and Effort characteristics of movement could be isolated analytically, they were always deeply connected in practice.

Looking at the trace-forms as spatial patterns to be activated rather than pathways to be followed does have implications for how they should be performed, and these general approaches are consistent with the way I was taught in the oral tradition. The forms themselves don't necessarily change, but the shift from the form as something to be activated rather than followed has important results. A performance should take advantage of its structural form to generate a sense of continuous motion. Rather than stopping at the endpoints and losing all momentum, the changes in direction should cultivate a feeling of increasing tension toward the range of motion, and then release directed into the next direction. In practice, this can be difficult to achieve, and many aspects of Laban's system are useful in developing the capacity to move in this way. It is also an opportunity to practice—and this practice is important in that it begins to embed the feeling of moving in this way into the body-mind of the doer. The 'in-this-way' is not a sequence of movement but a continuous flowing through balance and imbalance, stability and mobility which occupies the entire kinesphere in its web of diffracting waves. By practicing the scale, the mover begins to move harmonically throughout her life, developing a lived sense of the way in which any movement she makes activates her entire kinesphere and diffracts with other movements, people, and elements of her embodied memory. This experience demonstrates the relationship between the perspective on trace-forms as diffraction patterns and the ongoing performativity of the knowledge practice in which they are embedded. The 'knowledge' of which these movements speak is not only discursive ideas that the doer possesses and shares, but an expanding field of entanglements that grows as more of space and time becomes engaged by the wave-like becomings of the harmonic mover's body.

By approaching Space Harmony from the perspective of trace-forms as diffraction patterns we are able to commit to its performative view of truth in a way that honors the uniqueness of the practitioners and the context of each enactment. This is vitally important because it gives us access to a deep source of performative truth practices. My hope is that the shift in perspective I have outlined toward the representational leavings of performative knowledge practices may help to broaden the potential entanglements of others besides Laban's. Universalist metaphysical commitments in these practices need not be seen as relics of another time which give us pause in engaging with them further, but the sign of vital performative knowledge process in search of a way of contextualizing the representations it produces. Seeing their work in terms of diffraction patterns will be different for each according to the characteristics of their practices, but the model we have demonstrated with Laban could be broadly applied to help keep these vital practices alive and relevant moving forward. Whatever contextual and analytical techniques we might use to describe them, however, these are still performative techniques. Space Harmony lives in the bodies and minds that engage it and will continue to live it, experience it, and build it. In Laban's own words from the introduction to *Choreutics*: 'it remains magical, in spite of being analyzed' (Laban, p. 8).

NOTE

1. Laban never mentions Gurdjieff specifically, but the proximity in time and place, as well as similarities in form and philosophy suggest a common milieu and sources if not direct influence.

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If One Looks Closely at an Edge: Four Dances Remember'd

Simon Bowes

Phenomena, Various

The engine powers two 12-Volt batteries, which power everything else. I am sparing with electric light. Fortnightly, I cycle across the valley and up the hill to buy candles, five boxes of five. On this particular morning I add white vinegar spray, disposable razors. By 9.00 I am back on the cut, shaving, do not notice how dirty is the mirror. About 13.00, I spray it down, laugh to see the difference. At 15.00, stepping outside, I see concentric circles rippling outwardly as a coot resurfaces with a square of plastic in its bill. A neighbour asks: 'that diesel coming from me?' I gaze into a film of shifting colour on the water's surface. Another neighbour says: 'that's me, sorry'. 'It happens', I reply. At 17.10 I notice a rainbow, and then several people along the towpath, each pointing their phones at it. I then remember the last time I took a picture of a rainbow, the sending of it and the lack of reply. I then remember a light, diffused against the rear wall of the stage, two figures manually positioning lanterns on the

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floor with a meticulous care. And briefly, by volition, I am returned to the theatre.

Problems, One and Several

Memory, Little Enough

I have begun by placing two visual phenomena—reflection and diffraction—in the immediate context of my everyday life. Here, seeing is bound up with cares and labour, which inflect my relationship with performance, scholarship and research. The memory of performance belongs to a certain place, a certain time: the time of writing, between the original proposal and the final submission, spans the years 2019–2022, years in which a global pandemic has necessitated the closure of theatres along with other public venues. In this chapter, I write of performance from memory, in the certitude that the little I remember shall prove enough.

Four Dances, Four Poems, Four Diffractions

Karen Barad (2007) has explained diffraction—as phenomena, as method—perfectly well. As method, it needs no further justification. The task is to practise it, to perform it, to embody it, but also to consider the limits that might yet emerge in any realist account.

The chapter stages the memory of four dance performances, attended in London in the years prior to the onset of the pandemic: *Crowd* (Giselle Vienne, Sadler's Well's), *Andante* (Igor x Moreno) *He's Dead* (Marikiscrycrycry, The Yard Theatre, 2020) and *Can You Feel It?* (Channing Tatum, Rich Mix, 2019). Each performance stretches the definition of dance as an artform, towards theatre, or live art. Each is performed in lighting states which could be described as diffractive. The performances are remembered from within the environs in which I now live. These memories take on the form of four poems entitled: *Crowd*, *Andante*, *He's Dead*, *Can you Feel It*? The poems are not reflections upon the performances but rather diffractions, that is, patterns of interference generated as the performances follow this or that path towards becoming something other (or, nothing other) than performance.

An Ontology

> Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations *of* representations: once it does so, it becomes something other than performance. To the degree that performance attempts to enter the economy of reproduction, it betrays and lessens the promise of its own ontology. (Phelan, 1993, p. 146)

Peggy Phelan's conception of 'ephemeral ontology' was subsequently contested by Philip Auslander (1999), for whom 'the possibility of electronic documentation of performances alone gives meaning to the term "live performance"' (Auslander in Fischer-Lichte, 2008, p. 67). My concern is not to restate the argument concerning the primacy of the live over the mediatised, but to reframe the question of performance's ontology within a wider discussion of virtuality.

In contemporary culture, the digital and the virtual have become synonymous. If performance has an ontology, it may yet prove distinct from an ontology of digital media. In Phelan's peculiar materialism, there is no conception of the virtual. As Brian Massumi observes: bodies are as immediately virtual as they are actual (Massumi, 2002, p. 30) as is sensation, perception and experience. What we call events (or, here, performances) are largely virtual affairs. Materialisation is just one aspect of the event of performance.

A Disappearance

Is it a problem that I now remember so little of these dances? Memories of them seem to be eroding, becoming diffuse. In terms close to Phelan's, Erika Fischer-Lichte describes performance as 'bodily co-presence' (Fischer-Lichte, 2008, p. 32), a specific, collective mode of embodiment. The cessation of live performance defines the concerns of this chapter: recently, performers have had no option but to save, record, document and circulate representations of representations. Where Phelan proposed that the task of the researcher is to 'write toward disappearance' (Phelan, 1993, p. 146), I write instead towards virtuality, as the condition of art's becoming.

An Apparatus

In responding to the loss of bodily co-presence, I desire to construct a particular kind of apparatus. The diffraction grating described by Barad (2007) is designed to map patterns made by waves in superposition. In the diffraction grating, waves do not simply appear and disappear, multiple states coexist simultaneously. The apparatus I am constructing is not unlike a diffraction grating, although it draws us closer to the concerns of my discipline, performance studies. In place of a material venue, I construct a memory theatre. In the history of architecture memory theatres have sometimes been imagined, sometimes sketched, sometimes modeled, but rarely ever built.

A central example is Giulio Camillo's *Theatre of Memory*, described and modelled between 1519 and 1544, intended to 'locate and administer all human concepts, everything which exists in the whole world' (1519–1544). Camillo never found a patron to fund the construction of his large half-circular wooden structure, with its panes of glass (*mens fenestrata*), opening onto the human mind.

Memory theatre figures, primarily, in the imagination. Such theatres are works of hermeticism, heresy, mysticism, cosmology, occultism and fabulism, with models projected by Giordano Bruno, Robert Fludd and theorised by Frances Yates in *The Art of Memory* (1966). The memory theatre figures as a central device in a piece of memoir (or auto-fiction) by philosopher Simon Critchley. Memory theatre would seem to consist of circulations of representations *of* representations. But these structures also frame the experience of memory in terms of intensive forces, transformations, transfigurations and becomings.

In performance, a body may become a subject, but also something more, something other—a crowd, or a cloud, a ray of light, pure movement. Such becomings are for the performer and audience commonplace, and extraordinary. Theatre is first of all a materialist practice—yet it constantly exceeds the confines of any materialist analysis. There is no realist theatre. Theatre provides a frame in which to unite the material and the immaterial, the actual and the virtual and the corporeal and the incorporeal.

Towards and against notions of ephemeral ontology and bodily co-presence, our conception of performance and performativity must admit the virtual. The movement of memory is not a successive but rather a simultaneous movement, a continual oscillation between material and immaterial planes. What Phelan described as the ephemera may yet be redescribed as the manifestation of an implicate order, the coalescence of form and void: something other, something more, than material experience.

The Problems of Language and of Reflection

The problem is that 'Language has been granted too much power' and the extent of this power ensures 'every "thing"—even materiality—is turned into a matter of language or some other form of cultural representation' (Barad, 2002, p. 801).

The problem of language is a problem of representation, or representationalism. Barad (2007) describes the belief in the ontological distinction between representations and that which they purport to represent, or, more particularly, between 'that which is represented is held to be independent of all practices of representing' (Barad, 2007, p. 48). Reflection has become 'a pervasive trope for knowing' (Barad, 2007, p. 72), producing a geometry of sameness (ibid.).

Against reflection, Barad describes diffraction as phenomena and as method. She writes: 'Mirrors reflect. To mirror something is to provide an accurate image or representation that faithfully copies that which is being mirrored' (Barad, ibid., p. 86). As they continue: 'mirrors are an often-used metaphor for representationalism and related questions of reflexivity' (ibid.). In response, Barad models a posthuman performativity, at once material and discursive, giving 'matter its due as an active participant in the world's becoming' (p. 803). Describing diffraction as method, Barad considers the implications for epistemic practices.

An Interference

A diffraction grating is an 'an apparatus or material configuration that gives rise to a superposition of waves' (Barad, 2007, p. 81). Barad observes that waves 'are not things per se; rather, they are disturbances' (ibid., 76). Waves can 'overlap at the same point in space' (ibid.). The resulting effect, 'superposition' is a combination of disturbances. The 'alternating pattern of wave intensity is characteristic of interference or diffraction patterns' (ibid., 78). Barad uses the terms 'diffraction' and 'interference' interchangeably' (ibid., 29). A diffractive method is not reflective, but generative, producing patterns, material—and discursive—relations, entanglements of matter and meaning.

The Problem of Art

Is it a problem that in describing the phenomenon of diffraction, Barad makes no substantive references to art? Her references to visual art are limited to brief mentions of Cubism, and Surrealism (Barad, 2007, p. 94; 360). Their engagement with performance is limited to dramatic literature, Frayn's *Copenhagen* (which features as a text rather than as a live production, giving no sense of its performative dimensions) (ibid., pp. 14–22). And given that diffraction emerges from a concept of a posthumanist performative, is it also a problem that they refer hardly at all to performance, as an art-form, a practice, a discipline? Beyond this, Barad does offer more extensive treatments of the poetry of Alice Fulton (1990) and Susan Stryker (1994). It is striking to note, however, that Barad seems to care little for art, except language arts. The concern for performance—in all its materiality—is mediated through language.

A Complication

In 2002, Barad described performance studies as a 'nascent interdisciplinary area' (Barad, 2002, p. 807). and yet, we might argue that by the turn of the century, the field of performance studies was not only well established but all but over, in terms of its capacity for critical resistance or its affirmative potentials. To begin to consider performance as diffractive, we might note that performance scholar Richard Schechner defined performance not as a 'passive mirror', but as 'part of the complicated feedback process that brings about change' (Schechner, 1988, p. 132). By 2001, as Barad's research took on a performative turn, Jon McKenzie described performance as 'the embodied enactment of cultural forces' (McKenzie, 2001, p. 8). Part of the effect of reading these two theorists together is to consider the inseparability of the cultural from the material, and the material from the discursive.

For McKenzie, performance encompasses the cultural, the organisational and the technological. In our present moment, we can consider that performance has long passed from discipline to paradigm. We live and are governed by means of performance. Indeed, McKenzie seems to have predicted our present moment with stark accuracy: 'all performance is electronic' (McKenzie, 2001, p. 267).

A Potential

> Performative approaches call into question the basic premises of representationalism and focus inquiry on the practices or performances of representing, as well as on the productive effects of those practices and the conditions for their efficacy. (Barad, 2007, p. 28)

McKenzie distinguishes, *pace* Schechner, between cultural performance as entertainment and as efficacy (McKenzie, 2001, p. 30), suggesting that performance becomes efficacious when it *does something*. The earliest conceptions of performance and performativity suggest a movement 'from representation to presentation, from discourse to body, from absence to presence' (ibid., p. 38). In its evolution from discipline to paradigm 'the efficacy of embodied transgression has been reworked as the efficacy of discursive resistance, and, in passing, performative presence gives way to performative iterability' (ibid., p. 44).

Barad questions 'whether all performances are performative' (Barad, 2002, pp. 808–9). In terms suggested by Hannah Arendt, we might conceive of the event of performance as a space of appearance, of co-presence; *the-more-and-other-than-human* making and remaking their appearance explicitly—but 'only potentially, not necessarily, and not forever' (Arendt, 1998, p. 198). The event of performance would thus be regarded as *only potentially* material, *only potentially* discursive, *only potentially* representational, *only potentially* performative and *only potentially* efficacious.

An Idea(l)

Barad writes: 'The belief that grammatical categories reflect the underlying structure of the world is a continuing seductive habit of mind worth questioning' (Barad, 2007, p. 133). It may prove equally worthwhile to question the seductiveness of neologisms and compound words. It is precisely from within grammatical categories that Elizabeth Grosz begins to suggest the limits of materialism (Grosz, 2017, pp. 30–32; 43). In suggesting these limits, Grosz says much more than Barad about art.

'No … I'm not a materialist. Let me say that loud and proud', Grosz declared in a Q&A following her lecture *Bacon, Deleuze, and Imperceptible Forces* (2012, 57′18″). She argues: 'materialism has to always already contain ideality, for ideality to ever be possible. How can anyone think, how can anyone talk, without there being a dimension added to an object that enables it to be represented? I think these are the forces of the universe' (57′47″).

By 2017, Grosz had refined this proposition: 'Every materialism, whether this is acknowledged openly or not, requires an incorporeal frame' (Grosz, 2017, p. 28). Acknowledging that we cannot yet define the immaterial, we might speculate that ideality is the subsistent precondition that makes thought, memory, art—and theatre—possible.

A Definition

It is a problem that Grosz has such trouble defining her position, in a monograph describing the limits of materialism? She admits that for this proposition, she has no 'proper name' (Grosz, 2017, pp. 4–5). She recognises that she must 'however inadequately' attempt to describe 'the subsistence of the ideal *in* the material or the corporeal' (Grosz, 2017, pp. 4–5). The implication is that the real and the ideal are distinct but inseparable. To treat them as such does not suggest an 'antimaterialism', nor is it reductively metaphysical. Rather, Grosz seeks to affirm a 'thoroughgoing and non-reductive materialism', one which 'cannot and should not be opposed to ideality but requires and produces it' (ibid., p. 4).

Barad can account for the behaviour of particles and the movement of waves, but they cannot account for art, for theatre. They will call the movement of matter a 'lively dance' (Barad, 2007, p. 37). Barad suggests dance as an embodied, materialist practice. Yet its deployment as metaphor suggests dance as something more than physical movement. In Grosz's terms, dance an 'intimate entwinement of the orders of materiality and ideality' (Grosz, 2017, p. 5), the body moving in thought and memory, space and time.

The Problem, Restated

The problem is to remember four dances. In this chapter, poetry becomes a way of writing, remembering, performing. For poet Alice Oswald, poetry is an art of erosion, 'unpredictably composed by time itself' (Oswald, 2019, 03′56″). The problem of memory is bound up with another problem, significant in the context of the present volume: 'Today just about everyone is a materialist' (Grosz, 2017, p. 16). Following

Grosz, we might yet 'render impossible the binary division of materialism from idealism' (Grosz, 2017, p. 18). Only by admitting the incorporeal, the immaterial, the idea(l) can we begin to meet the universe halfway.

If One Looks Closely at and Edge

'If one looks closely at an "edge,"' Barad observes, 'what one sees is not a sharp boundary between light and dark but rather a series of light and dark bands—that is, a diffraction pattern' (Barad, 2007, p. 156). Citing Feynman (1995) they observe: "There is no such line 'except in our own psychology'" (ibid.). A diffraction grating is designed to observe the paths of atoms fired through a slit. Through certain modifications—which—path detectors, quantum erasers, physicists attempt to trace and erase the paths of atoms. In these experiments 'the original interference pattern is not recovered; rather a new interference pattern, one that takes a very different form' (p. 316).

One implication is that we can no longer proceed on the assumption that material objects 'occupy a single position in a preexisting space at a preexisting moment of time' (ibid.). At the diffraction grating, time is understood as 'an integral aspect of phenomena' (ibid.) and phenomena are understood as 'material entanglements that "extend" across different spaces and times' (p. 317). Another implication is that the 'memory of the event has not been erased, at least not in the usual senses of the terms "memory" and "erase"' (ibid.). 'Memory', Barad argues, 'does not reside in the folds of individual brains, rather, memory is the enfoldings of space–time-matter written into the universe' (p. ix). Thus Barad understands memory as integral to matter.

Certain other observations require intuition. As Bergson argues: 'realism and idealism both go too far' since 'it is a mistake to reduce matter to the perception which we have of it'; mistaken, too, to 'make of it a thing able to produce in us perceptions, but in itself of another nature than they' (Bergson, 1988, p. 9). For Bergson, matter is an aggregate of images, an image being at once 'more than that which the idealist calls a representation, but less than that which the realist calls a thing' (ibid.); an existence placed '*"halfway"* between the "thing" and its "representation"' (ibid., *emphasis mine*). This is, Bergson contends, 'simply common sense' (pp. 8–9).

For Bergson, a perceived object 'abandons something' of its real action, in order to 'manifest a virtual action' (p. 37). An object given to perception exists in itself but also exists pictorially: 'image it is, but a self-existing image' (p. 10). A ray of light reaching an object 'will appear to be reflected and thus to indicate the outlines of the object' (ibid.).

It is as a Bergsonian that Grosz asks how anything could be perceived without having a dimension which 'enables it to be represented?' (Grosz, 2012: 57′47″). The appearance of the outline is evidence of a kind, but not, as Barad asserts, *pace* Feynman, of psychologism, or ideality in the Cartesian sense. It is, rather, evidence of virtuality as condition of the actual, immateriality as condition of the material, ideality as condition of the real.

Bergson understands the emergence of the outline as a kind of interference, and inferences are plentiful in the field of vision. Barad uses the terms diffraction and interference interchangeably (Barad, 2007, pp. 80–81). Diffraction is Barad's preferred example because it can be contrasted with some definition against reflection. But the cause of diffraction—a wave cut off by some obstacle—'is present in the propagation of every wave', and 'diffraction plays a role in nearly all optical phenomena' (Barad, 2007, p. 81). Diffraction is even present in certain phenomena understood as reflective and refractive. Perception 'resembles those phenomena of reflexion which result from an impeded refraction'; it is, he continues, 'like an effect of mirage' (Bergson, 1988, p. 37); one further example of interference in visual phenomena.

If one looks closely at an edge, the line separating ideality from reality, and so matter from memory, disappears. Barad's observations restate a position that other philosophers have already intuited: matter and memory are distinct, but indivisible. Observation becomes performative, a way of cutting together, apart.

The knives are carbon steel, edges whetted and between the scores of sharp edges that shape my life, cutting is common. I wrap a square of paper around the forefinger, bind the wound with electrical tape, becoming stoic, shaped by paradox.

MEMORY THEATRE

A Coincidence

In 2001, McKenzie predicted that 'future researchers will take as given something that we can only dimly perceive today—and then may be too horrified to admit: namely, that all performance is electronic' (McKenzie, 2001, p. 267). As the emergence of performance and the digitalisation of discourses and practices coincide, he observes: ‘this coincidence is anything but coincidental’ (ibid.).

In this most certain of futures, I labour and wait.

Theatre has been rendered impracticable. Performance now consists of ‘digital virtualities’ conditioning every aspect of our lives, and, what’s more: ‘incorporeal values and references’ (ibid.) seem entirely constitutive of lived reality.

A Dispositif

Augusto Corrieri describes the theatre as a *dispositif*, or, *apparatus*, a ‘mechanism that captures and directs perceptions and signification, even without a material architectural construction in place’ (Corrieri, 2016, p. 7). Corrieri asks: what happens inside theatres when nothing is happening? Describing the demolition of Dalston Theatre, London, in 2007 as part of the ‘regeneration’ (or social cleansing) of Hackney, Corrieri invokes vestigial forces ‘echoes, residues and figments’ (p. 56). What is at stake, Corrieri argues, is the ‘material consistency of an erased theatre’ (ibid.).

Citing Jane Bennett, Corrieri describes theatre as having ‘an inertial tendency to persist’ (Bennett, 2010, p. 22, cited Corrieri, ibid.), invoking Spinoza’s notion of Conatus: ‘Each thing [*res*], as far as it can by its own power strives [*conatur*] to persevere in its own being’ (p. 2).

In Corrieri’s materialist account, the will—*or, desire*—in all things must come from somewhere. ‘Performance needs the theatre’, he writes, ‘one way or another’ (2016, p. 7). Perhaps, but theatre needs ideality as much as it needs realism. The necessity is quite plain: even without a material construction, there will be perception and signification, and also memory, as a defining *disposition* in the *dispositif* of the theatre.

Memory Theatre

Against the surface of the school desk, shavings of wood cast irregular shadows. The structure before me is half-circular, marked with intricate symbols which, having carved, I cannot decipher. This model, which measured out in inches, opens to a fathomless depth. I switch off the electric light, and, in darkness, nurse the cut.

Simon Critchley speculates that the Globe Theatre 'with its heavens over part of the stage, complete with zodiacal symbols' may have been an 'elaborate and geometrically exacting theatre of memory, a kind of machine for recalling the whole, a mortal portal for touching the divine, a microcosm for the cosmic macrocosm' (Critchley, 2014: n.p). 'If all the world's a stage', he continues, 'then the theatre is the stage of the world itself: its mirror and key' (ibid.). Critchley describes a theatre of reflection, theatre as a stage of the world. But theatre is a stage of the universe.

In the memory of theatre, a future is at stake. McKenzie writes: 'theater once actualized the virtual spheres of literary societies, whilst 'ritual actualized those of oral societies' (McKenzie, 2001, p. 267). All performance is electronic. Except dance.

Four dances: *Crowd*, *Andante*, *He's Dead* and *Can You Feel It*. From within these performances, from the little enough remembered, a different future can be predicted, willed and desired.

Reading McKenzie alongside Barad, we can acknowledge McKenzie's predictions as humanist. A posthumanist performativity no longer takes as given 'the differential categories of "human" and "nonhuman"' (Barad, 2002, p. 808). Reading Barad alongside Grosz, we can no longer take as given the differential categories of material and immaterial.

Future researchers will take as given something that we can only dimly perceive today, namely that all performance is immaterial. It was possible to discern, just before the closure of the theatres, that dance actualises the virtual spheres of the posthuman. If dance—and not 'the digital'—is the defining art of the posthuman, it is not because dance is an embodied practice. Movement comes from what we are not, from the consciousness, the memory, of what we are not. This consciousness is not vestigial, or inertial, but rather, 'liminal'. The emergence of a posthuman performative requires its own 'liminal rite of passage' (McKenzie, 2001, p. 22) which cannot be simulated digitally. The theatre, like ritual, has so often theorised as 'liminal' or 'liminoidal' (Carlson, 1996, pp. 198–9). Theatre stages an event where this other, anterior consciousness can reassert itself. In the theatre, as in philosophy, there will be no closure of representation; materiality is always something more. Reflection can be understood as a stage to be passed through. And future researchers may understand diffraction as a stage. But this, perhaps, we can already intuit.

Four Dances Remember'd

4.1: Crowd

from across the water a
the echo of a
scream
resounding

body
traversing
stage in line
remember'd
diagonal

brightness
infinitesimally
distinct from

darkness
body becoming light, light
becoming image, image
moving

slow
sloww
slowww [17]

chiaroscuro

figure
becoming fact,
scene all revelation

a very, very close and difficult thing, but here, at the edge, I am nervously optimistic, except I am waiting for the click of the shutter, time lapsing, collapsing free will into determinism, but momentarily we are
loosed, cut

all images appear through
outline

as all drafts appear to
deadline

in one month's
reprieve

I change my
recourse,

read the stars, already
rearranging

ticket price forgotten,
stub lost

hey
Reviewer!

ReviewerTwo

It ain't metaphysics,

it’s art

a very, very close and difficult thing, to
sustain interest when rendering-visible
lapses into rendering-the-visible

expected

something entirely
predictable:

the movement
surges to match the
tempo of the music and I
fall
soundly
asleep

—after Giselle Vienne,
Sadler's Wells 2017

figure, joined
apparition of crowd:

rave scene
slowed down
scaled down

a field of
sense

obscured
by meaning

right when you most

4.2: Andante

on the
stern deck
through the fog

of a winters morning
I make out the smoke of wet
coal from the most admir'd vessel
on the cut
and as the
neighbour remarks
how beautiful is the
morning a figure walks
into view, in flowing gauze
surgical blue against olive skin
upstage a large, white, concave
structure, inward arc, white flooring
edged with another whiteness,
promising
heightened visibility
paper twists
of silver fulminate
becoming lightening,
as three other figures
enter, turn, twirl, hum,
sing, each movement and
sound so stark and clear and
simple that there are no answers,
nor even are there questions, only facts,
so that attention becomes, briefly,
possible

When the
lights fade up,
stage obscured
entire: thick white smoke,
one indivisible field of textured
brightness, smoke becoming / cloud /
as fulminate becomes lightening; not
the
same / cloud / found in skies, but / cloud
/
unmistakably

the audience walk out, in ones, twos,
scores,
I am silent, speechless, breathless, for
those remaining / cloud / still stubbornly
performs the memory of the dance still
held together independent of mind

—after Igor x Moreno
***Andante*, The Place, 2017**

3.3: He's Dead

two flags – atop two
masts, one – banded
black brown – the other
faded – old-fashioned
just – rainbow-coloured,
stage so – hermetic
might as well be a – fourth wall

as if the presence of the observer was
entirely incidental, a restitution or
recovery of a kind, I glimpse, briefly,
another sociality, another culture,
another way, and I have no wish to be
confirmed, or deferred to, or have
anything confirmed, I am comfortable
having things suggested, pleased
enough to infer, and to be wrong, again

there are – ghosts and
then there are – ghosts
figure caught – play-drowning
in the shallow – draught
of an – inflatable paddling pool
and a voice – eerie operatic
bodies forth a – refrain 'I am suicidal'

the head held – above water
against – turbulent light
just smoke and – a colour wash
against my – forgetting
dead and – not-yet
dancing – indivisible
Ghost, I cite you – directly:
we are living – the disaster
of optimism – hope employed
to do a dastardly – thing
ghost I – recall
another poem – another haunting

—after Marikiscrycrycry
the Yard, 2020

5.4: Can you feel it

The streetlight illuminates
the cat's eyes, she is looking
squarely at me as she pisses
on the towel you dropped

by the radiator

I wake you up and we listen

after the show you say you
preferred the other show

how it begins:

one looks like a child,
holding the pantsfront
convulsing, while
the other strews garments,
shoes,

each is enraged:

what happened?

a bottle of water
lodged in the rigging
my companion is
momentarily rapt
as we all are,

it does not fall

a Nina Simone song,
***the* Nine Simone song**
you leave the country,
i move across the city

in the next house

the cat   escapes the box
circles the rug   chasing
an invisible   mouse
gets a   clot
rear left   leg,
then right
dies, it   happens

I cannot remember the ticket price but
the veterinary fees were a hundred and
fifteen pounds – well spent

in the   meantime
I think   no
more about it
until I must start – imagining
a place from which to – remember

performance – a place –
to disentangle   sense –
from meaning

(you know I never lived
on the   water)

You replied – sometime later
I feel – renewed

Yeah I can – feel it too

and we, like each of the figures

somehow compose ourselves
in a thin film of shifting colour
recalling how it ended[18]
the care with which they
positioned the lanterns
on the stage floor,
so that the rear wall
dissolves into depthless
light until I am return'd

—after Channing Tatum
Rich Mix, 2019

BEING CUT, BECOMING-STOIC

Memory cuts, moment to moment, event to event. Dance—and poetry—exemplify this. Barad's own compositional method requires a cut, an 'agential cut' which 'enacts a resolution' within entangled phenomena, between uncertainties both ontological and semantic (Barad, 2007, p. 148). Barad seeks to affirm; it is entangled phenomena, and not bounded objects, which are the primary ontological unit (ibid., p. 139). The cut produces the phenomena. All cuts require apparatuses, or 'boundary-making practices' (ibid., p. 168).

Certain cuts produce certain events. For Grosz, events 'induce problems for they are erratic, unique, unrepeatable', whilst 'problems, pressing ones, generate not so much solutions as concepts that may be in the vicinity of the problem, oriented to the problem, that develop ways of living with the problem' (Grosz, 2017, p. 146).

Where Barad invokes *meaning*, whilst Grosz invokes *sense*. Barad will construct new phrases, whilst Grosz parses old ones. Barad argues the implication of intra-action involves a 'reworking of traditional notions of causality' and agency (Barad, 2007, p. 177).

Grosz proposes a deeper, ontological separation emerging from a most traditional view of causality, derived from the Stoics, perhaps the 'first thoroughgoing materialists' (Grosz, 2017, p. 23). The Stoics distinguish between causes (bodies) and effects (incorporeal) (ibid., p. 25). Grosz observes: 'If all causes are bodies and only bodies—even if they are qualities or states of bodies—then effects, by contrast, cannot be regarded as material' (p. 30). Effects are incorporeal: 'real but not material, subsistent rather than existent' (ibid.).

The stoics name four incorporeals: *void*, *space*, *time* and *lekton*. (Grosz, 2017, p. 37). Grosz suggests: 'space, time, and the void are the immaterial conditions for any material something' (p. 31). In the Stoic view, void is real, though subsistent, and not existent: the void 'subsists as a possible condition for place' which is independent of body, of mind, and of 'reason's capacity to conceptualize it' (p. 34). Place, by contrast, is the 'region of the void that becomes inhabited or occupied by bodies'. Void surrounds place, a 'pure extension to infinity', (ibid.) Its only limit is 'the edge it shares with place' (pp. 34–5). Time and space are understood as the 'incorporeal conditions of the causal force of movement' (p. 37). The fourth incorporeal, *lekta*, refers to the 'capacity of bodies or material somethings to become more and other than what they are' (p. 31), the particulars of sense adhering to bodies, which 'minds are capable of comprehending and words are capable of articulating, a mediation between different kinds of body' (p. 38). This mediation is not dependent on language, but includes language. For the Stoics, lekta are 'sayables' (30–1), which 'articulate states of affairs' (ibid.)—not so far, perhaps, from 'performatives' in Austin's sense (Austin, 1962, p. 6).

Grosz observes: 'a cause, cutting, has an effect, being cut, but it is not a body that is being cut, it is a body that, by the cutting, is transformed from unwounded to wounded' (p. 30). 'Where is "being cut" to be located?' (p. 43) she asks, and answers: in sense, which 'resides on the surface of events and in the depths of bodies' and which 'must link the inside of bodies—their nature, qualities, their inclinations—to the outside of events, to the incorporeal sense that somehow hovers over the flesh and scalpel' (ibid.).

Meaning emerges from an intra-action. Sense is always already there, part of the substance. Locating 'being cut' in sense, Grosz at once distinguishes between material and immaterial and coheres them. Grosz's insistence on sense is informed by a deep, longstanding engagement with Deleuze and Bergson, two philosophers who have consistently acknowledged the virtual as the condition of the actual. 'Every materialism, whether this is acknowledged openly or not, requires an incorporeal frame' (p. 28). Stoic materialism refers to this as the void, which is the precondition of place, indeed of space and time.

In *On Touching*, they describe virtuality as 'a kind of *thought experiment* the world performs' (Barad, 2012, p. 210). Virtual particles 'teeter on the edge of the infinitely fine blade between being and nonbeing' (ibid.). In *Transmaterialities*, they observe: 'most of what matter is, is virtual' (Barad, 2015, p. 395). The virtual is 'a constitutive part of all finitude', (and infinitude) which 'calls us to a new sensibility' (Barad, 2012, p. 215).

This call does not come from the body, nor even from language, but from the void: 'flush with yearning, bursting innumerable imaginings of what might yet (have) be(en)' (Barad, 2015, p. 396). Barad is a latecomer to the void, to virtuality, to many of the concepts defining philosophies of immanence. In search of proof, they neglect intuitions. Yet they arrive at the edge between realism and idealism. On hearing the call, we might acknowledge that realism takes us only halfway towards an understanding of what moves us, and where movement comes from.

Acknowledging that all of our apparatuses are boundary-making, we return to the edge of the virtual. As Massumi considers: 'The virtual, the pressing crowd of incipiencies and tendencies, is a realm of potential. In potential is where futurity combines, unmediated, with pastness, where outsides are infolded and sadness is happy' (Massumi, 2002, p. 30). And what calls us is not new, not even in neologisms or compound words. There is only an anterior feeling of being cut, between cause and effect, that suturing phrase, *always already*, returning us to an origin, elsewhere, otherwise.

Form and Void

Barad describes their monograph as a diffraction grating, an apparatus designed to illuminate important material differences, relationalities, and entanglements in the lively dance of mattering' (Barad, 2007, p. 37). In this chapter, I have figured four dances from memory, attempting to render perceptible their incorporeal dimension, opening to a form of sense which 'floats on the surface without penetrating the identity and continuity of the body, a thin film at the limit of things and words' (Grosz, 2017, p. 39).

With reference to Bergson, Oswald describes an order which inheres in matter: 'we have only to stop speaking, we have only to stop composing and performing and singing and thinking to hear it' (04′06″). Oswald has described poetry as an art of erosion.

Like Barad, Oswald is sceptical of the power of language: 'the invention of writing has given a little too much power to the lastingness of poetry' (Oswald, 2019, 01′38″). Perhaps writing towards disappearance give too much power to the ephemerality of performance. Certain performances, like certain poems, meet the 'edge where the mind gives up and matter begins to describe itself' (ibid. 03′40″). Splicing sections of Fulton's poem *Cascade Experiment*, Barad writes: 'even the cut that separates can further the entanglement!' (Barad, 2007, p. 466). Barad's later research evidences a deepening commitment to poetry, as they cite passages from Gloria Anzaldúa's *Borderlands* (Barad, 2014, pp. 5–6) and Susan Stryker's *My Words to Victor Frankenstein above the Village of Chamounix* (Barad, 2015, pp. 414–8). Barad's own diffractive readings of poetry constitute an attempt, perhaps, to consider how matter might describe itself.

For Bergson, matter describes itself through outlines, shadows, reflections of light and every conceivable form of interference. Diffraction is just one—complex—mode of interference. The diffraction grating is an artlike structure: a frame for chaos, like all of the frames, boundaries, which define the arts as planes of immanence. Art requires a cut. Grosz affirms it: the first gesture of art is the fabrication of the frame (Grosz, 2008, p. 10). The diffraction grating might be the first frame of posthumanism, one which always already exceeds its own materialism, offering 'empirical evidence for a hauntology' (Barad, 2014, p. 180). The theatre is *always already* full of ghosts (Carlson, 2003, pp. 6–7).

The memory theatre described by Critchley is first a theatre of reflection, of mimesis. Yet Critchley comes to acknowledge the limits of reflection: 'Memory is repetition. Sure. But it is repetition with a difference' (Critchley, 2014: n.p.). For Critchley, 'memory needs to be imagination. Transfiguration … the theatre of memory cannot be reduced to [one's] own memory. It has to reach down into the deep immemorial strata that contain the latent collective energy of the past' (n.p.). Finally, Critchley returns to poetry, because poetry 'lets us see things as they are', revealing 'particulars being various … lets us see things as they are anew. Under a new aspect. Transfigured. Subject to a felt variation' (n.p.). Entwining memory and imagination, spanning material and immaterial planes, memory theatre is, necessarily, diffractive.

At a time when just about everybody is a materialist and all performance is electronic it seems imperative to reassert the theatre as incorporeal, immaterial, idea(l), subsisting 'even without a material architectural construction in place' (Corrieri, 2016, p. 7). Beyond the digital, there is the other, anterior, virtuality. In this moment of seeming separation, I labour and wait. The only counsel I offer is patience, for that is the future of research.

I had stopped thinking about performance until some diesel spills onto the cut, I am returned to the theatre. In staging this return, I am forced to consider a paradox, named by Grosz, after Foucault, as the paradox of an 'incorporeal materialism' (Grosz, 2017, p. 150). This paradox has required me to modify Barad's apparatus in order to redescribe the diffraction grating as memory theatre.

The memory theatre—like all of the frames defining the arts—is a boundary-making apparatus, a *dispositif*. We may come to prefer diffraction to reflection as an ordering principle for theatre as a field of illumination and difference. The preference returns us to repetition. As Deleuze asserts, 'Difference must be shown differing' (Deleuze, 1994, p. 56). Sure. But what the theatre requires and produces may be called diffractive only to the extent that diffraction is, precisely, the interference of the real and the ideal.

Presently, the theatre remains a place that emerges at the edge of the void, *always already* on the cusp of return.

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Entanglements and Response-Ability in Intergenerational Performance Ecology: Part III

Sarah Hopfinger

In my current activity of (re)turning over *Wild Life*, ideas and thoughts are stirred up and move through my body in ways that feel akin to a movement practice developed in creating *Wild Life,* the Interpretation Practice (Fig. 1).

Pete is exploring the impossible instruction 'be spirals' through movement, Archie is enacting 'sink into the earth while holding up the sky' through his body, and other performers are interpreting and following Pete's and Archie's live movement explorations. I have a pile of slips of paper with impossible instructions I have prewritten on them, which I pick from to give people new instructions throughout the improvisation. I stand against the rehearsal room wall looking in on the performers. From this 'outside' position I find it difficult to know what prompts to give the performers. The prompts I do give are general and un-inspiring for those moving in response to them—they come out in ways that work against, rather than with, the performers and their movements. I call to Graham and Liz to interpret Archie, but as soon as they do so I know this was not the right decision, because Liz and Graham lose the flow of what

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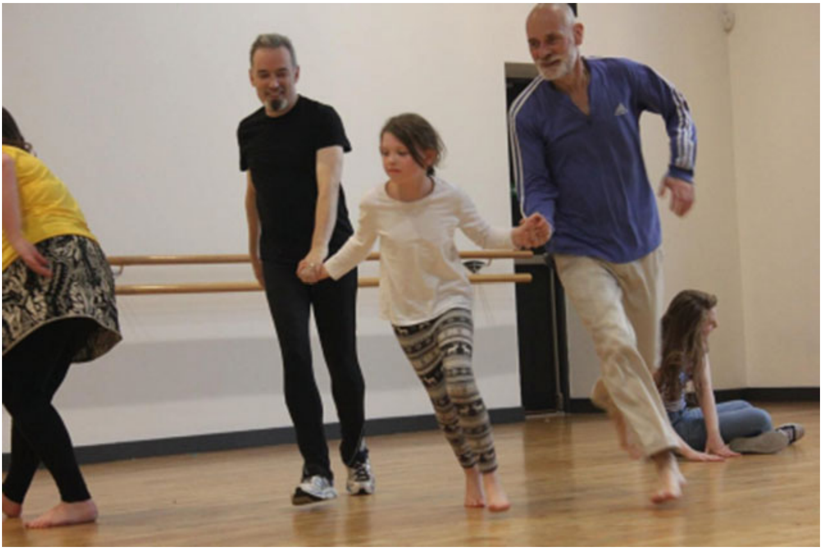

Fig. 1 Performance documentation 4

they were each doing and Archie is jolted out of his focused movements. I ask Lennon to interpret Pete's movements, but Lennon seems unable to 'get into' what Pete is doing: Lennon is immediately distracted and bored. My instruction to Lennon was not *immanent* to his activities but was a preformed notion I had about how it would be interesting for Lennon and Pete (a young boy and young man) to move together. I am unable to sense the possibilities of the performers' embodied movements. I begin moving in and out of the performance space and find myself turning and traveling in among the bodies. I start to give prompts to them that spur them on. I turn, dipping under Gaby's flinging arm, and I catch up alongside Archie and Graham, whispering to them to interpret Carragh. I chase after Gaby, and prompt her to carry on her 'swinging' but to allow her movements to propel her across the space. I see Archie poised on tiptoes as if he is about to run, so I instruct him to run between the other moving bodies and into the empty spaces he sees. Carragh and Graham almost start to move with Archie when he passes them by, so I say to Carragh and Graham that they can join hands and run with Archie when they

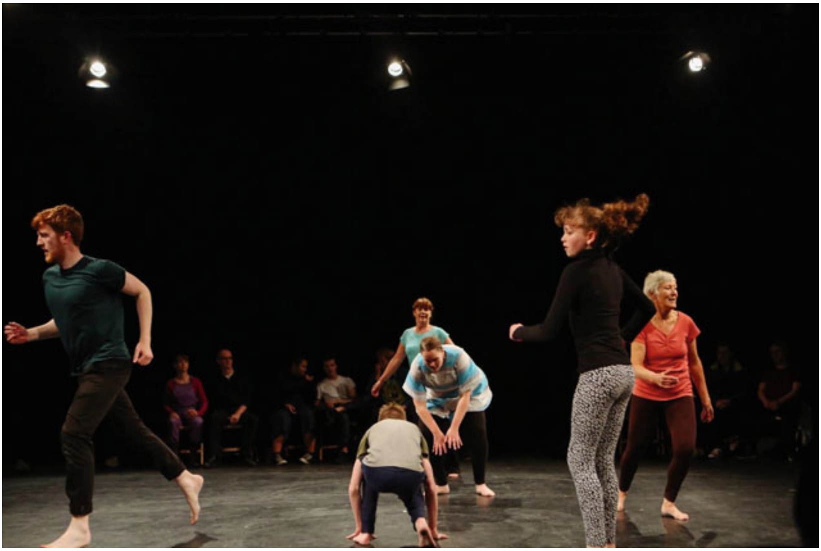

Fig. 2 Performance documentation 5

choose to, which leads to an unexpected trio of Carragh holding Archie's and Graham's hands and leading them: a child leading two adult men.

My prompts are in-the moment responses to their movement interpretations, and I am transgressing my own expectations for this improvisational practice with my prompts—prompts that emerge from intuitive listening to the dynamics of the practice itself, as opposed to individual human performances. I am on the go—experiencing and contributing to this performance practice by responsively moving with(in) it. I am diving in and out of their movements, attempting to feel where they might be going through embodying and responding to what they are doing. I jump to avoid Archie bashing into me, interrupting my path, which brings me to another part of the space and another configuration of movements.

Doing ecological entanglement: a diffractive flow that breaks, jolts, interrupts, bringing about new in-the-moment inventions (Fig. 2).

I come across Geraldine and Pete—I feel there is potential for them moving together and so I ask Geraldine to interpret Pete. It is as if they were almost doing this before I suggested it: my instruction encourages them to go in a direction they were already sensing the possibility of. I stand still for a few moments, feeling the air currents rustling through my hair and skin—air stirred up by these moving bodies. The performers and I are whipping up, and being whipped up by, the movements of this practice. We are moving with(in) the practice, rather than trying to make the practice move. What is being embodied is unclear and who is doing the embodying is confused across the different moving bodies—I do not know which bodies are leading. There is flow, collision, connection, differences, similarities, closeness, far away-ness, slowing and speeding, being alone and together. This practice embodies us rather than us each embodying the movements—we are less embodied individuals and more moving embodiments of the dynamics of this practice.

Doing ecological entanglement: less about us humans doing the performing and more about us being performed by our entanglements.

In critical literature on experimental dance and performance (see, for example, Arendell 2020, Schechner 2020), the 'body' that does the 'embodying' is usually presumed to be a human one. Anthropologist Tim Ingold challenges the concept of 'embodiment' as it suggests 'closure' and a 'body wrapped up in itself' (2013, 93–4). The ecological dance theorist Erin Manning suggests an alternative term, 'bodying'. She argues that a 'spiral as such cannot be danced. It is more duration than form' (2013, 30). Moving bodies, by constantly moving through (and past) any fixable form, emerge as a 'bodying' or a 'participatory node in the milieu of movement' (2013, 78; 122). When I stood 'outside' the movement improvisation activity, I was acting as though I was a singular body outside of the practice. When I began weaving in and out of the activity, I ceased trying to fully determine it. My directing became a matter of being an embodied participant in, rather than a leader or separated onlooker of, the performance ecology: I became a 'bodying' part of the practice. *Letting* the practice happen took precedence over *making* it happen, yet 'letting it happen' was not about me becoming a passive body but about me becoming actively responsive and responsible to the multiple bodies and bodying processes happening live in the practice. By letting go of being outside of the practice, I could get to know what I could do with(in) it: I was able to try things out, be braver, and more experimental—discover and play with ideas. I could feel what was immanent in the practice, sense something of what the performers were capable of and respond to the vibrancy of their bodies and movements. This can be described as a case of 'composing' with the 'force of technicity' (Manning 2013, 39). I was not a separate body that was weaving the practice, but rather I was weaving with, and as part of, it.

This collaborative approach reflects how differences and relations between bodies do exist but not in a fixed way. The differences and separations between a child and adult—or between a child and a rock, an adult and a bucket of water—seemed one way in one rehearsal, only to become a different difference a moment later or in another rehearsal. For Barad, there are no 'absolute separations, but only contingent separations - within phenomena' (2014, 175). Working with Barad's 'agential realism', individuals and relations do exist but only inasmuch as what/whom relates with what/whom is intra-actively constituted in enactment itself. Collaborative practice has the potential to expose how separability and difference are an enactment of intra-action within entangled phenomena. Might live collaborative movement-based performance be uniquely able to attend to, and expose, the (a)live material processes of (un)making bodies, differences, relations, and patterns?

My ideas for *Wild Life* often emerged through the live enactments of me and my collaborators: through responsively and responsibly 'bodying' and participating in the agency of the practice. I propose this as an ecological approach to directing, where embodiment is less about individual human bodies and more about the 'bodying' processes we are participating in through particular artistic practices. This approach reconfigures collaboration within and beyond performance: with an ecological approach, collaboration is less a matter of multiple individuals relating to each other and coming together, where individuals might (or might not) gain agency, and more an ethical question of how we (humans) enact our unavoidable entanglements with each (human and nonhuman) other. The question, then, arises: how might we participate in the dynamics of agency? From an ecological perspective we are always already entangled—or, collaborating—with ecology in the very moments and modes of everything we do, and so what matters is *how* we enact our entanglements and collaborations.

Reading

‘If I ask you to connect *point A* to *point B* and you inevitably draw a straight line, what do you *think* you think of history? If you draw a circle, do you think of history as living in commotion, a sprawling mess of the not-quite-said …’ (Lola Olufemi, *Experiments in Imagining Otherwise* p. 3) Perhaps we might continue in this way to see how the lines and circles of connection, of being together-with-text(s) cut onto-epistemics of human phenomena together-apart with other worlds. Such a cutting-together-apart might act as a radical method by which to fashion new worlds; new forms of justice matterings. But of course, as Haraway suggests, we should be cautious with methods and methodological moves. They’re like spells that bring whole new worlds into being—and spells cast cannot be so easily erased. They mark bodies and make things *matter.*

Donna Haraway reminds us that it matters what ideas we use to make other ideas with. Perhaps they hang in Plewis’ atmospheres, giving rise to modalities of reading practice that penetrate the body-text-space–time compositions, performativities that we so easily take for granted as we humph and bumble throughout all the little parts of the day that don’t *seem* to matter much. What we are called to think through is that in order to evidence atmospheres, you first need to accept that they exist. Atmospheres are powerful. They are the performative cut of our momentary world(s). Invited into the Reading Room, we find all the patterns across ontological emergence that evidence themselves, shuffling and rustling, and giving rise to new worlds.

Silences affect differenced modes again. In the endless flow of motion, silence diffracts relations and configurations of performers, performance, and audience. Silence is *played*. It is an instrument, a kind of music(s) itself that reorders us out of our usual patterns and affordances, creating a new kind of relational atmosphere. Moving from silence in music-making to making-heard/seen the processes of self-making in MathArts, again Burnard and Cooke draw our attention to how the relations between Annike, Euclid, and Math-as-subject displace positionalities into an else*where* that is very much right here and now too, in the very follicles of the read and reading subject. Again we are invited to think through how ideas make ideas; how we much imagine otherwise.

Hopfinger returns again. This time she is talking about reading. Specificity is her reading world today. To participate is to pay attention to the atmospheres created by specificities, by material-movement makings that configure muddles as co-minglings. Matter, meaning, and movement. All the lively beautiful epistemologies we might make therein.

Diffractive Thinking, Reading, Writing and Playing: The Methodology of Constallations(s)

Annie Abrahams, Pascale Barret, Alix Desaubliaux, and Alice Lenay

How not to theorize diffraction? (poem—8 hands)
How not to theorize diffraction?
Can we feel the

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diffraction? Can we be the
diffraction? Be the diffraction and be on the edges of the
diffracted? What happens when we escape?
~~it all starts with a~~ **mushroom**
apparatus = 3G
var t
var **temperature**
var lecture
var rencontres
var play, trust, attention
var it's a region **(lots of water, maybe waves, creeks, rivers and streams)**
diffract/ion diffract
diffraction()
a tempo spacio **maTTer**
your role as/is a **node**
It* makes me think of photography
It* makes me think of **lenses**, of manipulation, of slits, of disturbances, of focusing, of … unveiling patterns that you didn't know they were there
being "part of it*" even if it* is distant
NO surrender to complexity
META-WARNING: BE(A)WARE
thanks, we don't understand it anymore hoooooooo **I like a lot: "epistemic humility"** hoooo explain please, **please** help us help uuuuuus this is in the article "Diffracting diffractive readings…": "To *live* without bodily boundaries by: opening up to the unknown and not knowing (epistemic humility)" I like it tooo We love "epistemic HUMILITY" yaasss
this IS not an ethic
an integrity of Doubt?
Always ask, ask what has been left out

INTRODUCTION

This chapter in which we try to share our practice is inevitably incomplete. It is a stop-in time, necessary to enable sharing. We will try to explain, but also perform what we do, so that the readers themselves can experience it by being confused, by having ideas, by finding their own trajectories through the text, sound and images and by discovering before unsuspected new knowledge.

* * *

Constallations is a moving group: it can be spelled "3G-Constallations" which refers to the first three artists beginning the group: Annie Abrahams, Pascale Barret, Alix Desaubliaux (they are from three different generations), or "Constallation(s)" or "Constallationss" when Carin Klonowski, Alice Lenay and Gwendoline Samidoust joined the group or even "Constallationsss" when we changed our website for a third year/"season" of working together. We are a group-on-the-move: we don't always work all together and sometimes we invite other artists to join us; we use stars, parentheses and other brackets to carve our fluctuating name.

We are artists from different backgrounds (fine art, performance, film, games & gaming, activism), who hardly knew each other, were living far apart, but had a similar interest in artistic research and collaboration and were intrigued by the work of the others. To satisfy this curiosity, we decided to stimulate and challenge each other in online work sessions, where we confronted new propositions, information, work-methods and styles of being. Because we had limited time we looked for work strategies that combined constraints with a lot of freedom. Our goal was to change the movements of our thoughts.

From the start our approach was influenced by the SenseLab, a "laboratory for thought in motion",[1] founded in 2004 by Erin Manning, and Karen Barad's ideas on diffraction as they came to us via the article "Diffraction & Reading Diffractively" by Evelien Geerts & Iris van der Tuin in the New Materialism Almanac (Geerts & van der Tuin, 2016).

We define ourselves as "contemporary net art", or as a "non-binary inclusive laboratory", or we talk about "performative & collaborative explorations" and "improvisations in the unknown of the other's gesture".[2] Through regular practice we developed what we started to call a "diffractive thinking", meaning a thinking where there is no real beginning and no end, where there is no order. We always start *somewhere*

in the middle, and everything is always

incomplete.

Diffractive thinking is always situated, determined by the where and when, it has no anticipated goal, it's a re-turn, re-turn and a re-turn. Every re-turn provokes different patterns and relations that we don't always understand. Doubting is essential. We found a way to experiment collaborative methodologies by conjugating our individualities and our emotions instead of working for the others or with the others.

Each session emerges from a personal proposal which is offered for the others to enjoy, to question and sometimes to endure. We encounter one another through experience rather than by introduction, we discover a to gether through our acts and by weaving our thoughts along.

In this chapter we offer an already dated methodology that can also be read in a flower font (Figs. 3 and 4), poems, things that talk, jumps and quicksand and propositions for performative acts (Fig. 2). We also think about what has been left out. We use diverse techniques: we write and read together in a way that we call "*rearitingg*", or *licriture* in French, (Fig. 6), we draw patterns together when we "flock" (Fig. 7), we make collages (Fig. 5), we record and mix (Fig. 1), and in the words of feminist materialist philosopher Karen Barad, we "cut together-apart" new multiple knowledges.

Flocking Through the Stream

3G-Constallationss thrives in the experience of virtualities. Protocols are virtualities, encounters are virtualities: we don't know yet what is going to happen. In our sessions we are waiting in excitement for the virtual to actualise (Deleuze, 1968).

3G-Constallationss thrives not in a single body, in ~~y~~our body, but in between.

We meet, we discuss, we see what happens — wobbling, drumming, gulping, glaring, alone and together, plotting our route through the collective drawing space[3] (Fig. 1).

When we become Constallations(s), we know that we have finite time, capacities and resources; we know things are also not infinite and we know

Fig. 1 QR code for the attunement sound for the "Queering Dommage" session during Laboratoires de Traverse 11: "Screens: Surfaces of projection and projection of the self. What does the screen make of us?" Editing: Annie Abrahams. Sound: Jan de Weille. Laughter: Annie Abrahams, Alix Desaubliaux, Carin Klonowski, Gwendoline Samidoust, Alice Lenay. Voices: Annie Abrahams, Pascale Barret, Olivier Bienz, Nicolas Frespech, Valentin Godard, Alix Desaubliaux

that our relations to others (human and non-human) must change. This is why we need to act, create and experiment. How, together, do we care, listen, feel, think with brains, hearts, souls and the senses — and how do we learn with critical rigour, confidence and honesty; how do we deal with co-creation?

As (female) artists, how do we perform artefacts? We perform with special attention to embodiments, to the doing together and to the traces that emerge. It's not about products but live "life" art, happenings and processes. Such acts impact our lives, our practices and our relationships. We don't talk of "identity"; we talk of "trying to be", we experiment to "stay with the trouble" (Haraway, 2016) to "live in the unknown, infirm, live in the feeling" (Pagnes et al., 2020).

Meeting online allows us to see and hear one another often, but above all, it means being caught in the stream. Our screens, as a place to both meet and record, allow us to subsequently review the gestures and reactions that have taken place. Our screens catch traces of our relationships. Our screens are like laboratories. It is not a question of seeing what emerges despite mediation or working with the mediation, but of understanding what mediation *reveals*. The encounter is the driving force of an experience, an exploration, a vice versa, collective investigations also become a way of observing the encounter. Tele-presence is not a palliative for the distance that separates us but a mode of encounter in which we are forced and committed to leave traces. Our presence is registered in the earth, in the servers that run.

Then, we fly away in the sky and glare like the owls that we follow, eyes wide shut. We feel each other, guess the line of our mutual routes, layered and intertwined. We sense and our imagination creates the presence of the distant ones in our minds. Our now-opened eyelids reveal the traces of our coexistence in the intimate space of our shared thoughts and mental patterns and are present on the screen (Fig. 2).

Can we flock? Sometimes we oscillate between cohesion and "in-cohesion", individual awareness and collective sensibility. We *learn* and/or *imagine* how different birds are moving, so as to question our own ways of being-together; we try to *learn* and/or *imagine* a lesson from those beings that we can only see flying in the sky. The question acts as an ecology, an "ec(h)o-localisation" and aestheticization of the group. There are so many ways to evolve together. We explored some: for instance in concert through an ornithological role-play. On a shared drawing interface, each of us on our own screen, we waddle together to the rhythm of

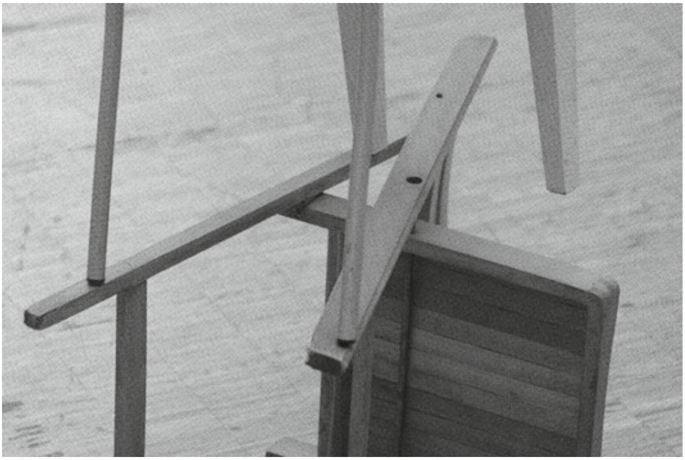


Fig. 2 Detail from the result of a sculptural challenging action during the presentation of Constallations on May 25, 2019, at the ISELP Art centre in Brussels with a participating audience. In the context of Pascale Barret's exhibition "Waiting to blossom", this presentation was an opportunity to put into space our processes (Photo Peter Westenberg)

the penguins and glide with joy on the ice, while one of us goes fishing in the sea with a big blue line. We mutate into a drum of woodpeckers and start attacking the bark of an invisible tree looking for thick and appetising worms and devour the flesh of those insects with great blows of viridescent, hazel and pitch-black colours. We gulp in the sky as an infinite patrol of swallows, swirling until vertigo comes.

Somewhere else, on another occasion, Danielle Imara after her participation in a "reariting" organised by Constallations wrote:

> …*What was really lovely about it was the sense of a shared mind, as if we were in one another's heads and it felt like a kind place, and that we were all on the same journey. We were trying to formulate ideas together.* […] *And it is like hearing people's thoughts.*
>
> *I found it interesting to be able to respond to thoughts as they were expressed while taking care not to interrupt someone in mid-thought expression; although accidentally doing so seemed to lead to interesting results, sometimes forming a poetry and new meanings. I liked how concepts flowed from and around the subject matter (the text) to the nature of reality, the senses, existence, language, communication…*

METHODOLOGY

The second version of the Methodology of Constallations, written in August 2021, starts with a quote from Alfred North Whitehead out of *Adventures of Ideas* (Whitehead, 1967):

> …every method is a happy simplification.

The Constallations*ss Methodology is used to address constellations,[4] whatever their nature, by installing a collective procedure. It is a method of setting in motion that borrows from the stars its blurred lines.

Constallations is an ongoing conversation that takes the form of several sessions of brainwish/storm/wash echoing each other.

What must be put into play to make Constallations appear?

Conditions

A minimum of three people who want to work with each other. They know at least one of theothers personally.

Each participant wishes to bring into play a personal interest, not to produce a piece of work or to further their own project, but rather to make it move by the view of the others or simply to discover and to probe new approaches.

Necessary Attitude

Constallations*ss needs to be a place where honesty and emotions can be expressed and recognised, where we can jump out of our comfort-zone blindly. Whenever we open a session, we enter it with these words in mind: loyal, attentive, caring, devoid of judgement, trusting and with a willingness to play by the "rules" of Constallations(…).

Tools

- A challenge, a surprise.
- Computers connected to the Internet.
- A dedicated website to communicate the preparations and traces.
- Time to organise, to prepare, to do and to archive.

Protocol

- Start with an online meeting: the participants together define a calendar and determine dates for at least one session per person. They create a dedicated website page and share its access codes.
- Each participant bears responsibility for one session, which means they have to prepare it and to take care of its traces. She/he must choose a theme that matters to them and determine a protocol for the session that is posted online the day before the meeting.
- There is no prior consultation.
- On the day of the meeting (an appointment hour has been fixed before) the person in charge of the session explains the field of the research and the protocol meant to experiment, explore and appropriate the issue together.
- At the end of the day there is time for a debrief.

Why Write a Methodology, a "How-to"?

The methodology is the result of an attempt to extract the essence of our experiment to capture its energy and potential. It shall not freeze nor dissipate, but must have the possibility to be shared and reinvested. Transmission is also a challenge and can lead to mutations, deformations and repossessions that will fertilise the recipe.

The methodology is also a decortication; it is a way to "cut-apart" what we're doing, and allows us to conceptualise and see the complexities within the processes and mechanisms we use and experience.

> Constallations is devoid of a goal and has no predetermined path.
> Constallations is what we are when we give up our personal objectives, and when, based on our own history and skills, we tackle a challenge prepared by one of us.
> Constallations is made of travels through things that one doesn't control, of jumps in the void.
> Constallations is an exploration full of unexpected discoveries.
> Constallations is a learning tool and/or practice radically open to everything.

> Constallations is a concrete utopia — on a small scale, and temporary, it must be said — but therefore it carries a hope for a different society.
> It's a perspective.
> Constallations is a path, an adventure, a chemistry, a soup that upsets habits and creates links.

Each session is always also a gesture of love. Intuition, intellect and machines (the apparatus) blend together and create affects. The path fantasised by the one who organises, the one who desires, becomes a labyrinth of encounters, bifurcations, digressions — a pure sensory juice of entanglement. The research is done with a benevolence that is inseparable from it: without kindness, nothing would emerge.

A Tool (Rearitting)

Rearitting is a reading and writing that goes on between several people on one and the same collective digital writing pad. Editing takes place in real time on all screens involved. At the start, participants find a short text on the writing pad. They read this while writing their notes, ideas, reactions, digressions, the ones through the others on this pad. The text serves as a source of inspiration, debate, conflict and inventiveness. The authors are free to tear the text apart by collectively analysing parts of it, or to turn away from it and concentrate on the flow of words and colours that form on the page.

Time is an important variable. In the first instance, the time of the chronometer: we set a limited time. Once the allotted time has elapsed, if we look at the content of the pad through its dynamic history (a function that replays the entire editing of the pad in a few seconds), we can contemplate the collective thinking in a cinematic time frame: the lines with different colours seem to move by themselves, interacting with each other.

Sometimes we invite other people to think with us in a rearitting session. Once, we even had sixteen colours on a page — each one's intervention in the text expresses itself in a specific tint. Three simultaneous pads were running, allowing rearitters to group differently over time. So, at any moment everyone could find space for themselves, going to the pad that best-suited their writing rhythm. Some wrote and freed their thoughts as they were forming, embarking on a polyphonic dialogue in which all the protagonists could mingle. Others preferred a calmer rhythm, taking care of their words, allowing the time it takes to form and to express their thoughts. Some were particularly interested in structure, and they worked, redacted, enriched and coloured. Some left the original text behind.

Through reariting, an expandable space is created which swells as an initially white canvas is covered with colours and lines. This space is both constrained by the infinitely stretchable virtual page and the time slot. As we invest in the text, it loses its primary properties to become ours, we take over the text to make it our own, it becomes the shadow or ghost of our own collective thoughts.

Reariters have no stable ground and are forced to surf, slide and hover over the changing text, constantly scanning their screens for interesting gaps, only very temporarily able to introduce something, to make a mark in a stuttering story without end: questioning what is important to them, to the group, to the text. Reariting is not about producing a text together, but about using a technique to think *through a text together*. Reariting is a multi-paced collective exercise in which unbridled ardour rubs shoulders with meditative reflection.

The thinking and the hesitation are visible for instance with a break in the middle of a sentence, or in the clicking of the cursor that shows a latency when influenced by others. In the end, these breaks and hesitations, that were important during the exercise, are now frozen and only remains the concrete matter of the written word. Even if the blanks are now eclipsed, the original text is found in these voids. What happens off-screen is essential and is the driving force of the session: it is there that imagination, reflection and thought form before they are injected into the frame of the pad. The hesitations can be registered and exposed in a recording of the pad (screen capture or cinematic history), but it is mostly the remaining text that is standing in the end, as a simple photo of a more complex moment. Sometimes, we only extract and keep a couple of confrontations between two or three colours, when an idea has emerged.

> *It is not really clear what is causing what, where the agency lies. The interface, individual computers and keyboard characteristics, server conditions, as well as the original text, the words of the co-performers, the local light conditions and family situations are all entangled in what Karen Barad would call the phenomenon of intra-action.* (Abrahams, 2020)

Someone who vibrates too fast will only attract the attention of a calmer humming with delay, when the frenzy drops off. Two almost silent colours find a line where they exchange only a few, important words.

Three louder colours start a conversation in the middle of the document. It is their rhythm that grants them intimacy. Others join punctually, when the unwinding of the colours on the white of the page calms down a little. If synchronised with the talkative participants, the new colours are welcomed with open arms in the conversation without breaking the pre-existing balance.

The reariting pad is the place for a long, musical mixing that is not sonorous but textual. Starting from a shared text, each colour can resonate with the others and confront their pulsations and reflections. From this common source, each person retains something singular, analogous to his or her own rhythm.

Jump

Reariting ● produces creative and unexpected "outcomes" ● touches you emotionally ● creates text and relational patterns that do not depend on canons ● is a human text generator ● a facilitator for a diffractive, distributed intelligence on-the-fly ● an intertextual playground ● a laboratory ● an interpretive arena ● an apparatus for diffractive thinking ● a tool for thinking together ● is riffing on text ● text is volatile because reariters are constantly changing the flow of ideas, commenting on each other's work, fast, in real time (Figs. 3 and 4).

Anarchives and Quicksand

We have sites — websites — not as a ground but as a place for our traces to meet.

They serve as an archive, as "anarchives" (Manning, 2018), and they move in time.[5] They are meant to pass on energies, not methodologies, but propositions. They are not just a reflection (echoes and traces that we left behind), but possibilities, roots of potential becoming: they are nodes. Each time we have a session, some elements are brought on a new page of the website(s). These elements are there to prepare the session, but they move after the session, they are transformed. Usually, one of us prepares the "elements", one of us collects and organises them — *but it's always more than that, always trembling* — unstable matter held in html mark-up on the screen frame — we all have the keys to the (web)sites.

Changing, switching, adding, collecting, subtracting, exchanging — the pages are moving pieces.

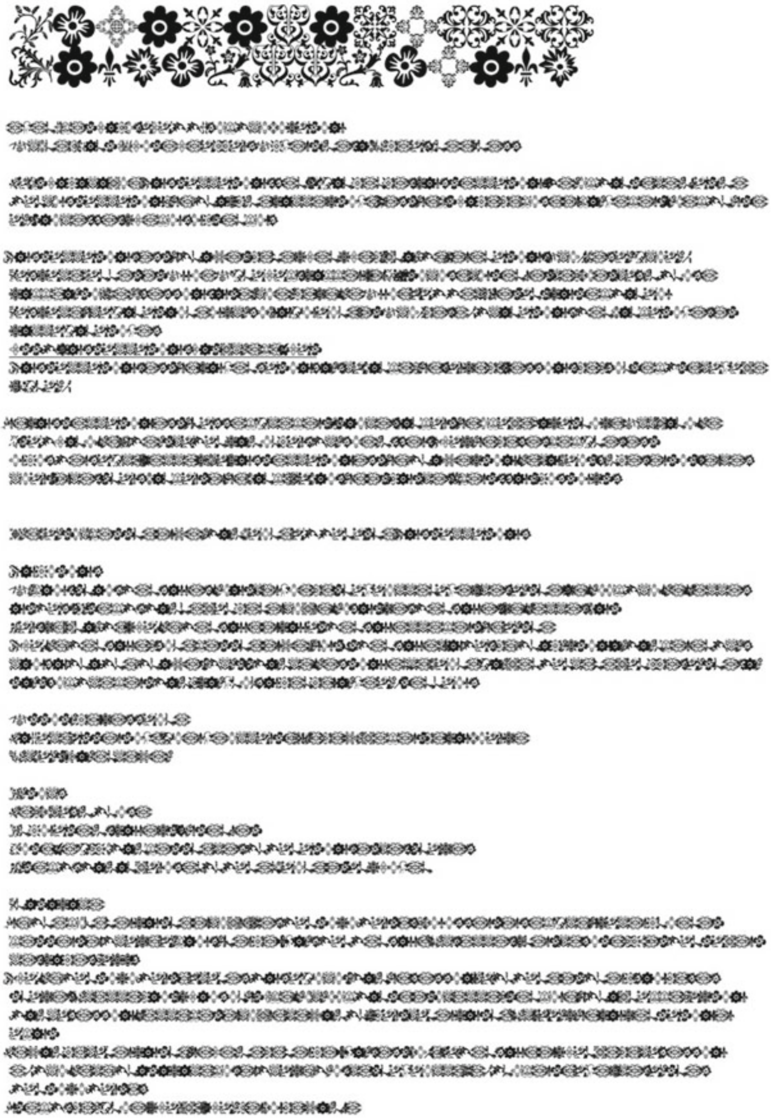


Fig. 3 Methodology (flowers): is language a code to contemplate? #1

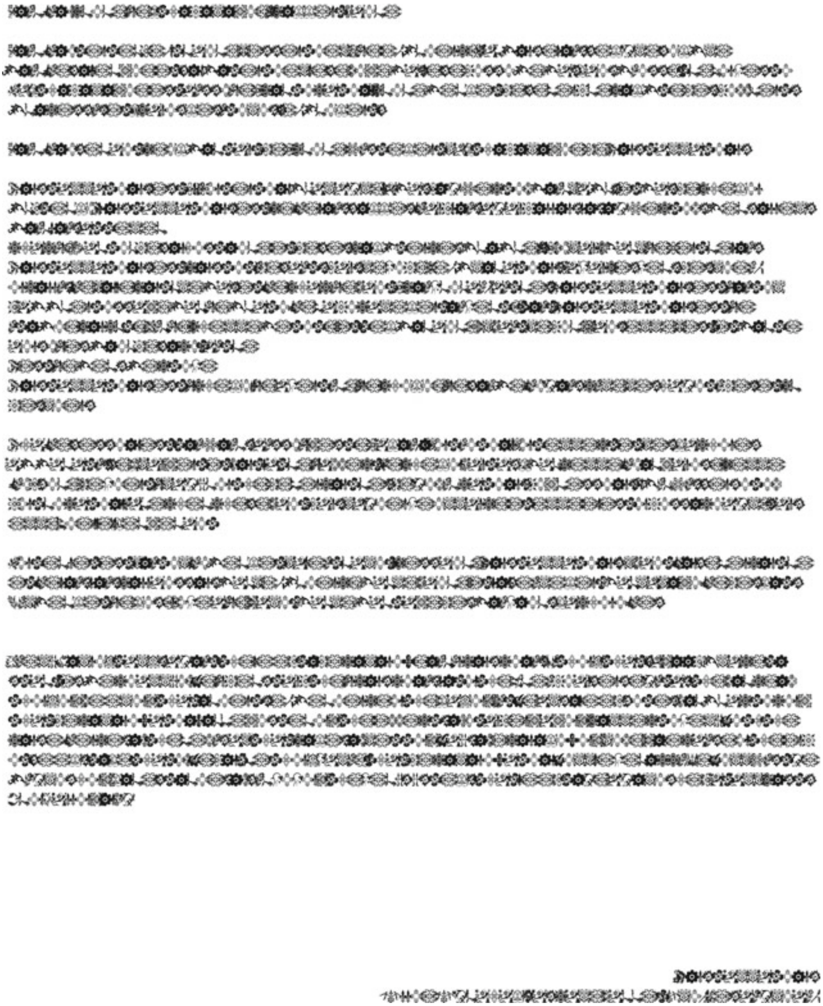


Fig. 4 Methodology (flowers): is language a code to contemplate? #2

I hide poems in some rocks on the side of the menu, I yell in capital letters to tell you that I disagree. Sometimes I go back to previous sessions and cancel the static exhibiting mode; I draw something like tagging a wall along the street. Sometimes it feels like the elements are moving themselves. (Alice)

A colour changing, a picture disappearing. No one has to know who does what. But maybe we can guess who did what. The continuous publication establishes an open channel of communication, in which it is possible to be engulfed. Sometimes it feels like the elements are moving themselves.

The (web) sites are tools, traces and potentials, they are engines, activators and documents. They work together: first, creating a distance, a gap or a box where we can put elements. Then, the in-between moves and opens something else. In this way, the webpages are quicksand. Sometimes you feel like drowning from link to hyperlink, under layers of superpositions. It's a place where conclusions don't (really) happen.

We produce "and and and" (Deleuze& Guattari, 1972, p. 10), not this or that; we act through an interweaving of our Constallations sessions, the ones through the others. Our rev-iew of Constallations is not an overview, but a viewing again; a re-turning through the sessions as a way of intra-acting with the sessions (Barad& Kleinman, 2012). Our diffractive re-turning is sedimented in its iterative becoming.

In the end, we continuously ask ourselves: "What has been left out?" (Fig. 5).

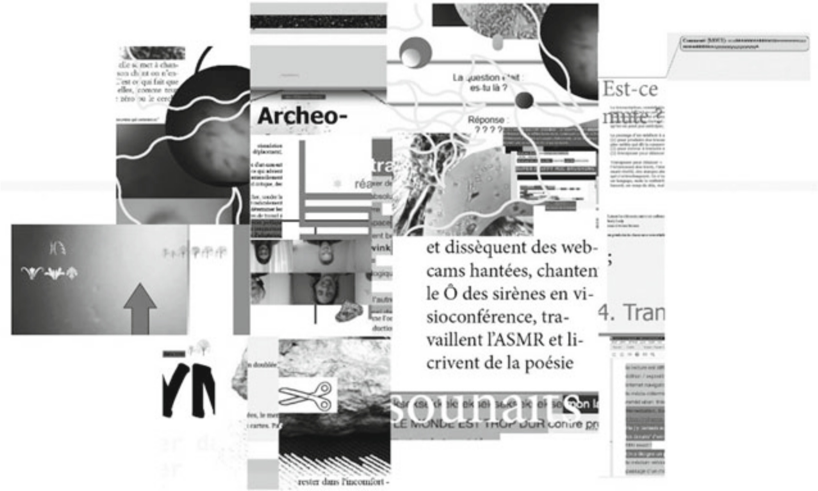

Archeo-
La question : est-ce es-tu là ?
Réponse : ????
Est-ce
mute ?
et dissèquent des web-cams hantées, chantent le Ô des sirènes en visioconférence, travaillent l'ASMR et li-crivent de la poésie
4. Tran
souhaits
LE MONDE EST TROP DUR
rester dans l'inconfort -

Fig. 5 A collage of the session *colle collectif* with Constallationss, on August 18, 2020. Proposal based on "Interface-à-face. The faces of the encounter through screens, the PhD thesis of Alice Lenay. Each one remixed, pasted and formatted what she found most important and interesting from the Constallationss sessions

CHALLENGING ACTIONS

When presenting in situ Constallations uses performative "actions" that are meant to lower barriers between the presenters and the audience, to create affective relations between all. We choose an action without consultation and propose it as a challenge to the others present. Each action lasts ten minutes, regulated by a timer.

*** Laughter.**

We laugh without interruption. We smile, we grin, we chuckle. We laugh for, against, with… because of…

*** Speaking in tongues.**

We converse together using sentences that do not respond to each other, that do not follow each other. We keep a serious tone. We improvise.

*** The sign of belonging.**

With a white thread and a needle, one of us embroiders a simple sign on her clothes. When finished, s/he offers the others to be included by embroidering the same sign on their clothes.

*** Improvised sculpture.**

We build a sculpture in the middle of the space with what is surrounding us. We look, change, discuss and try to find a title for it.

> *Participating reariters have to leave the self-centred reflective habits of the classical writer (Haraway) and accept the posture of a simple component who will never have an overview, but can share in a dialogically reariting through one another with the hard-and-software. This engenders creative and unexpected "outcomes," and can be called in the words of feminist materialist philosopher Karen Barad a "cutting together-apart" of new knowledge. The author becomes part of an apparatus, and is at the most a co-creator of text. She assists in an event that allows for diffractive moments (Braidotti et al.) – that is, "a mapping of interference," which take her out of self-reflexivity, out of systemised subjectivity, out of a world that only reproduces what it knows*

> *already into an intra-active diffractive worlding (Palmer and Hunter). The author is this intra-action itself. The author is not "dead" as such (Guez and Vargoz). He has just changed his nature. The machinic author reveals herself as queer.* (Abrahams and Guez, 2019)[6]

* **Weaving.**

Some of us learn to weave a web by entangling with a crochet hook different coloured strings. When the time is up, there is a turnover and others are invited to continue to explore and expand the web.

* **The blindfold.**

A non-frontal, non-authoritarian Q&A. We put blindfolds over our eyes and walk around. We ask if someone needs explanations — if someone has questions.

* **Connected silence.**

A connection without words and eyes closed. We also don't move. Everyone can participate, but one can also watch in silence.

* **Challenge launched by the audience.**

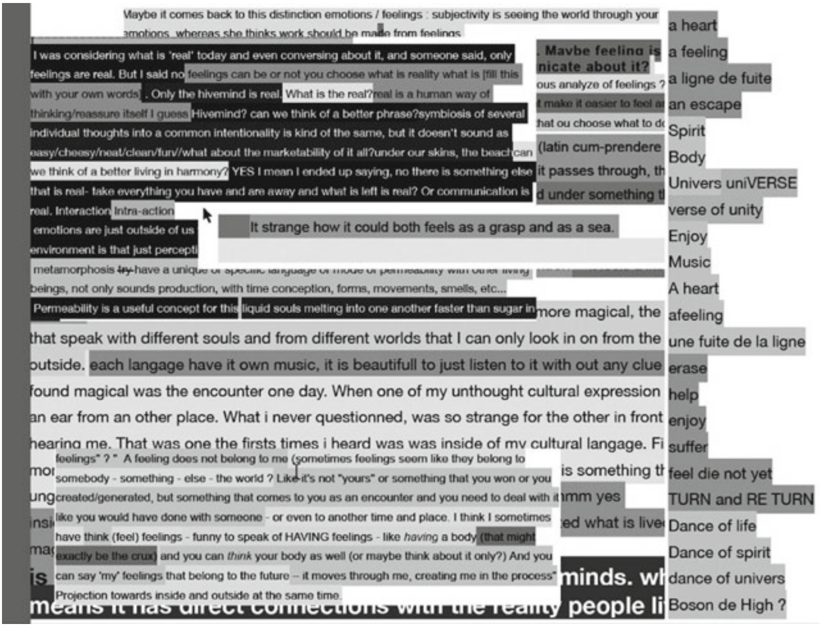
Everyone is invited to come up with a challenge. When someone proposes something they must be ready to participate in the challenge themselves.

* **Surprise.**

We also prepare challenges that have not been discussed before (Fig. 6).

How to Make Objects Talk? (Free Writing, Free Reading)

> I was awarded Customer Service of the year 2019. **wallet** There is always a starting situation that can be repeated indefinitely, but on its basis new combinations, always new, can occur. **spoon**Normally I show my right side



Maybe it comes back to this distinction emotions / feelings : subjectivity is seeing the world through your
emotions, whereas she thinks work should be made from feelings
I was considering what is 'real' today and even conversing about it, and someone said, only
feelings are real. But I said no feelings can be or not you choose what is reality what is [fill this
with your own words] . Only the hivemind is real. What is the real?real is a human way of
thinking/reassure itself I guess Hivemind? can we think of a better phrase?symbiosis of several
individual thoughts into a common intentionality is kind of the same, but it doesn't sound as
easy/cheesy/neat/clean/fun//what about the marketability of it all?under our skins, the beach can
we think of a better living in harmony? YES I mean I ended up saying, no there is something else
that is real- take everything you have and are away and what is left is real? Or communication is
real. Interaction Intra-action
emotions are just outside of us
environment is that just percepti
It strange how it could both feels as a grasp and as a sea.
metamorphosis ~~try~~ have a unique or specific language or mode of permeability with other living
beings, not only sounds production, with time conception, forms, movements, smells, etc...
Permeability is a useful concept for this liquid souls melting into one another faster than sugar in more magical, the
that speak with different souls and from different worlds that I can only look in on from the
outside. each langage have it own music, it is beautifull to just listen to it with out any clue
found magical was the encounter one day. When one of my unthought cultural expression
an ear from an other place. What i never questionned, was so strange for the other in front
hearing me. That was one the firsts times i heard was was inside of my cultural langage. Fi
feelings" ? " A feeling does not belong to me (sometimes feelings seem like they belong to
somebody - something - else - the world ? Like it's not "yours" or something that you won or you
created/generated, but something that comes to you as an encounter and you need to deal with it
like you would have done with someone - or even to another time and place. I think I sometimes
have think (feel) feelings - funny to speak of HAVING feelings - like *having* a body (that might
exactly be the crux) and you can *think* your body as well (or maybe think about it only?) And you
can say 'my' feelings that belong to the future – it moves through me, creating me in the process"
Projection towards inside and outside at the same time.
is something th
mmm yes
ed what is live
minds. wh
people li

. Maybe feeling is
nicate about it?
ous analyze of feelings ?
t make it easier to feel a
hat ou choose what to do
(latin cum-prendere
it passes through, th
d under something t

a heart
a feeling
a ligne de fuite
an escape
Spirit
Body
Univers uniVERSE
verse of unity
Enjoy
Music
A heart
afeeling
une fuite de la ligne
erase
help
enjoy
suffer
feel die not yet
TURN and RE TURN
Dance of life
Dance of spirit
dance of univers
Boson de High ?

Fig. 6 A collage of six reariting sessions during the Open Publishing Fest, May 20 and June 17, 2020. With Annie Abrahams, Yolande Brener, Emmanuelle Gibello, Alice Lenay, Danielle Imara, Marie Muzerelle, Marie Julie, Mathilde Gentil, Alix Desaubliaux, Benjamin Efrati, Pascale Barret, Lucie Desaubliaux, Ienke Kastelein, Gwendoline Samidoust, Enrico Floriddia, Clyde Chabot, Jatun Risba, Sophie Fitzpatrick and Molly O'Leary. Sessions based on an excerpt from "Creative Propositions for Thought in Motion" by Erin Manning

and you? **triangle** Move away from the abstractions that take us away from the real problems of life. **tablecloth** A minute of silence in a conversation is a lot, isn't it? **plastic teat** Hold on to it, and never lose sight of it: it's a useful knowledge. **matches** The critter is not a pretext or a metaphor, it is the surprising support of a lesson of optimism in a hopeless world. **hair bulb** From the mud, dung, dung, from the time of the dung, feet in the dung mud. It resists the disorder! It forces, It pulls, It maintains itself at all costs, It will never give up. **teabag** Every word takes me away from you... **an orange** Let's perform our mistakes. **lucky charm** Sometimes there are misunderstandings between names and things. **nails** A flower that crackles **sponge wrapper** I think that with this quote and your answer, we are imitating exactly the process. **paperclip**Answering the question "What to do?" is also asking: "How to think?" and "How to imagine?" **lightbulb** There are no more visible worlds than invisible worlds. **hammer** I don't need the sun anymore, I sleep in a cage, I learned to read in the dark **lead ore** only words accompany me, at least those that are not eaten or forgotten **apple** de guerre lasse **fork** First of all, realize clearly what you really see with your eyes. Describe to yourself the shape, the colour and all the other attributes of this seed, and then move on to the following thoughts **dust** Why do you always speak in riddles? **softball** I'm not sure I got it all. **cream** Bits of ignorance floating with the images; they shelter the images we love, preserve their flavour, their charm remains whole, outside the too vivid clarity of explanations. **critter** I love all objects I think, really all but I prefer those that are on the scale of the hand. No, this is someone else's. **token** The combination is lost, the lock is broken. **frame** What are you holding on to? **wifi dongle** We must learn to live / we will have to live in the ruins - and mushrooms. **piece of pie** The good conduct would push us to be more rigid than a machine. Let's perform our mistakes. **cup curtains** I believe that it is often a question of the angle of view, things are not as solid and fixed as we think.

Conclusion: What Has Been Left Out? (Self-Criticism?/2021)

After reading Murris and Bozalek's article "Diffracting diffractive readings of texts as methodology" we ask: Shouldn't we reformulate our methodology as propositions, as gestures that point to a potentiality? We might do that later on. For now, we acknowledge the influence of this article on the writing of this chapter (Murris & Bozalek, 2019).

Shall we talk about…?

Shall we talk again…?

We need to talk about care! And what do we mean by "kindness"?! Are there limits to the kindness we claim to exercise?

And what about politics? Do we ever point to re(s)pons/abilities? Where are our thoughts on ecologies…? On moving images, feminisms, on the materiality of the tools we use, on our relation to the transistors, the hard disks, the screen, the webcam?

feelings

they are with us, here, all the time, they fuse through (Fig. 7).

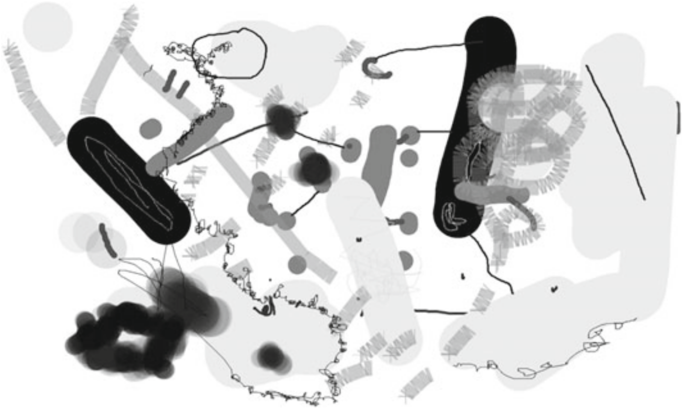


Fig. 7 “Diffraction” is a collective drawing from our flocking session on Drawchat, April 2021. The first session was held in September 2020 on the names for bird flocks. How can we flock?

Notes

1. https://senselab.ca/wp2/about/ (date 23 November 2021).
2. https://constallations.hotglue.me/?methodologie (date accessed 23 November 2021).
3. We’ve done exactly this during a “flocking session”, experimenting around the names for the flocks of birds: woodpeckers as “drummers”, eagles as a “convocation, a congregation or an aerie” and budgerigars as “chatterers”. We use a collective and shared drawing interface to imitate their movements, https://constallationsss.hotglue.me/?flocking (date accessed 23 November 2021).
4. A constellation is a gathering of stars forming an evocative, allegorical, metaphorical image. We can browse it in different directions. Each of its members is essential to it: the constellation is a projection made on entities by linking them, by transforming them into one form while its elements stay distinct.
5. “Anarchive — a repertory of traces of events. The traces are not inert, but are carriers of potential. They are reactivatable, and their reactivation helps trigger a new event which continues the creative process from which they came, but in a new iteration” (Manning, 2018).
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Reimagining Methodologies of Reading

Harriet Plewis

Reading Room: meeting the universe halfway was an experiment in expanded reading: a 'co-translation' of a text (Karen Barad's *Meeting The Universe Halfway* [Barad, 2007]) from page to space. It was a collaboration, stretched over a 7-week workshop process. The artists working on the project were Grace Denton, Victoria Guy, Alice MacKenzie and Nicola Singh. The group was invited to participate by me and was made up of artists with whom I had collaborated prior to the project. Over the course of the 7 weeks we undertook exercises and improvisations that allowed us to work through and with the complex ideas presented in this text. We collectively crafted and built the environment in which the text was translated and performed. We worked between the hours of 10am and 6 pm, Monday to Friday (Figs. 1 and 2).

The activities that took place within *Reading Room: meeting the universe halfway* were numerous. They involved the slow but steady growth of a collective reading practice, exercises that attempted to develop understandings of the text via different portals (shared conversations, the making of objects), and a considerable amount of body and

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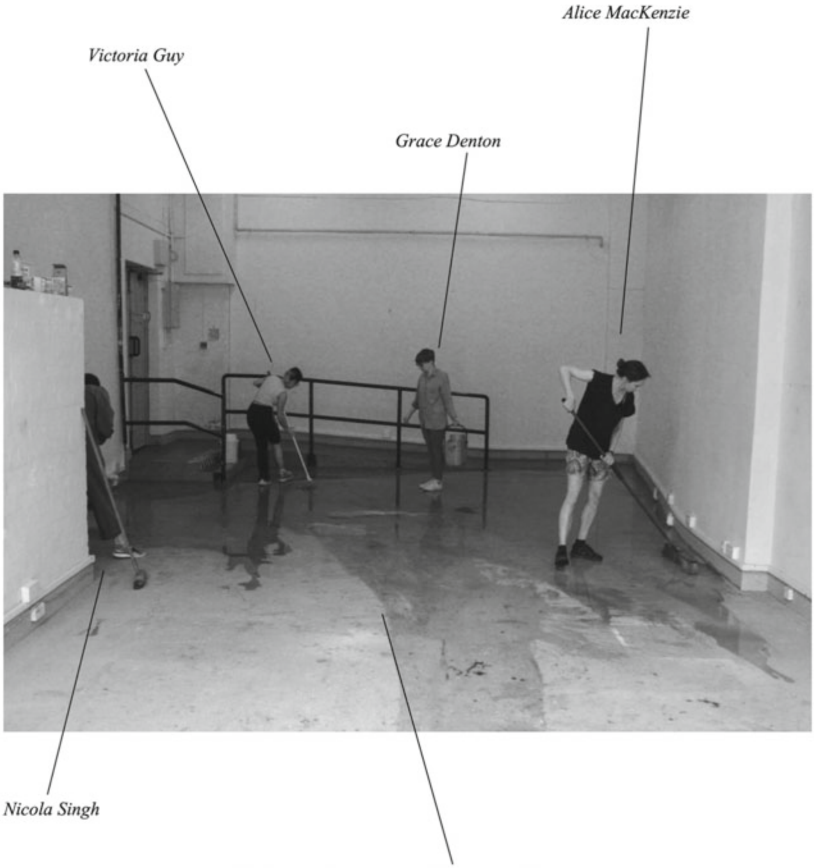
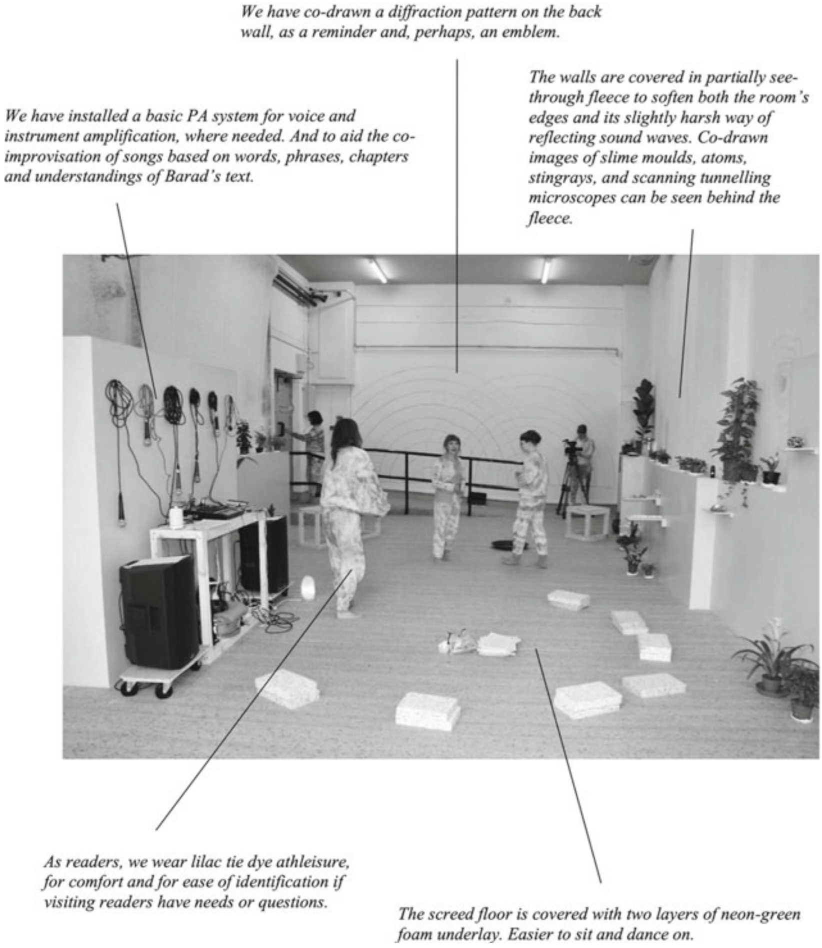


Readers begin preparing the space: a former architect's office in the Eagle Building, Sunderland. The floor is a royal blue screed, unforgiving underfoot, slightly pitted. The walls are magnolia. There are numerous power points.

Fig. 1 Photograph of Nicola Singh, Victoria Guy, Grace Denton, Alice Mackenkie

listening work. As we worked, we kept an eye on the environment of the room itself, looking for clues as to how to adapt it so that it reflected the knowledge we were taking in and the ways in which we were doing so. This 'temporary venue', was open for a further week during which time we were joined by the artist and filmmaker Deborah Bower. This



We have co-drawn a diffraction pattern on the back wall, as a reminder and, perhaps, an emblem.

We have installed a basic PA system for voice and instrument amplification, where needed. And to aid the co-improvisation of songs based on words, phrases, chapters and understandings of Barad's text.

The walls are covered in partially see-through fleece to soften both the room's edges and its slightly harsh way of reflecting sound waves. Co-drawn images of slime moulds, atoms, stingrays, and scanning tunnelling microscopes can be seen behind the fleece.

As readers, we wear lilac tie dye athleisure, for comfort and for ease of identification if visiting readers have needs or questions.

The screed floor is covered with two layers of neon-green foam underlay. Easier to sit and dance on.

Fig. 2 A photograph from 'Reading Room: meeting the universe halfway'

final, public, week saw us open up the room to visitors and invite them to become co-readers of the space, of this temporary venue that we hoped contained, via its atmosphere, the text of *Meeting the Universe Halfway*. Our desire for the space of *Reading Room: meeting the universe halfway* was that it would fittingly house, via its dangling threads, the poiesis that we were concerned with bringing to bear, namely that of the *doing* of philosophy, the *doing* of expanded reading. In this way, the resultant room could be said to bear a family resemblance to the SenseLab in Montreal, founded in 2004 by Erin Manning to dedicate itself to 'the practice of the event'. If the SenseLab avoids 'defining itself in a formal organisational structure' and instead asserts itself as a space where the process is emphasised over 'deliverable products', *Reading Room: meeting the universe halfway* similarly wished to wind its co-creators and visitors into a methodology, into a 'process itself', that would be its product (Manning and Massumi, 2014).

Over the course of the final, public week, the participants of *Reading Room: meeting the universe halfway* shot footage of proceedings. This was edited into 7 separate films (*atom, tunnelling, slime mould, pfiesteria piscicida, crystal, diffraction, stingray*), each corresponding to a weekday.

A series of books were also produced. The specificities of the various exercises, improvisations and intentions that went into the gradual building of this approach to expanded reading were outlined therein to give flesh to a methodology that we hoped could thus be understood in concrete terms, rather than abstractedly. They also facilitate a hoped-for use of our methodology and ideas by other practitioners, to provide, in the words of Erin Manning and Brian Massumi, a possible 'book of techniques' (Manning and Massumi, 2014).

In *Reading Room: meeting the universe halfway*, we were attempting a performative exhibition. We were suggesting a pedagogical approach that performatively acknowledged, absorbed, and drew on the presence of others (and not only human others), rather than relying on the expert performance of an individual to 'teach' us the correct interpretation of the text. In this way, we were making the case for a diffractive, feminist pedagogical approach to exhibition-making *and* pedagogy-in-motion. The space that we made (school, gallery, living room) was a space where people could stay but also a space that didn't preclude leaving. *Reading Room: meeting the universe halfway* didn't need audience-visitors but it could absorb them. In this way, its aim was to operate within a Baradian construct of agential realism, constantly working and re-working the potential relationships between visitor—reader—wanderer—onlooker, (not to mention between text—space—object—bodies) rather than treating them as fixed and discrete entities. It was this aspiration to offer a non-binary exhibition that we hoped prompted questions about current pedagogical practices and perhaps opened up ways of being and doing differently in both practice-based scholarship and in research that negotiates liveness. We were hoping to co-conduct this research via what Braidotti would term the 'embrained body' and here we were looking to acknowledge the non-conceptual body, particularly, in Sara Ahmed's words, that which makes the body itself 'possible and which limits its actions' (Ahmed, 2008).

We were asking:

> Is it possible to co-create an exhibition that behaves like a workshop, a venue, a laboratory and a performance, and as a site for expanded reading?
>
> Could this new, heteroclite exhibition form be responsive, flexible and shapeshifting, particularly in terms of the relationship between 'artist' and 'attendee'?
>
> Could complex texts be approached and absorbed in ways that departed from standardised methods of pedagogical dissemination, particularly by the express creation of an atmosphere in which to experience them?

The discoveries of this multimodal investigation critiqued the notion of the researcher as a lone practitioner arriving at a 'unique contribution to knowledge'. They suggested the possibility for a movement away from a reliance on what Griselda Pollock terms the 'canons of imperialism' and their attendant narrowing of access to the academy (1999, p. xv). [A1] They also suggested a differential attention, a taking into account of that which is often overlooked when evaluating whether or not the feted 'new knowledge' of academic research has, in fact, been brought to bear. As co-creators, we were keen to read in such a way as to 'make a difference in the totality of the spaces we call knowledge' (1999, p. xvi) and, as such, we became interested in a rhyparography of *Reading Room: meeting the universe halfway*; the trivial, unworthy or 'sordid things', the 'everyday subjects' of atmosphere creation. For our purposes, a rhyparography was the focus on specific details within the co-devised room that came to be the exhibition of *Reading Room: meeting the universe halfway*. These included details of surfaces, seemingly insignificant concepts, particular tools, facial expressions, props, and fabrics. To reference these is bound up with the desire to account for the work on its own terms, to ensure that what gets spoken about is the phenomena (and I use the word carefully) that came to matter; in the dual (Baradian) sense of becoming physically present and also being of value. There is a need to be faithful to the constituents that made up the learning environment (for such it was) of *Reading Room: meeting the universe halfway*. To place a focus on what may ordinarily be left out of an evaluation of the places in which we practice pedagogy: feelings, textures, colours, membranes, stretches, slight shifts in temperatures and the presence or absence of eye contact. This type of attention to detail requires a diffractive reassessment of the scale at which phenomena come to matter as well as a reassessment of the utility of the scale itself.

It could be argued that science, philosophy and the arts follow different rule systems. Such positions could consequently claim that one should not mix up one with the other, but treat them as well-defined regimes with their own 'inner' systematic logic: a philosopher should respect the set of rules constitutive for the regime of philosophy, while an artist should respect the set of rules constitutive for the field of art. After living at close quarters with Barad's writings for over 2 years I can better appreciate the ways in which it is necessary not to treat disciplines as if they had hard-edged borders, with no potential for porosity. To diffractively read knowledges through one another might mean that we come to a point at which it is less possible to pinpoint 'first principle' answers as to what belongs to who, what issued from what. Rather than remain anxious about preserving any sanctity of form, *Reading Room: meeting the universe halfway* was eager to explore the poiesis that is possible when a generative approach is fashioned, one that privileges the reading of disciplines *through* one another, without the burden of proof being assigned to any one disciplinary adherence.

Reading Room: meeting the universe halfway wondered if thinking more broadly about reading might concomitantly affect the ways in which we come to appreciate different ways of knowing and learning. Carrying out this research I noticed a tacit assumption about the kind of labour it is necessary to undertake in order to gain access to knowledge, and by 'labour' I mean, in this context, reading. To make the case for an expanded reading approach, I will borrow words from Barad in '*On Touching—The Inhuman That Therefore I Am*'. Barad's contribution to feminist science studies has been significant for the way in which she places an emphasis on a multisensory approach to learning and teaching. Below, where she says 'feminist science studies', I am substituting 'feminist pedagogies'. I feel that this description is the closest I have to a justification for such an approach:

> I am struck by the intimacy of feminist science studies' engagement with science. Immersion, entanglement, visual hapticity, ciliated sense, the synesthetic force of perceiving-feeling, contact, affective ecology, involution, sensory attunement, arousal, response, interspecies signalling, affectively charged multisensory dance and re-membering are just a few of the sensuous practices and figurations at play in feminist science studies. (Roosth, 2012, p. 154)

As a practice-based response to the sovereignty of the solo researcher and their 'unique contribution to knowledge', the intention behind *Reading Room: meeting the universe halfway* was, after Barad, to do 'collaborative research, to be in touch in ways that enable response-ability'. Thus the nature of the research and the hopes for it necessitated a permissive approach; a generous expansion not just of the act of reading but of the apprentice complex and the notion of necessary prior labour, whereby we allowed ourselves not *necessarily* to have read texts previously regarded as foundational. In this way, we gave ourselves (reading) room to question the assumed supremacy of the foundational texts that are often presented as the coping stones of British art school education (2012, p.155).

To this end, *Reading Room: meeting the universe halfway* drew on techniques of body and listening work. These practices helped us key into a differential way of paying attention to (and reading) the ideas being brought forth by Barad's text.

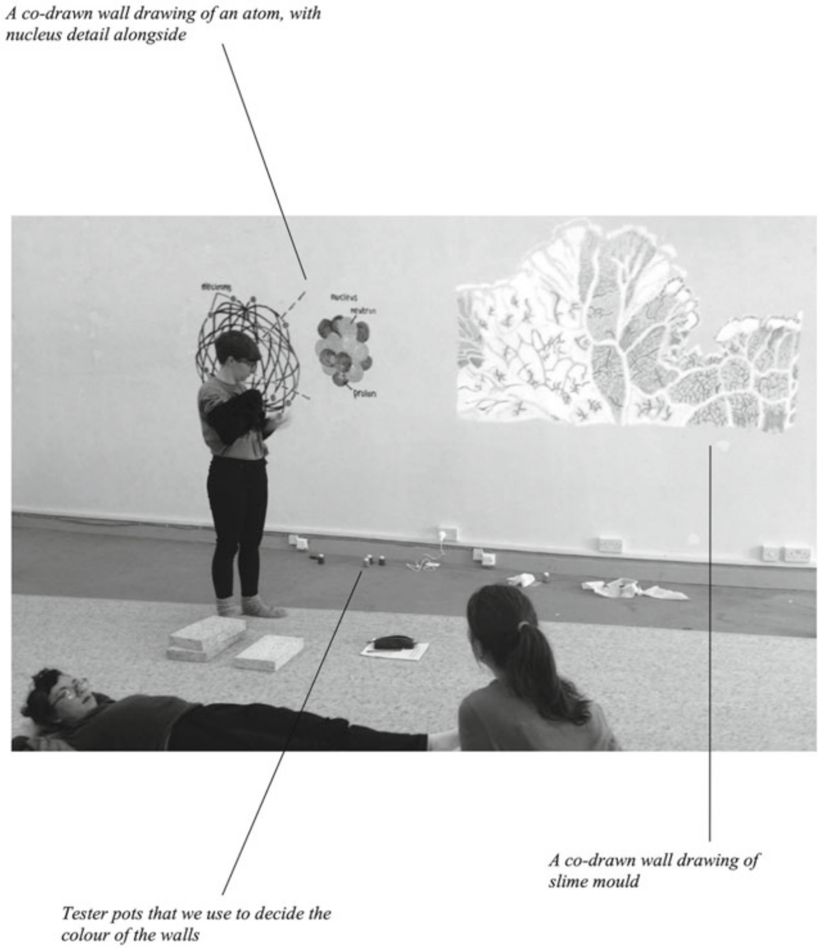
From a bodily point of view, two techniques that aided this 'drilling down' were Skinner Releasing Technique (SRT) and the Franklin Method (FM). SRT is an 'experiential, intuitive approach' that takes into account 'not just the physical body, but the energies that move through and around us' (Skinner Releasing Institute [Online] Available at: http://www.skinnerreleasing.com/aboutsrt.html [Accessed 30 Jan 2022]). SRT asks us, via physical exercises, stretches, the placement of hands-on-bodies and guided movements, to remain attentive to the way in which our bodies are responding to the context in which they find themselves. In the words of Barad, it provides ways into noticing 'what is happening on this specific factory floor' (Barad, 2007). FM, similarly, asks us to remember that our 'whole body is part of a symphony of coordinated movement'. In a manner that chimes with Barad's intra-related way of approaching matter, its production and signification, FM posits that our 'posture is reinvented at every instant. In every moment, the ideal (sic) combination of limbs, joints, gravity, moving parts, connective tissue, and muscle must be found…' (Franklin, 1996). That this 'ideal combination' is arrived at by a meticulous series of visualisations that exist in language but serve to better understand the body's history and future, seemed to us a fitting way of wedding language to the body that would feel emancipatory as opposed to potentially paralysing.

Similarly, we turned to the listening practices of Pauline Oliveros to support our reading work. Pauline Oliveros's Deep Listening is 'a practice that is intended to heighten and expand consciousness of sound in as many dimensions of awareness and attentional dynamics as humanly possible' and it is to this omnidirectional attention to the macro and the micro, as well as everything in between, that *Reading Room: meeting the universe halfway* aspired. Oliveros's meaningful differentiation between the verbs 'to hear' and 'to listen' where 'to hear is the physical means that enables perception' and 'to listen is to give attention to what is perceived both acoustically and psychologically' was a guiding principle when attempting to broaden, and fashion anew, our definition of the verb 'to read'. Could we, like Oliveros, set in motion a methodology that encountered the 'vastness and complexities' of Barad's text in such a way that enabled us to be connected 'to the whole of the environment and beyond'? (Oliveros, 2005).

Part of the intention behind this investigative approach was to make a case for a move away from (or, rather, to the side of) the logocentrism that endures within academe. If, as Irigaray has it in opposition to Heidegger, 'silence will no longer be that which has yet to come to language, that which is still lacking words or a sort of ineffability that does not merit interest from language' then our experiments with finding bodily and aural (and silent) ways into a text that reframed the idea of a lack when dealing with/out language could be said to be generative of a theory (Irigaray, 2008, p. 5). Rather than imagining that this work could be carried out in a pre-linguistic silo, the hope was to contribute to and enrich language-based practices by exposing a joining line. To return to Irigaray: 'to claim that nothing would be there where the word is lacking means to deny the existence of the other and of that which remains unspeakable where two worlds join together' (Irigaray, 2008, p. 5). And if worlds can diffractively join together across their borders to create new spaces, in a manner reminiscent of the neologistic compound concepts often coined by philosophy (Derrida's *différance*, Lacan's *want-to-be*, Barad's *spacetimematter*), then perhaps a philosophy that is translated and performed could be said to broaden out both access to its wisdom and the means by which that access is granted. In addition, there was a challenge embedded within the attempt to translate this seminal and complex text into an atmosphere: could one of Barad's central theses that the past is quite literally never left behind be supported by a process that saw a group of artists imprint a book onto an atmosphere? And could a re-working of the atmospheres in which we traditionally absorb knowledges re-fashion those histories from below? It felt as if we were enacting Barad's statement that 'the fantasy of erasure is not possible, but possibilities for reparation exist' (Dolphijn and Tuin, 2012) (Figs. 3, 4, 5, and 6).

In many ways *Reading Room: meeting the universe halfway* was an act of translation. In the words of Stengers and Despret in *Women Who Make A Fuss*, a text 'written in the original language, which is not the language of any of the translators, brings them all together, presents them all with a problem which obliges them to activate the resources of their own language' (Stengers, 2014). *Meeting the Universe Halfway* is not written in the first language of our group, who were quantum physics non-affiliates, but it is this obligation to pooling our resources that I was looking to prompt.

There was the feel of a working laboratory during *Reading Room: meeting the universe halfway* that also resonated with concerns of Barad. There was a tangible sense of ideas being worked through in a haptic mode and the collaborative relationships that developed, as well as the relationships to learning, were rich and especially fitting for a book that is an impassioned yet calm repudiation of the idea of sovereign knowledge. It was interesting to me that we were proposing and attempting to execute an attitude to a making process that bears a resemblance to Barad's argument for a subject embedded in context: namely that context and subject are inextricably linked and co-informative. And the creation of a tentative hybrid or, indeed, heteroclite space that could function as part performance/part venue/part laboratory feels, to me, something that could serve as a non-standard, but still useful, translation. This act of translation could easily have been clumsy and ill-advised but I choose to view the operation that we undertook as being prompted by love and constituting an act of homage. There was a necessary peeling off of the author's fingers. Perhaps there are those who would prefer a oneness to be left intact but maybe that is the role of the archivist rather than the artist? And perhaps once a text has been typeset, the only respectful thing to do is to cut it up in order to interrogate it, without an excess of deference (or anxiety of influence) for its author? Or, as Barad herself has it in *New Materialisms: Interviews & Cartographies*, in relation to her mentor/co-worker across space time matter, Nils Bohr:



A co-drawn wall drawing of an atom, with nucleus detail alongside

A co-drawn wall drawing of slime mould

Tester pots that we use to decide the colour of the walls

Fig. 3 A photograph of a co-drawn wall drawing of an atom with nucleus detail alongside

> I am neither looking to Bohr's work as scripture nor to somehow be the "un-dutiful daughter" to Bohr. But to read various insights through one another and to produce something new, new patterns of thinking-being, while at the same time being very attentive to what it is that Bohr is trying to say to us. (Dolphijn and Tuin, 2012, p. 58)

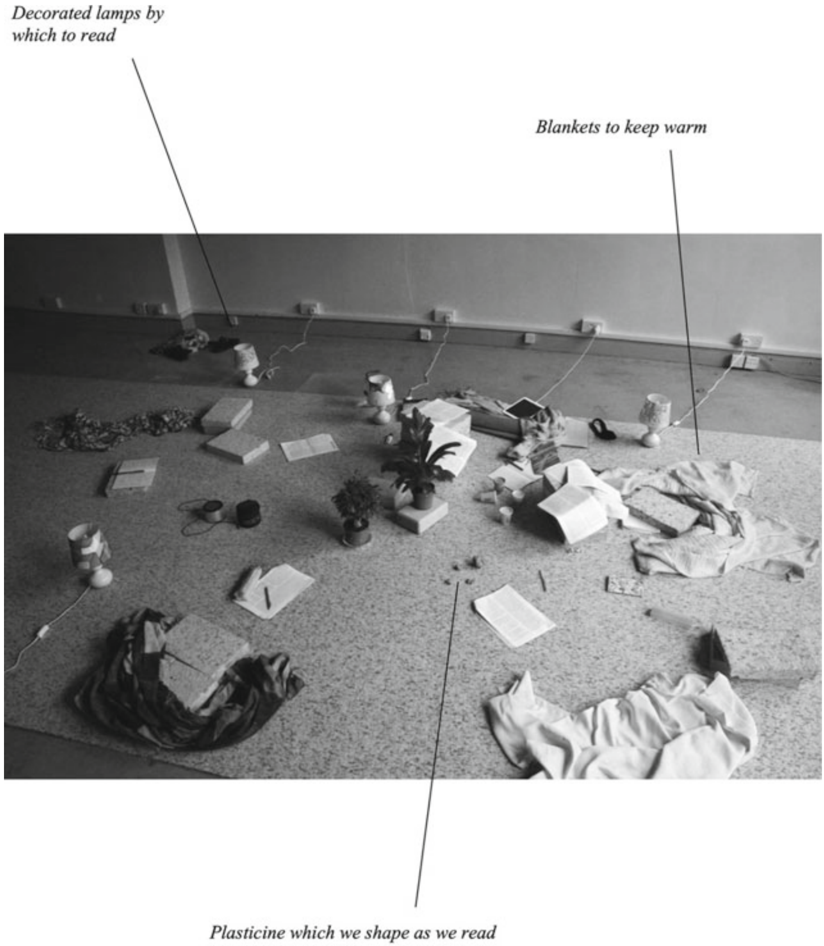
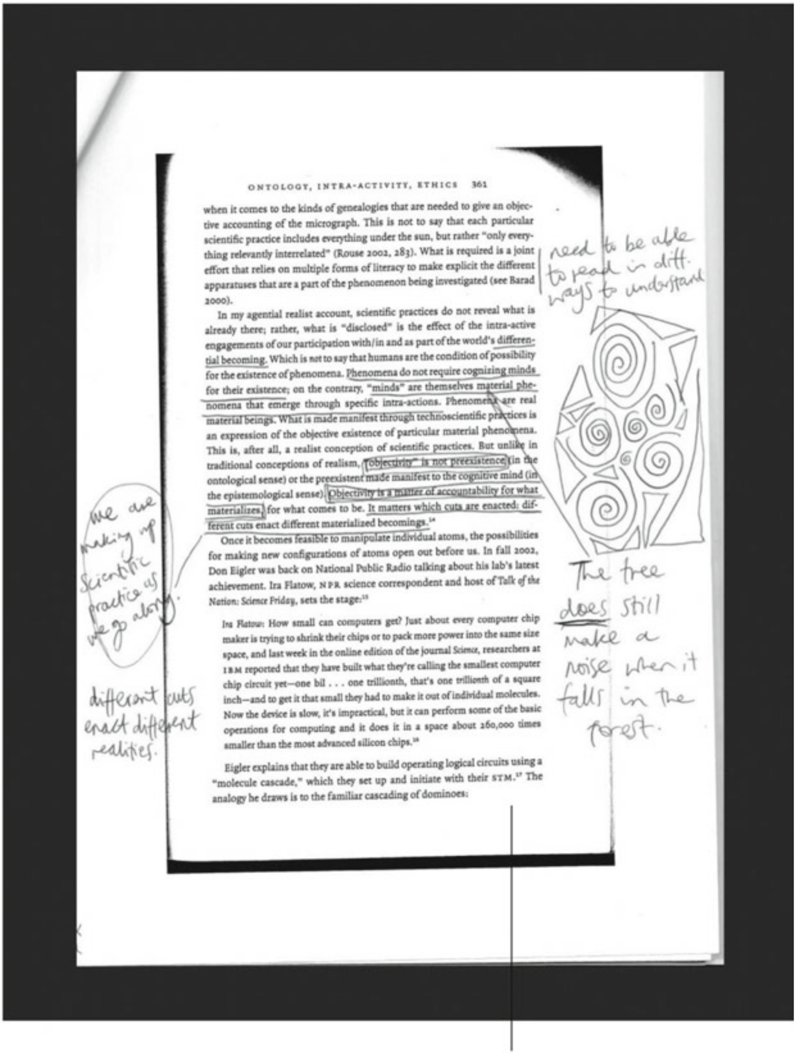

Decorated lamps by which to read
Blankets to keep warm
Plasticine which we shape as we read

Fig. 4 A photograph of decorated lamps by which to read, blankets to keep warm, and plasticine

We were attempting an act of cross-medium translation to hope to find out more about *Meeting the Universe Halfway* than we might have been able to had we simply read it 'to' ourselves.



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when it comes to the kinds of genealogies that are needed to give an objective accounting of the micrograph. This is not to say that each particular scientific practice includes everything under the sun, but rather "only everything relevantly interrelated" (Rouse 2002, 283). What is required is a joint effort that relies on multiple forms of literacy to make explicit the different apparatuses that are a part of the phenomenon being investigated (see Barad 2000).

need to be able to read in diff. ways to understand

In my agential realist account, scientific practices do not reveal what is already there; rather, what is "disclosed" is the effect of the intra-active engagements of our participation with/in and as part of the world's differential becoming. Which is not to say that humans are the condition of possibility for the existence of phenomena. Phenomena do not require cognizing minds for their existence; on the contrary, "minds" are themselves material phenomena that emerge through specific intra-actions. Phenomena are real material beings. What is made manifest through technoscientific practices is an expression of the objective existence of particular material phenomena. This is, after all, a realist conception of scientific practices. But unlike in traditional conceptions of realism, "objectivity" is not preexistence (in the ontological sense) or the preexistent made manifest to the cognitive mind (in the epistemological sense). Objectivity is a matter of accountability for what materializes, for what comes to be. It matters which cuts are enacted: different cuts enact different materialized becomings.[14]

we are making up scientific practice as we go along.

Once it becomes feasible to manipulate individual atoms, the possibilities for making new configurations of atoms open out before us. In fall 2002, Don Eigler was back on National Public Radio talking about his lab's latest achievement. Ira Flatow, NPR science correspondent and host of *Talk of the Nation: Science Friday*, sets the stage:[15]

> Ira Flatow: How small can computers get? Just about every computer chip maker is trying to shrink their chips or to pack more power into the same size space, and last week in the online edition of the journal *Science*, researchers at IBM reported that they have built what they're calling the smallest computer chip circuit yet—one bil . . . one trillionth, that's one trillionth of a square inch—and to get it that small they had to make it out of individual molecules. Now the device is slow, it's impractical, but it can perform some of the basic operations for computing and it does it in a space about 260,000 times smaller than the most advanced silicon chips.[16]

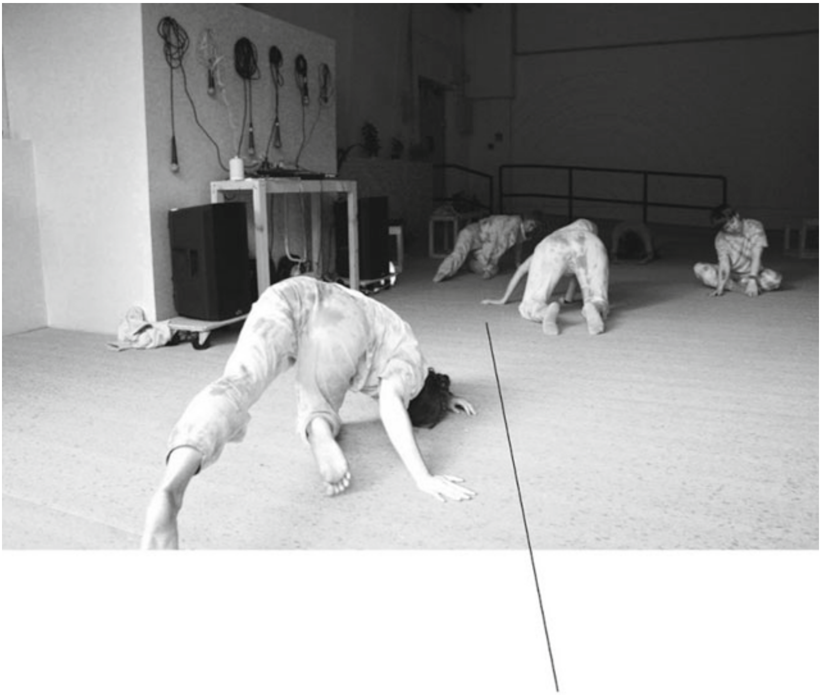
Eigler explains that they are able to build operating logical circuits using a "molecule cascade," which they set up and initiate with their STM.[17] The analogy he draws is to the familiar cascading of dominoes:

The tree does still make a noise when it falls in the forest.

different cuts enact different realities.

A photocopied page from Meeting The Universe Halfway, with marginalia by a reader

Fig. 5 A photocopied page from Meeting the universe halfway, with marginalia by a reader



We move through readings of Barad's chapters, accompanied by Sissy Nobby's 'Lay Me Down' (L-Vis 1990 Remix)

Fig. 6 A photograph from the public week of 'Reading Room: meeting the universe halfway'

Could a healthy disregard for the finitude of a philosophy or of a book mean that new readings are discovered as amalgams of our ethico-onto-epistemological status as readers? Is this the newness that could be born if we were to take an 'extraordinary liberty' to the reading (or per-forming) of philosophy?

A divination that prompts a setup where movement, music, discussion, and making seek an equal footing. An incontrovertibly live and diffractive reading.

The act of reading *Meeting the Universe Halfway* in this collective way was, for me, an experience devoid of the habitual sense of having misspent my reading time amassing the 'wrong' frames of reference. Here I was allowed in, unconditionally. Barad writes about the inseparability of what is being measured with the method chosen for measuring. She articulates and combs out the inherent entanglements that define what comes to matter, how the world worlds itself. This enfolding of intention and outcome, of form and function, was an integral part of our approach to *Reading Room: meeting the universe halfway*. How could we make a piece of work in the form of an exhibition that contained an iterative understanding of itself as it unfurled, as a staged world worlded itself? An approach that married its methodological approach with the content of the book?

In this way, the desire to give shape to this notion of expanded reading entailed designing and building a pedagogical framework upon which to hang the term (and its concomitant entangled system), both theoretically and practically. As a result of investigating this line of enquiry I experienced the slow dawning realisation that a large part of the pedagogical and exhibitive system we had been developing and researching hinged on the creation of atmospheres; atmospheres that were conducive to this new practice of expanded reading as they themselves could be 'read'. And read in such a way that they contributed to the reading of the text in question. Due in part perhaps to their insecure ontological status, the study of atmospheres is underdeveloped. I am grateful for the work of Gernot Böhme, the academic lynchpin of atmospheric research, for adding formal words to the field we found ourselves in. As well as acknowledging Böhme, I also owe a debt to Gaston Bachelard in his use of the phrase 'to read a room'. However, it was sooner my hasty misunderstanding of his phrase that led, in part, to the focus of this research, rather than an homage to my understanding of what Bachelard actually meant. In contrast to Bachelard's references to 'reading a room', the objective of *Reading Room: meeting the universe halfway* was not to investigate the ways in which rooms and the poetics of space have been read or written about in literature and philosophy but to stay with the concrete and to focus on the conditions under which certain atmospheres might appear: to identify and investigate what Böhme would term the 'generators' of an atmosphere. Indeed, contra to Bachelard's statement of intent in *The Poetics of Space* that it is *not* a question of describing houses, or enumerating their picturesque features and analysing for which reasons they are comfortable, I was keen to do exactly that: to analyse the material ways in which an environment could provoke an atmosphere and, simultaneously, make a firm case for that atmosphere (the diffraction pattern created by numerous essays) as persuasively constitutive of the possible conditions for knowledge absorption. It is in this way that I was hoping to set in motion a 'reading' of a room via its different constituent parts and factors. To draw on and invoke the multiple definitions of the verb 'to read'; to interpret (as in to read a book), to discern (as in to read a look), to obtain data from (as in to read a disk), to glean (as in to read a situation).

What I find particularly interesting about atmospheres from my current vantage point is their relationship to Barad's work and the ways in which she discusses how things 'come to matter', a play on words that, as mentioned above, she frequently employs to remind us of the duality of both how things come into material existence and how certain things are valued (matter) more than others. She talks about the indeterminacy of matter; the fact that it does not have the boundaries that we commonly perceive it to have. Of course, when we perceive a shared reality we perceive boundaried objects but, as Barad explains, on a material atomic level this clearly isn't the case:

> You may think you are touching a coffee mug when you are about to raise it to your mouth, but your hand is not actually touching the mug. Sure you can feel the smooth surface of the mug's exterior right where your fingers come into contact with it (or seem to) but what you are actually sensing, physicists tell us, is the electromagnetic repulsion between the electrons of the atoms that make up your fingers and those that make up the mug. (2012, p. 155)

Matter is indeterminate and shifts as a result of the way in which it is measured, as a result of the way in which it is perceived. This fact has a close relationship to Böhme's position that atmospheres are 'the common reality of the perceiver and Perceived' and 'are nothing without a being feeling them intersubjectively' (2017, [A1] p. 19). It is also proximal to Jane Bennett's case for matter (including matter not considered discernible to humans) as 'lively and self-organising' (Bennett, 2010, p. 10). For us, as a working group for *Reading Room: meeting the universe halfway*, the assertion that atmospheres cannot be separated from the persons emotionally affected by them and could be referred to as 'subjective facts', provided a useful base layer from which to construct a room that inculcated an atmosphere. An atmosphere that facilitated a non-standard reading of a text dealing with this very issue. As the nature of the research perforce made it a collaborative endeavour, as mentioned above, the authorial voice and the notion of authorship itself necessarily becomes slightly more diffuse. As well as being inherently per-formative, it prompts the question: who created this atmosphere? How do you accurately measure something of which you are inextricably a part? How do you make yourself sufficiently distal or peripheral to what is taking place in order to measure it 'properly'? Is the idea of achieving sufficient distance to measure something 'properly' even desirable, let alone achievable? [A2] Do you have to surrender yourself to the expediency of getting your hands dirty? Do you, as Barad states, have to 'work the equipment, theoretical and experimental, without any illusion of clean hands'? (2012, p. 154) How do you evidence an atmosphere?

Böhme talks about 'tuned spaces' or spaces that have an 'emotional tinge' (2017, p. 64). This invocation of space-as-musical-instrument leads me to wonder: what pegs do you need to turn and in which direction in order for you to get the right 'note' within an atmosphere? This tuning was a large part of what we were trying do with *Reading Room: meeting the universe halfway*, as we changed it from an ex-architect's office into an exhibitive domestic space where a new approach to learning and reading was perhaps possible. And it was this domesticity that came to be of interest to me when thinking post hoc about the work. I have now understood that a crucial point to note when discussing the ways in which *Reading Room: meeting the universe halfway* was, essentially, the attentive co-creation of an atmosphere, is that these above-mentioned factors or 'generators' combined to create an atmosphere that encouraged staying, that occasioned an engaged bodily relationship to its surroundings and, as a result, to the material being read.

In this way, part of the impetus behind *Reading Room: meeting the universe halfway* was to set the project up as an antidotal space that workshopped an approach to reading that I felt I could not find within the historically white supremacist patriarchal atmosphere of the Academy (I had not yet come across the invaluable work of the Women of Colour Index Reading Group). [A3] If there was ever any notion of starting out with something to 'prove' (and this does not really do justice to the way in which the experiment of *Reading Room: meeting the universe halfway* was established) then a hypothesis would consist of the conjecture that a collective of individuals, employing their affective and artistic labour, can very well parse and produce knowledge without appealing to a higher, or central, authority; without the anxiety of influence providing its habitual blanket of self-censorship. Central also to *Reading Room:*

meeting the universe halfway's unstated aim was that this method of knowledge production would honour and delve deep into forms of exchange that, traditionally, have been excised from standard ways of reading and researching; (including but not limited to) anecdote, lived experience, feelings, presentiments and bodily knowings. [A4] If feminist and radical pedagogy also exists as a process for applying theory to practice and vice versa, within the context of knowledge production, then *Reading Room: meeting the universe halfway* was extending this premise to the production of an exhibition mode and space, as well as a theoretical contextualisation of this space 'from below'. A fair amount of our discussion and work in *Reading Room: meeting the universe halfway* centred on our curiosity over the ways in which both we (and the authors we were working with) lived our lives. This put me in mind not only the ways in which feminist pedagogy is not simply about 'learning the theory and applying it in a classroom, but is also, more importantly, a way of living both professionally and personally' (Crabtree et al., 2009). bell hook's commitment to the material relevance of her teaching approach, communicated by her statement in *Teaching to Transgress* that her students 'rightfully expect that my colleagues and I will not offer them information without addressing the connection between what they are learning and their overall life experiences' also felt particularly heartening in this context, making, as it does, the case for a non-alienating connection between reading and its application to a shared reality (hooks, 1994, p. 57).

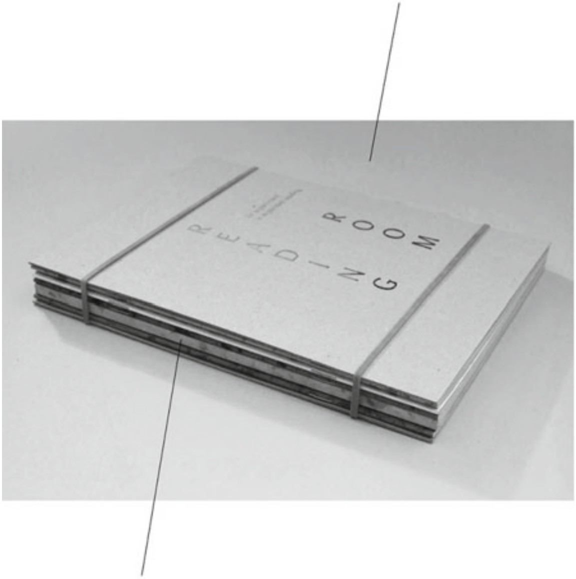
To a large extent, *Reading Room: meeting the universe halfway* was concerned with the things that 'become part of the atmosphere'. It has been a significant pedagogical shift for me to become wholly aware just how purposive and persuasive atmospheres can be and also how instructional. To labour under the misapprehension that atmospheres simply 'are', that they represent ephemeralities that cannot be bridled, seems to me to deny how totalising they can be. And how related to systems. It has been convenient for a stultified tradition to promote the idea that totalising systems have no material effects and cannot be changed but the knowledge of what atmospheres afford and how they are co-constituted that has arisen from mounting *Reading Room: meeting the universe halfway* convinces me otherwise. Atmospheres are a mode of circulation with an indexical relationship to power that are worthy of study and experimentation, within both the realms of pedagogy and of art.

Thinking through atmospheres is productive but perhaps still assigned something of the status of a dark art. This murkiness gives rise to the trick question: how do you evidence an atmosphere? To which the answer would be: you first accept that they exist.

Above all, *Reading Room: meeting the universe halfway* was a gentle reminder to self to read disciplines through one another diffractively in order not only to coin new forms but to stay attentive to the new exigencies such a merging prompts. In the words of Manning and Massumi:

> A stone dropped into a pond produces a ripple pattern. Two stones dropped into the same pond produce two ripple patterns. Where the ripples intersect, a new and complex pattern emerges, reducible to neither one nor the other. (Manning and Massumi, 2014)

It was a proto-experiment but happenstance, intuition and desire conspired to make it a formative one. The fact of choosing and using *Meeting the Universe Halfway* as the text to test out this proto-methodology has entailed the devising of a system of expanded reading that somewhat negates, by its very nature, the need to use a pre-defined system. It (almost) obviates the need for a methodology! Or, rather, what has emerged is a cannibalising methodology that advocates and prioritises deep listening and careful, loving attention to detail so that the appropriate approach can be given the requisite space, time and matter to float to the surface. *Meeting The Universe Halfway* was not a text chosen because I identify as a New Materialist. The choice was more arbitrary than that. But it was an extremely fortuitous choice. Unbeknownst to us and to it, Barad's book became the ur-text via which we developed our difference-attentive methodology. It gave us the confidence to 'make the road by walking' as Friere and Horton might say. To try to read the intra-acting diffractive patterns thrown up, to stay with the trouble, after Harraway, and to listen closely for the next best step. However, as a result of this work, I have also understood something about bordered binary systems. They are easier. They are less exhausting. They fit much more readily into a late capitalist conception of the world and how it treats time and history. The enactment of a per-formative agential realism, which demands a careful setup that then cedes in favour of whatever is consequent, requires patience and loving attention. It is not possible to neatly sum up the pleasures and pitfalls of this approach to co-authorship

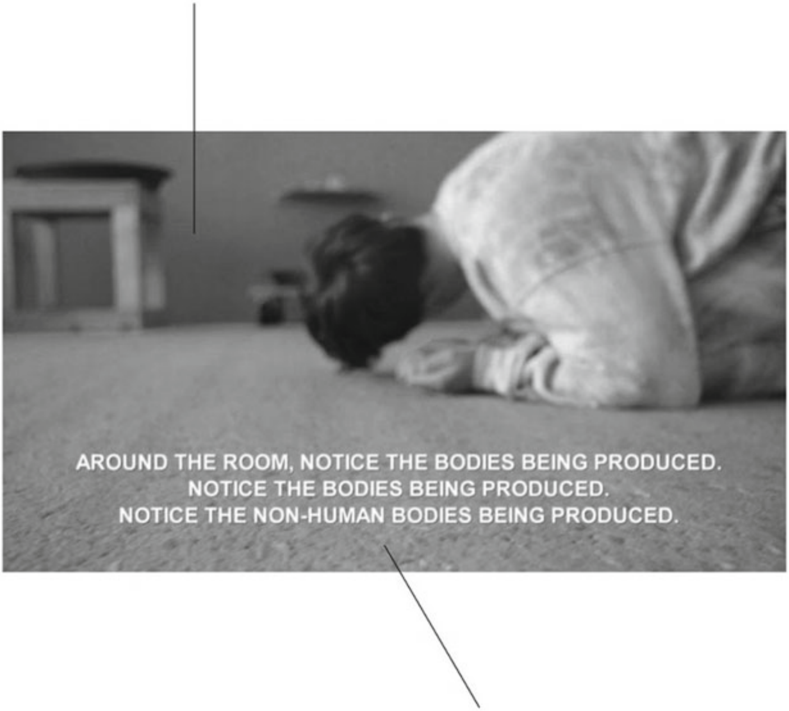


The 'book of techniques' that is produced after Reading Room: meeting the universe halfway at the Eagle Building, Sunderland has closed

The book comprises 5 booklets: a 'mother', (which is an overview), a visualisation, a brain interview, a songbook and a scorebook

Fig. 7 A photograph of the 'Book of Techniques'

and diffractive reading but I will state that the pedagogical and exhibitive construct we were trying to set forth in *Reading Room: meeting the universe halfway* was one where both the space and the methodology were met halfway by their co-creators *and* the audience-visitors. [A5] We wanted to do all that we could to situate both the readers and the visitors in a 'situation of great intimacy with the world' and with the work. This, it turned out, was the research. Discerning, providing, and listening for the 'right' conditions and materials so that half the journey is possible, so that the people you are encountering can meet you halfway (Figs. 7 and 8).


AROUND THE ROOM, NOTICE THE BODIES BEING PRODUCED.
NOTICE THE BODIES BEING PRODUCED.
NOTICE THE NON-HUMAN BODIES BEING PRODUCED.

The walls of Reading Room: meeting the universe halfway are painted a light peachy orange. The paint's trade name is 'Warm Days'

A film still from the film Reading Room: meeting the universe halfway. Here we are moving through the scores we have written in response to Chapter 6: Spacetime Re(con)figurations: Naturalcultural Forces and Changing Topologies of Power

Fig. 8 A film still from the film Reading Room: meeting the universe halfway

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Troubling Terrains of Diffractive *Re*-readings: Performing Transdisciplinary Re-matterings of Music, Mathematics and Visual Art Materiality

Pamela Burnard and Carolyn Cooke

In this chapter we offer a diffractive re-reading which can be considered a type of *transdisciplinary creativity* that radically re-situates, and indeed deconstructs, forms of new knowing, re-seeing and re-doing, that extend the interconnectedness of artistic practice and artistic research. We encounter the material and discursive simultaneously through co-creative diffractive *re*-readings, drawing on Donna Haraway (1997, 2016) and Karen Barad's (2007, 2014, 2015, 2019) writings of diffraction as optical metaphor, method and practice that pays attention to the "relations of difference and how they matter" (Barad 2007, p. 1) We engage with speculative musings on acts of jazz performance by Miles Davis as he diffracts the same musical material for different potentialities. We also muse on

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the productive promise of co-creative diffractive re-readings of Math-ArtWorks by young South Africans (Burnard et al., 2020), challenging the subject–object divide of mathematics and visual art. As researchers, we work on multiple levels through re-readings of these musical and mathematical art materials as mutually constituted through multiple, diffracted re-encounters and come to re-see the blurring, embodiment and intersection of artistic practice and research as a performative methodology. In this chapter, we put to work French philosopher Catherine Malabou's concept of 'plasticity', which she describes as referring to "the spontaneous organisation of fragments" (Malabou, 2010, p. 7).[1] This spontaneity of networks, collaborations and elements helps us rethink the relationality of different disciplines as boundary crossings, and what this means for transgressing disciplinary boundaries and the capacity of those boundaries to take and give new forms or collaborations with the non-dichotomous doings of artist *and* researcher. We also interrogate the lines of intersection between the terrains of artistic *practice-as-research*. This space of possibilities clears the path for changes that are not abstracted from the disciplinary world, but immanent in it. Using diffraction as a de-territorialising process which deliberately creates spontaneous 'meetings' across and between forms, we conclude with a rhizomatic form which illustrates how entwined diffractive re-readings can bring about new performative creativities.

FIRST TERRAIN: TROUBLING DUALISMS OF ARTISTIC PRACTICE AND ARTISTIC RESEARCH

If artists focus on the ontological supposition of 'becoming' (Braidotti, 2019), how is this captured diffractively in artistic research?[2] Artistic practices produce particular worlding material performances that incorporate embodied movements and produce particular intensities of "making with" (Haraway, 2016, p. 58, further theorised in Murris & Bozalek, 2019).[3] The artist's identity drives artistic practices of becoming/embodying art(s) that constitute and are constituted by a diffractive creation process. What then do artists and researchers do that connects and materialises as artistic? Artistic researchers offer theorisations of artistic engagements with places, people, histories and practices that invite explorations of complex affects. Artists, according to Hickey-Moody et al. (2016, p. 217), connect these roles to the diffractive motion of dance, which "allows pasts to fold back into presents in unexpected ways, bodies

… to become other than who they have been, and corporeal forms [to change] physically and emotionally". It is this plasticity of 'form', the movement of "dancing into the unknown" (Barbour 2018, p. 79) involving the reshaping, remoulding and resetting of materials, ideas and self (as expressed through and with the body), that allows the spontaneity of 'meetings'—a multiplicity of engagements—and creates the momentum of artistic practices. This onto-epistemological 'becoming' with the moments and momentum of artistic doings, as evidenced in the physicality of performing music, painting or drawing, or making-with materials or language, involves the openness and 'response-ability' (Haraway, 2016) of a 'body-mind' (Murris, 2016) to what is forming. This view of 'form'—not as a container made by pre-existing, predetermined constraints abstracted from self—is significantly different from many research forms (as structures, material organisers and ontological ways of being 'researcher') that we, as lecturers in Higher Education, encounter in our work (see Weaver & Snaza, 2017; Lather & St. Pierre, 2013). So how *should/can we shake this dualism* between artistic practice and artistic research? How do we create spaces to perform spontaneous engagements within Higher Education, troubling existing, methodologically 'fixed' forms, and come to see the actualisation of artistic practice as a meeting-point of multiplicities in artistic research?

In this chapter we feature a research assemblage of music, mathematics and visual art materiality. These disciplines are often linked to separate discourses/narratives in formal education across all sectors, from Higher and Further Education to Early Years, where they are traditionally experienced as siloed or territorialised as distinct disciplinary subjects. The primacy of disciplinary knowledge is argued to continue two features: 'generalisability' and 'universalisability' (McPhail & Rata, 2019). In this chapter we put to work a *transdisciplinary re-seeing* of artistic practice and research to dismantle these dominant discourses (and myths). Employing diffractive analysis as a form of 're-reading', creates the conditions for a pluralistic, multidirectional "propagating outward" (Barad, 2007, p. 76) beyond/across/within disciplinary boundaries. Barad is particularly interested in how disciplinary boundaries are (re)made within transdisciplinary research apparatus. With this focus, we move towards a recasting of disciplinary knowledge and show the salience of transdisciplinary dialogue between mathematics and art, where practices and knowledges *merge* through diffractive re-readings.

Like artistic research, artistic practice offers a combination of past and future in the present moment, along with new understandings of how, when and where we are "making-with" each other and the world rather than merely creating representations of "reality" (Barad, 2007, p. 139). Using diffractive analysis, we seek to de-couple the specific language of a discipline from its original context to open up new possibilities for making-with disciplines. Transdisciplinarity de-territorialises creative practices, producing a new type of transdisciplinary creativity, and generates new ways in which making-with becomes an experiential, exploratory, generative activity. Disciplines can thus be untangled to make new, posthumanist re-seeings of the potential for decentring the human and recognising the role of more-than-human elements, shifting our notions of materials from inert things waiting to be manipulated by human skill and control (Ingold, 2009) to active "ontological heterogeneous partners" (Haraway, 2016, p. 17) engaging with us in "material-discursive" practices of becoming-with and experiencing-with (Murris, 2016, pp. 6–7).

This chapter takes up the feminist new materialist concepts of *diffraction* and *diffractive analysis* as way of enquiring into the *ontologies of difference* and *relationality* that underscore the interconnectedness of practice and research that scholars routinely work with, particularly when trans(disciplinary) mattering involves musical enunciations and gestural composition, in which the physicality and kinesis of playing are central to the sonic result.[4] What this means is that repetitions of pitches (i.e., motives and phrase of a melody) are **mutated into rhizomatic diffusions**. These diffusions of doing/theorising/conceptualising become sites for contesting disciplinary boundaries or exclusions (Sandford, 2015). They are a "generative and productive way of knowing—and mattering—that are more multiple, complex, and discontinuous than the master/dominant discourses of White, Western, colonial patriarchy" (Taylor et al., 2020, p. 5), and therefore, in both practice and research, are generative sites at which to "become in-tune-with" (Taylor et al., 2020, p. 5) in order to re-see, re-hear and re-sound these pitch patterns and passages in relation to aspects of the world that can be classified as human and nonhuman (musical instruments, objects, spaces, silence, technology).

By employing a new materialist lens, we show how a transdisciplinary diffractive re-reading of music, mathematics and art materiality becomes a reading of doing diffraction differently. As mentioned in the opening paragraph, this chapter offers a re-reading that can be considered a type of *transdisciplinary creativity.* Why? Because we radically re-situate, and indeed deconstruct, forms of new knowing, re-seeing and re-doing, through an extension of the interconnectedness of artistic practice and artistic research.

The data theorised in this research assemblage is drawn from the findings from two separate projects; each addresses 'transdisciplinarity' but navigates the postqualitative, new materialist, posthumanist terrain differently. One explores the salience of silence in music performance practices (Burnard et al., 2021) and the other how mathematics and art produce transdisciplinary practices (Burnard et al., 2020).

In the first project, we challenged that which we thought we had already rethought. Silence is more than the absence of sound, content or meaning (de Visscher, 2014): silences can mark the beginning and end of musical phrases, disrupt and enhance musical flow, and be tangible presences. Composers and performers have an acute, often intuitive awareness of this relationship, and there is evidence from music psychology that as listeners, we perceive musical notes in relation to the silences that shape them (Margulis, 2007). In the intra-action between performers, and between performers and audiences, silence also has social significance, and its value is affected by where a performance takes place. Composers write in silences to guide how performers should play, and performers use them to great effect, sometimes creating a distinct authorial voice. Yet the relation between sound and silence in music performance is under-researched and under-theorised. To understand its complexity, we addressed the productive differences between performance and composition in both physical and virtual presences, investigating the role(s) silence plays for composers, performers and listeners. The study (Burnard et al., 2021) explored the multi-dimensional nature of musical silence, drawing attention to the role it plays in establishing an authorial voice. What interests us now is understanding how the relation between silence and sound can affect intensities of differing temporality, spatiality and texture and how it impacts the audience's perception and the sensing of its relational activity in music performance. Applying a diffractive analysis of silence in relation to sound could provide performers with greater support to find their authorial voice and embrace the sound world with a holistic attentiveness to our entanglement with nonhuman things.

The second project pays attention to the entanglement and blurring of the boundaries and connections between mathematics and art, and attempts to understand the authoring of transdisciplinary creativity and describe the normative and affective impressions this leaves upon creators and spectators (learners and teachers). For example, Leonardo da Vinci's celebrated drawing of 'Water Falling Upon Water' (Fig. 1) is not a realistic snapshot of a jet of water but an attempt to "elaborate on several types of turbulence caused by the impact of the jet" (Capra, 2007, p. 195; see also Capra, 2005, 2002). It is the form of water—its changeable, diffractive dynamic shape—and the shifting boundaries of perception that provide the focus of da Vinci's drawings, which are never realistic renderings of a single instance, but a synthesis of repeated observations through which he attempts to craft a theoretical model.

Karen Barad describes the physical phenomenon of diffraction: "the disturbances in the water caused by each stone propagate outward and overlap with each other, producing a pattern between the overlapping wave components" (2007, pp. 76–7). Diffraction, therefore, is predicated on motion, where everything is constantly intra-acting with everything it entangles itself with. Barad continues: "The waves are said to interfere with each other, and the pattern created is called an interference or diffraction pattern" (2007, pp. 76–7). To pay attention to the patterns that are created and how they have come about, whether through interferences between wave patterns or amplification of waves as they come together to create a larger wave, is to 'trace' differences made as a result of this constant, diffractive 'pushing outwards'. This process of paying attention to plural encounters and resulting patterns involves processes of re-reading, as one reading is insufficient to be dynamically *with* the diffractive process. Diffractively *re*-reading a music and maths art case *with* each other creates different types of motion (of both artist/researcher/text/ideas and materials) allowing the relational, the embodied and the material to surface and make-with the texts.

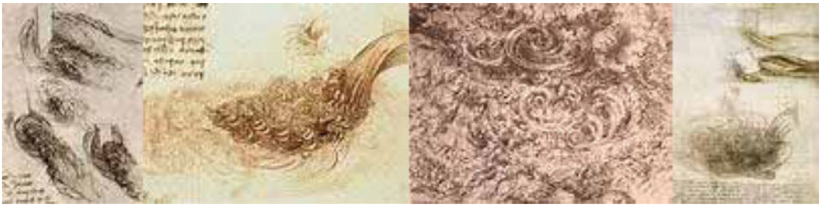

Fig. 1 Images for Leonardo da Vinci's Drawing 'Water Falling Upon Water'

As mentioned earlier, perception, in art as well as in science and mathematics, is different from ‘reception’ (as in the process of registering stimuli from an external reality). Perception is very much an active shifting of our own attention to the world, as in the original Latin ‘ab-tension’ (to draw something or somebody towards). The awakening of creative intelligence is what enables science to understand both the world and the human nature from which that science was first generated; human creativity is thus central to putting forth new sensory orders and structures that form new perceptions. An aesthetic engagement, in this regard, is the act of making sense of the sensorial relationship being established with and in the world (Bergmann, 2018).

Artistic creativity, because it is not subject to purposive, language-bound rationality, can give access to aesthetic experience and to much of the systemic wisdom re-linking us with our context. Similarly, scientists’ work is rooted in the individual’s own sensorial experience of the world, and such embodied experience is at the heart of the ideas, imagery and conceptions formulating their thinking (Gosetti-Ferencei, 2018). Hence, visual and aural images, kinaesthetic sensibility and sensorial elements play into the repertoire of both scientific and artistic creativities (Gosetti-Ferencei, 2018) to constitute a complete ‘feel’ for and ‘becoming’ part of the systems under study. Thinking and knowing in the arts and sciences embrace the unconscious and recursive processes upon which all scientific and transdisciplinary creativities are embedded in the natural world (Bateson, 2000).

What follows are diffractive re-readings of Miles Davis’s ‘making-with’ music, and of ‘making-with’ mathematical artworks explored as conceptual vehicles to produce new knowledge. By paying attention to the encounter and the resultant patterns and difference making, we develop a diffractive methodology that is situated, experiential, material, affective and dictated by dimensions of each discipline.[5] The ontological understanding of subjectivity is an endless process of becoming. As with Fig. 2, our analyses are never final renderings of a single instance, but a synthesis of repeated observations through which artists/authors attempt to craft a theoretical model. We see this in artist Trisha McCrae’s sensemaking of her perceptual encounters with da Vinci’s drawings, where she recognises the “vital materiality” or “material vibrancy” (Bennett, 2010, p. xiii) that runs through and across bodies, both human and nonhuman, and emerges as transdisciplinary renderings (Fig. 2).

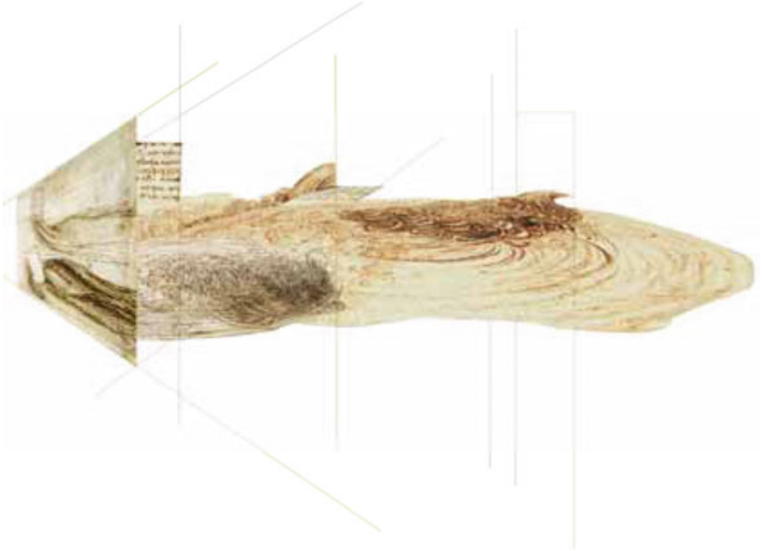

Fig. 2 Trisha McCrae's creative exchange with da Vinci, bringing to life the constant rhythms and movement that provide new insights into activating transdisciplinary renderings

The blurring of boundaries is seen not only in da Vinci's multiple drawings featuring spiral patterning, but also in his effective use of the technique of *sfumato*, which challenged the view of early modern philosophers of aesthetics that favoured 'disinterested observation' as a means of making sense of perceptual encounters with the world. Da Vinci's focus on representing what something "may appear like to the human eye" (Capra, 2005, p. 19) goes in the opposite direction, recognising and rebelliously embodying how interconnected sensing and acting are. Another such example is Cooke (2020), who explores teaching as an improvisatory act with music student-teachers, diffractively analysing sequences of improvised music and re-reading the production of sound and entanglement of bodies with materials *as* "theoretically and materially consequential"' (Gershon, 2013, p. 258). In doing this, the sounds themselves and how they are made are 'troubled' (Haraway, 2016), which in turn 'troubles' previously held concepts and understandings of relationships with the discipline, teaching and materials.

A new materialist understanding of music (and sound studies) is also offered by Finnish researcher Taru Leppänen at the University of Turku, in a study of the musicianship of a Deaf Finnish rap artist who uses international sign language and a performer/collaborator who sings in English. Through an analysis of the materialities and their affective interplay (e.g., human bodies and sound waves mediated by air/technologies), as well as Deleuze's views concerning the processes of relating to and creating in connection with Deaf cultures, beyond the territory of human hearing, Leppänen (2014), diffractively analyses the vibratory materialities of making-with sound. In another project, Leppänen and Tianien (2018) explored how materiality—or materialities—matter a great deal in trans ways of being or becoming and the unfolding of trans selves. In particular, she engaged with Derian Seesjärvi, a classically trained singer, by asking how his artistry and music-cultural field of classical singing prompt insights into the co-formations of body, voice and sex/gender in trans ways of being. In this study she asked: How can new materialist ideas embrace the emergent, instead of passive or predictable, character of matter, and the intra-action/intra-active occurring of materialities and other phenomena?[6] Other examples of diffractive analyses in music research focus on the field of gay and lesbian musicology. In *Queering the Pitch*, Cusick thinks with an "assemblage of notes that constitute the less private parts of an interior conversation among the several selves I am" (Cusick, 1999, p. 69) to expose the territorialisation of gender, bodies, musics, acts of making and the institutions which constitute musicology. At the centre of Cusick's diffractive readings are calls for an ontologically different way of engaging with music, most notably the statement that "I try to treat [music] analytically as I would be treated: as a subject who may have things to say that are totally different from what listeners expect to hear" (2006, p. 76).

Similarly, Hickey-Moody et al. (2016), exploring an interdisciplinary university course involving expressive physical movement, utilise a diffractive reading of dance as a way of resisting "the hierarchisation of one type of meaning over another" (p. 217). In doing so they illuminate the inseparability of students' bodies from their environment, exploring how diffractively reading across and between different media and boundaries creates spaces for theorising, creating and producing as a simultaneous practice. In another study, Hickey-Moody (2020) explores how primary-school children make art, using diffraction as a way of thinking that "draws attention to the agency of the nonhuman, the ways that the materials used to make art can change thinking and change relationships between people … building more than human relationships" (p. 731) and troubling practice-as-research. Insights from these studies show the relevance of new materialist approaches to performance practices of music.

Second Terrain: Transdisciplinary Diffractive Re-readings that Keep Troubling Practice-as-Research

The *dividing line that differentiates practice and research* arises from different epistemological assumptions about what knowledge is, how it is produced and what it means for it to be expressed. As Nelson (2006) argues, it was only in the Enlightenment that knowledge was specifically equated to rational-scientific forms of knowing. While the application of practical knowledge became an important part of research over a century ago, the continued presence of a positivist framework dominated by cognitive and human forms of knowledge kept artistic practices involving the body, affect, making and innovating demarcated from research. Since the 2000s, *practice-as-research* has both raised the profile of artistic/research practices (Bayley, 2017, 2018) and highlighted continuing disagreements and tensions about the purpose, role and place of arts research (Schwartz, 2011, p. xxvii). At its core, practice-as-research "entangles the complex processes involved with the making of art/performance with the making of critically robust knowledge … by thinking-through different modes of practice, including the embodied, the multiple, the experiential and the affective" (Bayley, 2017, p. 11).

Artists reflect on, evaluate, open up to and engage with 'making' and 'making-with' as a spatialised, sensory-material embodiment. As Nowotny (2011) argues, "art cannot escape … the lure of uncertainty, which is an inherent component of … research and of innovation alike" (p. xxv). Sometimes researchers use theorists to think through and across terrains of uncertainty. They invite us to be open to uncertainties of diffractive *re*-readings when performing the transdisciplinary re-matterings of discipline-boundaries.

Sometimes researchers without extensive artistic practice experience also engage with artistic research. From a position in another field of artistic research, an artist-academic might discover that practice offers new perspectives on their field(s) of interest which can only be gained through engagement with/in these different worlds. Understanding what counts as artistic research in relation to artistic practice necessitates recognising a human/nonhuman entangled phenomenon. This helps us move away from siloed discourses and the colonising binary logic which essentialises and falsely separates research and practice, science and arts, matter and meaning, human and nonhuman.

This chapter gives a flavour of how re-reading diffractively can play a part in the multidirectional human/nonhuman entangled phenomenon of co-constituted knowledge production, and the specificity of *thinking-with* and *making-with*, where material entanglements matter.

So, what are our points of departure for diffractive doings?

1. Artists, like learners, are me-searchers (Edward, 2018) *entangled with affect*, which is generative and inseparable from 'doing' when "a diffractive [re-]reading of data involves an installing of ourselves that attempts to make sense of the blurring and viscous interactions" (Jackson & Mazzei, 2012, p. 131) between practice and research.
2. Artists, like learners, are me-searchers engaged in diffractive practice-as-research encounters with complex, dynamic entanglements of *bodies, minds, matters and environments in creative relationships full of potential*. The posthumanist new materialist terrain re-configures things through the notion of diffraction as *a movement of interference* creating patterns which produce new forms of motion, blurring boundaries between practice and research. So here we ask, how does *diffractive re-reading* allow us to think-with the blurring of artistic and research practices and pay attention to generative patterns created by the diffractive re-readings?
3. Artists, like learners, are me-searchers attending to *spacetimemattering* (Barad, 2007), where "space, time and matter are intra-actively produced in the ongoing differential articulation of the world" (p. 234). The new materialist (and posthumanist) terrain offers a speculum through which we can capture the complexity of ongoing processes of subject formation and boundary-pushing. If *diffractive analysis* enables subtler and more complex analyses of powers and discourses, which start by questioning who 'we' might be and what else is going on here, then we also ask, what does a diffractive reading do in changing relationships and removing hierarchies between different music performance practices and mathematics and art practices?

4. Artists, like learners, are me-searchers involved in being *attuned to moments of unlearning/getting lost/being led*. A flattened onto-epistemology (Barad, 2007) asks questions about power and control, whereby materials, environments and bodies are equally 'vocal' within an entanglement. As artists/researchers, being able to listen with the whole body—what Lipari (2010) calls attuning as a "listening being" (p. 348)—involves relinquishing control.

All of these 'doings' for artists as researchers create different types of movement, producing multiple lines of inquiry that disrupt the linearity of a singular trajectory and 'trouble' epistemic, transactional notions of research or artistic product. Through these movements, spontaneous transdisciplinary 'meetings' occur, similar to the interference patterns created by diffractive processes, which require us to be in a state of existential improvisation. They require attentiveness to differences made (Barad, 2007) and openness to form as both taken and given (Malabou, 2012). It is here that we see a cogency between plasticity (Malabou, 2012), improvisational response-ability (Haraway, 2016) and the processes of diffractive re-reading. Paying attention to how diffraction as a metaphor, method and practice creates "relations of difference" (Barad, 2007, p. 71), we pay attention to how these differences matter through engaging in a re-reading of MathArtWorks and music performance practices. We engage in a diffractive methodology through which we allow ourselves to entangle with affect, encounter difference, pay attention to spacetime materialities, get lost and be led, by elaborating the details of one discipline (in one case, the salience of silence in music and in the other the meeting of mathematics and visual art) through another, being attuned to differences and their effects in knowledge-making practices. Here multiple re-readings are required for more creative insights and new knowledge creation, where the researcher as the knowing subject is decentred.

Diffractively Re-reading Music Performance Practices

In this section we perform re-readings of Miles Davis's music performance practice. These re-readings were enacted as diffractive analyses while listening to sound files and watching videos of performances. Our questions concern how these re-readings are produced, what we ask of the artist and what we ask of ourselves as researchers. This re-reading comes in two forms:

- **Exploring how Davis himself diffractively re-read the musical material (as me-searcher)**, and thus how it relays different potentialities in the ongoing material co-constitution between performers and performance. Different attunements lead to multiple performances as different ways of "thinking with" (Haraway, 2016, p. 5) the whole body, a trumpet, other beings, sound and silence, embodying and enacting "an ongoing responsiveness to the entanglements of self and other, here and now, now and then" (Taylor, 2016, p. 15). This means that Davis performed the same melody very differently each time.
- **Exploring how we (as me-searchers/researchers) diffractively re-read his performances** with literatures from posthumanism (Murris, 2021) and about other musics (see de Visscher, 2014), the doings and knowings of the body, and how interrelationality is set in motion (Taylor, 2016) to find difference.

What are the ways of knowing-doing in music performance practices that affect and move us through perceptible and imperceptible relations that involve making-with materials, techniques, other humans and nonhumans, and thinking-feeling responses? What if silence is more than the absence of sound, content or meaning (de Visscher, 2014)? We sense how silence marks the beginning and end of musical phrases. We feel its diffractive line as it disrupts sound. It can be a channel for intra-active performance opportunities between performers, and between performers and audiences. How is this troubling terrain amplified by a diffractive re-reading? What is learned by being attentive and attuned to the affective intensities and interferences between performers, the nonhuman and the embodied experience of listening to live music? How can the binary logic of sound and silence, which privileges sound over silence, be troubled? What does a transdisciplinary diffraction bring to this understanding?

'Round Midnight' is a 32-bar ballad composed by Thelonious Monk in 1943. Davis learnt the tune from Monk in 1945 and made his first studio recording of it in 1953. It became a staple of his concert repertoire until 1969 and was closely associated with him following his performance of it at the 1955 Newport Jazz Festival, which led to a recording contract with Columbia Records. We used this recording as a benchmark to compare and contextualise two live performances recorded during Davis's 1967 European tour, on 31 October in Stockholm, Sweden and 6 November in Paris, France. What if we become attuned to Davis's diffractive play of in two studio recordings?

Example 1: Studio Recording, 10 September 1956, the Consensus Classic

As the title track of Davis's first LP for Columbia Records, this version is probably the one that his audiences were most familiar with. The performance was played at a consistent tempo of 67 bpm throughout, and Davis adapted Monk's original tune, omitting (i.e., silencing) some notes of the original composition. This was a diffractive practice involving the omission of four notes at the end of the first phrase (P1). He also explored intra-actively through material-discursive experimentation, simplifying the chromatic pattern at the end of the second phrase (P2). This was a significant characteristic of Davis's authorial voice: he pushed beyond the normative boundaries of what we have come to know as a 'body' and how bodies move, act and react to silence, as well as exploring the profound effect of temporal expansion and contraction.

These ideas are made explicit in Davis's performances of a Studio (1956) and Live Recording (1967), which brought into high relief in material discourses forces at play between silence and sound.

> Miles Davis 'Round Midnight' Studio Recording, 10 September 1956: https://www.youtube.com/watch?v=GIgLt7LAZF0
>
> Miles Davis 'Round Midnight' Live Recording, 31 October 1967: https://www.youtube.com/watch?v=JpFS4O6VmVU

Here we see the extent and significance of the forces at play in the salience of performed silence in relation to sound. The main melody comprises eight bars divided into four phrases (P1–P4). Davis's diffracted use of silence is brought into high relief in the material-discursive forces at play with/in silences and sound. It occurs in multiple ways. First, by leaving out notes at the end of the phrases Davis accentuated the silence between the phrases, and second, in P2 and P4 he inserted small silences within each phrase. The rhythm section (piano, bass and drums) accompanied his statement of the theme. Why this diffraction is significant in relation to

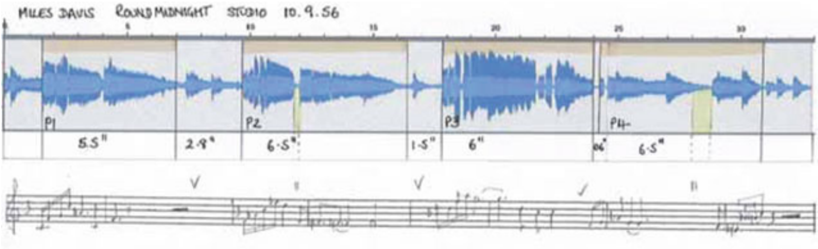

Fig. 3 Transcription and Audacity file of 'Round Midnight' studio recording, 10 September 1956, showing 'time-images' at play

the other 'various ways' silence was (and can be) troubled is attributable to moments of temporal expansion and contraction, in which different phrases of the music suggest different rates of temporal unfolding and the decay of the life of a sounded note or sonic tone. Silences can be performed as spaces that translate into rhizomatic diffusions: in other words, Davis's diffracted use of silence is what brought into high relief the dominant discursive and material forces at play within silences, which are made explicit by the play with/in/between silence and sound and the temporal gestures conveyed through the body. These offer an indication of why it is significant in Davis's play in the form of pulsed and non-pulsed times, and in the variety of temporal states that the interplay of silence and sound allows.

We have included a visual representation of the audio waveforms and hand-drawn transcriptions (Fig. 3) because, as re-readings of the musical material, they diffractively trace lines of articulation as lines of flight (Deleuze & Guattari, 2014)—as explorations of the relationality of sound and silence.

Example 2: Live Recording, 31 October 1967, Stockholm, Sweden

By the time Davis came to give his live concerts the personnel in his band had changed, as had some of the materiality of his performance practice in concerts. His performance aesthetic set new standards, making innovations that remain fundamental to small-group improvisation today.

In this example of 'Round Midnight', Davis seemed to intentionally play the theme out of tempo, very freely and accompanied only by pianist Herbie Hancock, whose subtle and remarkable improvisations filled the

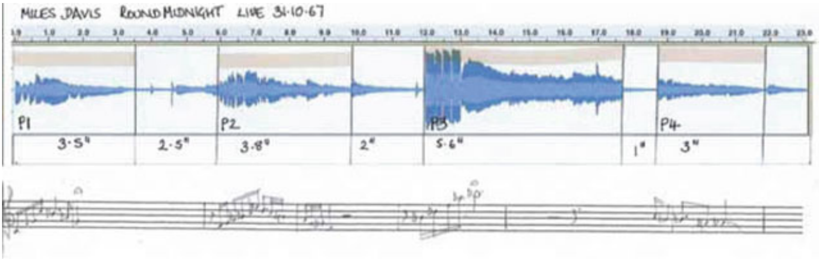

Fig. 4 Transcription and Audacity file of ‘Round Midnight’ live recording, 31 October 1967 showing ‘time-images’ at play

spaces, or silences, between the phrases by moving together/apart in intra-action. The temporal flow was diffracted—that is, there was a co-constituted movement of shifting spatiotemporalities that is visible in the transcription and sound file (Fig. 4). Shifting patterns and intra-actions of the sound–silence nexus were reordered in a line of flight through the actualisation of silence itself.

Davis’s body was inscribed with an intense, motionless suspension. The affective movement of silence—the lines of flight that moved away from dominant norms that govern how we normally hear signature tunes—was sounded through thought taking the plunge to cut apart silence with sound. He seemed to be inviting us to think-with, rather than about, the material encounter of space and time sounded, to open a space for the audience to navigate the movement of change and possibility. The performance was not static; rather, tunes and tunings attuned to exploring new configurations of the phrases of the melody. The bass and drums were tacet, waiting to come in when the theme had been played. Davis made the most of the gaps between the phrases, taking his time over the statement of the theme. On the one hand, there was a further simplification of the tune, which is particularly noticeable in P3 and P4. On the other, he embellished P3. The “infinite multiplicity” of silence and entangled relationalities that do not appear to be proximate in space and time constitute a force (Barad, 2007, p. 74) that is a re-working or ‘un/doing’ of the past (original version of the tune), and that invites us to appreciate that these entanglements (configurings) of sound and silence are relational. This creates the perception that Davis was taking his time in playing the tune; the silences suggest an openness and freedom that are emphasised by his minimal exposition of the theme. This queering of the stability of spacetime coordinates and openness to "infinite multiplicity" (Deleuze & Guattari, 2014, p. 296) presume a spatial scale where every moment 'in' time is "an infinite multiplicity … broken apart in different directions" (Barad, 2014, p. 169). This sense of holding back—of playing the bare minimum of notes, exploring the silences—contributed to Davis's aura as a performer.

Example 3: Live Recording, 6 November 1967, Paris, France

The third example, performed six days later, shows how the overall architecture and approach to the tune were adhered to differently again. The silences between the phrases established the sense that Davis was taking his time, reflecting on every note. The introduction of a small silence in P1 broke the phrase up and contributed to the improvisatory feel of Davis's playing. This addition suggests that every night the performance was different. Maybe Davis, in each re-working (performance), invited (or exemplified) a diffractive reading of ideas through another, leading to more generative 'inventive provocations'. Yet it also disrupts what it means to be a musician, or a collective and collaboration between musicians and audiences, with memories moving together 'in' space and 'through' time. In this third example, we are reminded that the past, present and future are always threaded through one another.

For Davis, diffracting his performance practice meant working with *silence acting as an embodied partner*. Silence became a material practice of the performing/sounding body 'making-with' what was happening in the moment of improvising, which generated what was new, surprising and unpredictable. This is most explicitly seen in Davis's physical movements, where he seemed to mobilise silence as an opening-up of possibilities for other ways of (un)knowing, (un)learning and (un)doing a very well-known tune. Davis was not confined by the parameters established by the composition, the 'given form' (Malabou, 2012), but rather enabled by messing with the contours of this well-known (pre-existing) melody. He was 'doing' something that cut across practice/research—diffractively re-reading the material in relation to the in-the-moment possibilities, 'making-with' the plasticity of the forms.

Davis diffracted silence as a partner who occupied space and time (spatiotemporality). The diffraction of silence interrupted *temporal flow*, allowing different, generative types of movement, attention and uncertainty. This was Davis diffractively re-reading and creating anticipation and tension within his music, which activated modalities of thought, rhythms and affects from inside the act—what Taylor (2016) calls 'thinkings-in-the-act' which "set practice in motion, so that practice becomes interference, always diffractive, multiple, uneasy and intense" (p. 19). This process of temporal flow, interruption and subsequent difference is diffractive play with the materiality of music. The embodiment of temporal possibilities and of diffractive experiments in temporality and coexistence within a given passage of diffracted rhythmic impulses (i.e., the relationality of silence and sound) that it acknowledges offer insights into diffractive pathways in performances of the musical fabric of temporality in music.

Third Terrain: Diffractively Re-reading Transdisciplinary Understanding of Mathematical Art

In this section, we re-read and diffractively re-read two MathArtWorks—student-artists' disciplinary readings of mathematics/art—from a sample of 200 (Burnard et al., 2020; Fenyvesi et al., 2019), attuned to how they themselves are entangled with becoming-with subject/knowledge.

> Annika's statement: *In my drawing I have chosen to use numberlines as numbers can go on till infinity and our hair grows continuously, non-stop, this is a comparison between the two. The numberlines as hair is representing the roots of our lives as we cannot go one day without counting or using numbers to represent or solve anything. I have drawn a little demonic girl and as you can see the numbers close to her head are small numbers, but as they go on, the numbers increase continuously and there is no end. This represents the knowledge we obtain in our everyday lives, subjects and Maths. I've used black and white because those colours are drab and my interest in Maths before was boring. The little bit of red shows my slow interest in Maths. To me Maths is like a demon slowly stealing my soul, like I'm becoming addicted to it and starting to enjoy it.*

Is this (Fig. 5) a self-portrait? Is Annika taking what she finds inventive and making-with patterns of thinking in their materiality of mathematics and art as predicated on her view of herself? Whether it is or not, she gives a performative account of the relationality of these disciplines when set in motion together. Her narrative gives us access to an inner world: the meeting with and 'othering' of the demonic girl and growing self-relation to maths multiply in acts of 'a demon slowly stealing my soul', where thinkings-in-the act set in motion her own 'becoming addicted'. Most markedly, the image appears to have been excavated from the wider materiality of Japanese manga/anime, crossing over boundaries of space-time, culture, physical location and economics: what Barad refers to as the move towards 'performative alternatives', enabling a "performative understanding of discursive practices" beyond representationalism (2003, p. 802).

Annika seeks to communicate the complex and sophisticated mathematical concepts of infinity and number sequencing, revealing a remarkable metaphoric quality and abstraction of ideas and of self (pre- and post-MathArt self, manga self, South African self, student self, math-artist self). The numberlines in the form of flowing hair create 'unending' visual registers, and the symbolism of the monotone image with its focus on one eye, hair related to 'roots of our lives' and the concept of infinity are diffracted visual codes (unending numberlines, stitched lips, red eye). But why red? Is it indicative of a growing passion, a self-demonisation, or both? The use of grey related to drabness, contrasting with one red

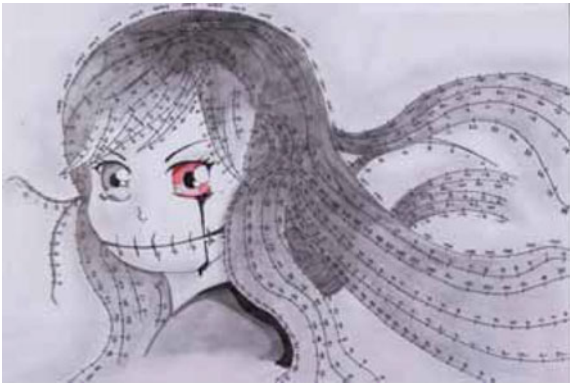

Fig. 5 'Soul Number' by Annika, female, aged 15, in Grade 10 at a fee-paying public school where the school community is from low to average socioeconomic background

eye, suggests a symbolic self-reference to Annika's developing relationship with mathematics. Her monotone shading and use of black-and-white spaces are performative, diffractive and highly complex.

Implicit in Annika's title 'Soul Number' is another diffractive practice of multiple connotations: soul music emerging from black subcultures, mathematics in music, internalisation of maths. The head and the encompassing hair are framed by numbers. Within the descriptive material-discursive matter of the statement, we see a diffractive unfolding of Annika's mind regarding the nature of mathematics and her personal encounter (and entanglement) with it. Reflecting on the ubiquitous quality of mathematics, she considers how we 'cannot go one day without … using numbers to represent or solve anything', but acknowledges that she has employed monotones as a metaphor for the 'drab' in mathematics, with the red eye wide awake in this artful expression. At first, such description and depiction of mathematics seem sinister, as she indicates the colouring of the eye signifies her interest, slowly growing to the point of possible addiction. Her embodiment of knowing offers insights into her pathways of intradisciplinary formations.

The material realities of "'being-of-the-world', not 'being-in-the-world'" (Barad, 2007, p. 160) are reducible to neither one nor the multiple. As Barad writes, "Beyond the issue of how the body is positioned and situated in the world is the matter of how bodies are constituted along with the world, or rather as 'part' of the world" (Barad, 2007, p. 160). Again, the material enactment of mathematics and art meet as a (re)configuring of disciplines in a drawing by Euclid (see Fig. 6).

> Euclid's statement: I made it clear that Mathematics could have both a positive and negative impact … we experience Math daily as measurements of our clothing; which is why you will see the right side has measurements that are in centimetres ... Clothes require accurate calculations together with the fact that our bodies are asymmetrical; which is why you see that the left side does not look like the right side ... I share my reality of Mathematics… it is interesting and effective…it can prove to be stressful especially for stressed teenagers … the slightly bowed head shows the negative impact. The hands which cover the face are an indication of frustration. The answers to the equations represent that there is always a solution. The equations appear at different places to show that there are different ways to get the answer. The two sides have different shading as indication to the positive (simple art, no shading) and negative (complicated side with

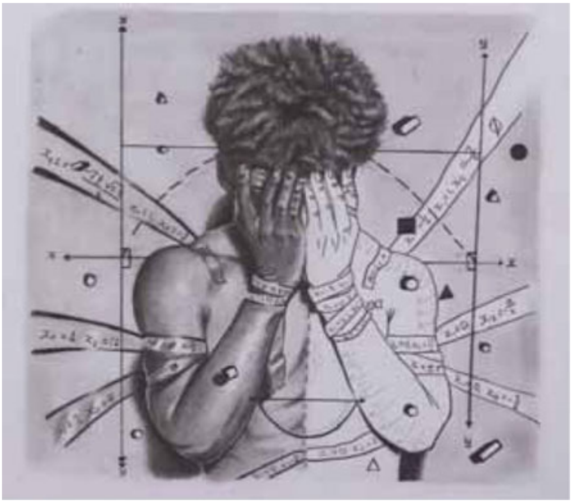

Fig. 6 'The Stressed Vitruvian Man' by Euclid, male, aged 16, in Grade 11 at a private school that facilitates learners from less privileged backgrounds and thus has a socioeconomically varied environment

> shading) influence of the subject on me. I call it 'The Stressed Vitruvian Man'. It's a modern version of da Vinci's Vitruvian Man.

Like Annika, Euclid focuses on himself—his hair, hands and body—and shares how he thinks of and experiences the consequences of mathematics education. It seems that his understanding of learning is based on an essentialist view where he is judged (and here, judges himself) in relation to his own mathematical development and progress, and status (or lack of it) as a mathematician. The monotonality reflects different shades of black with strong cultural references. The bi-tonal hands are productive of difference that comes to matter, with cultural associations of anxiety, emotions and bodily reactions which connect and take action with/in his body. He communicates stress, solemness and seriousness. Does this produce a view that normalises young people in accordance with dominant views on mathematical development?

Euclid seems not to separate mathematics from art, but to be thinking-with and -through the relational nature of mathematical concepts, expression and form. His art reveals that the human body is the seat of mathematical knowledge, and that he is a knowledge producer—making-with mathematics and art. We connect with a young man and his creative educational experience of mathematics and art, which is inscribed on his body.

What do we hear in the commentary about the learner questioning and experiencing feelings, ideas, shifts in consciousness and imagining different realities? Could he be trying to suspend disbelief and work in fictional contexts using a range of mathematics devices, dilemmas and demands? Could this be an expression of deep understandings about the need to enact and embody mathematics learning, and about his making the familiar strange inside the art 'work'? Euclid produces an account not only of the mutual production of thinking-with patterns but also of thinking-through mathematics and art, making new patterns of thought (superimpositions), deconstructing power-producing binaries (mind–body, mathematics–art) and showing how mathematics and visual art overlap and change in themselves as an intra-action of what they do and how they connect and co-constitute.

Postlude: Performative Co-Creativity as Rhizomatic

We began this chapter with a theoretical 'first terrain' and a more practical 'second terrain'. Both challenged the research-practice distinction and explored different enactments of transdisciplinary creativity (new authorings that arise in the meeting of different territories). Much space was given to diffractive *re*-readings of the materiality of music, mathematics and visual art and the functioning of practice-as-research in materialising the intra-action between the material and discursive. In creating spaces for plural *re*-readings rather than a singular reading, the texts and our thinking-with them have interfered with each other, making the "effects of difference" (Barad, 2014, p. 172) more visible, and 'troubling' (Haraway, 2016) disciplines, discourses and practices. What our two case studies say about transdisciplinary practice-research is that diffractive *re*-readings are vital to creating new knowledge and "alternative visions of both the thinking subject, of his or her evolution on the planetary stage, and the actual structure of thinking" (Braidotti, 2013, p. 170).

Re-reading diffractively has required us to do more than insert ourselves into the material production of the texts in terms of the performative practice making-with sound and silence, or mathematics and visual art. We encountered a different, diffractive methodological performativity which enabled us to produce other, unexpected interference patterns. This relied on us engaging with and across practice/research / disciplinary/transdisciplinary/ arts/sciences to adopt what Malabou describes as a "mode of being collectively or individually, that has to constantly invent itself" (Hogstad & Malabou, 2021, p. 1051), finding differences as sites of production and re-thinking.

These differences, as described by Haraway (Haraway, 2016) and Barad (2007), are most clearly identified not in and of themselves, but as the *interference patterns* created (Barad, 2003, p. 803). Across this chapter, through multiple, iterative and transdisciplinary diffractions of the materials, we have made and traced such patterns of difference through sound and image. In the music case study, it was the re-reading of sound in relation to silence, with the patterning of the body exemplifying matters of practice—the transdisciplinary combining of acts and actions which allowed patterns of interference to surface around the materialised and embodied mattering of silence across the performances. In the MathArtWorks case study, the re-reading of the visual and linguistic statements across transdisciplinary and disciplinary literatures created patterns of interference. From these diffractive processes, and the patterning that resulted (see Fig. 7), we see not only interferences but also amplifications, where diffractive waves across two case studies overlap, combine and make some patterns louder. Such soundings (or amplifications) highlight particular blurrings of artistic practice-research differencing in action. These include: the response-ability to make-with and think-with in the moment; purposeful temporal/spatial or material interruption or interference to create different forms of making and thinking; encountering as of and with the whole body, where tensions and uncertainty are moments of potentiality; and a constant 'pushing outwards' to meet and explore the world, its bodies and materials (Figs. 8 and 9).

Re-reading as a performative methodology therefore creates spaces to perform, re-form, self-form and de-form through plastic processes of becoming-with all the senses. To re-see form in this way—not as a container, shape or contour, but as what Malabou describes as a "collaboration…of different elements: shape…context, corporality, speed, colour and sense" (Hogstad & Malabou, 2021, p. 1052)—means we can never isolate or separate materiality, meaning and self.

Fig. 7 Rhizomic renderings of diffracted themes designed and drawn by Julia Flutter #1

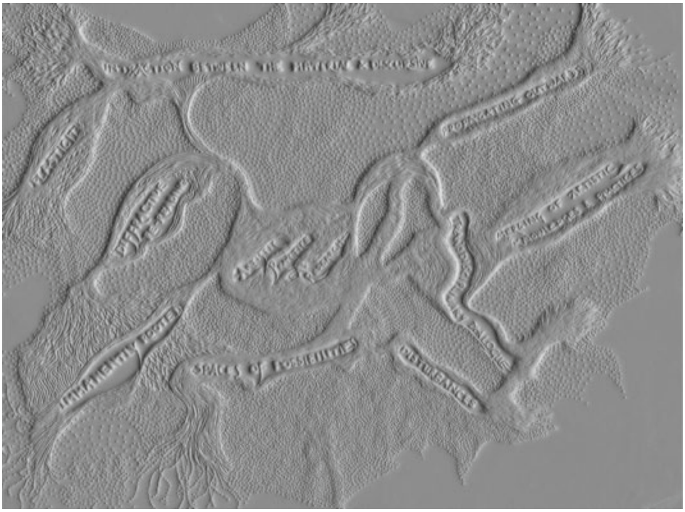
INTRA-ACTION BETWEEN THE MATERIAL & DISCURSIVE
SPACES OF POSSIBILITIES
DISTURBANCES

Fig. 8 Rhizomic renderings of diffracted themes designed and drawn by Julia Flutter #2

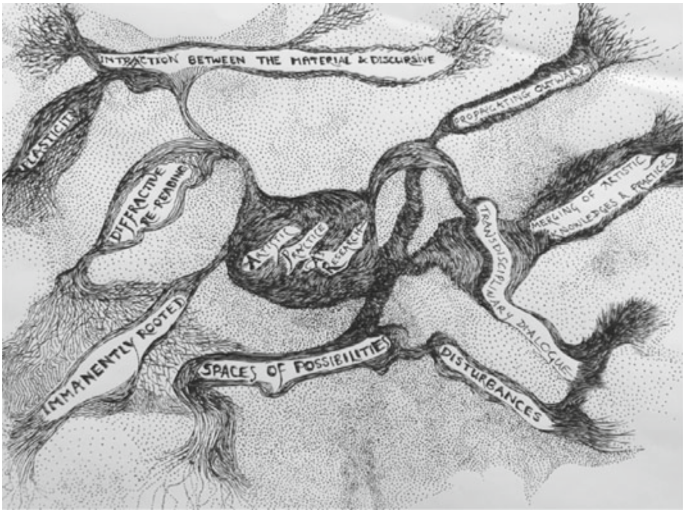
INTRACTION BETWEEN THE MATERIAL & DISCURSIVE
PLASTICITY
PROPAGATING OUTWARDS
DIFFRACTIVE RE-READING
ARTISTIC PRACTICE RESEARCH
MERGING OF ARTISTIC KNOWLEDGES & PRACTICES
TRANSDISCIPLINARY DIALOGUE
IMMANENTLY ROOTED
SPACES OF POSSIBILITIES
DISTURBANCES

Fig. 9 Rhizomic renderings of diffracted themes designed and drawn by Julia Flutter #3

Entangling matter and materiality, particularly when the deterritorialisation enables active processes of differencing in transdisciplinary knowledge-making, *is* performative.

Notes

1. Catherine Malabou is one of France's leading philosophers. The guiding thread of her research is the concept of plasticityboth the capacity to "take form (as in the plasticity of clay) and to give form (as in the plastic arts and plastic surgery)" (Malabou, cited in Street 2014)—and the possibility of a plastic ontology.
2. Braidotti (2019) describes posthuman subjectivities as involving "a materialist process ontology based on immanence and becoming" (pp. 53–54). This 'becoming' is a "creative praxis of actualisation of the virtual" (p. 54).
3. 'Worlding' as used by Haraway (2016) is an embodied and enacted process—a way of being attentive to the world with the whole person, where we engage in relentless processes of 'becoming with' a world in which "natures, cultures, subjects and objects do not pre-exist their intertwined worldings" (p. 13). "*Making-with*" is a term coined by Donna Haraway (2016, p. 58) which recognises that nothing makes itself but is

in a constant state of 'becoming' with materials, environments, bodies and constructs.

4. 'Musical enunciations' is a term coined by Stoianova (1993), who considered the working of graphic scores works and gestural compositions as non-fixed objects in favour of process, play, experimentation, multiplicity and multi-directionality, with a disregard for effacing the compositional subject and object.
5. 'Me-thodology' is a relatively new term used by Edward (2018) to explore the fluidity between researcher (sense-maker), performer (sense-making) and author (sense-theorised) in practice-led projects.
6. 'Intra-action' is a Baradian term used to replace 'interaction', which necessitates pre-established bodies that then participate in action with each other. Intra-action understands agency as not an inherent property of an individual or human to be exercised, but a dynamic force in which all designated 'things' are constantly exchanging and diffracting, interacting, influencing and working inseparably (Barad, 2007).

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Entanglements and Response-Ability in Intergenerational Performance Ecology: Part IV

Sarah Hopfinger

Reading *Wild Life* is a matter of reading neither individual humans nor nonhuman materials nor of fixed relations between them, but of reading (and taking part in) the agential movements, energies, dynamics and between of human-rock-thump-sit-child-leap-spin-drop-carry-light-smoke-billow-slide-run-wet-feet-rest. Reading as participation, collaboration, co-mingling and intra-acting (Fig. 1).

I would like to return to the idea of muddles, which I introduced in the first interlude. Part of the muddle I find myself in when writing about, or creating, performance is to do with attending to specifics—the specifics of me, my collaborators (human and not), of the hard-to-pin-down readings, ideas, experiences and concepts. At first, going into the details feels risky, difficult *and* shaky. What if I do not find anything here? What if I do not know what to look out for? What if I miss something? When I begin creating or writing about performance, the generalisations can feel more comforting: there is concreteness, more to hold on to, a sense of a fixed comfortable reading of the work. Donna Haraway helpfully reminds me that the 'details matter' as the 'details link actual beings to

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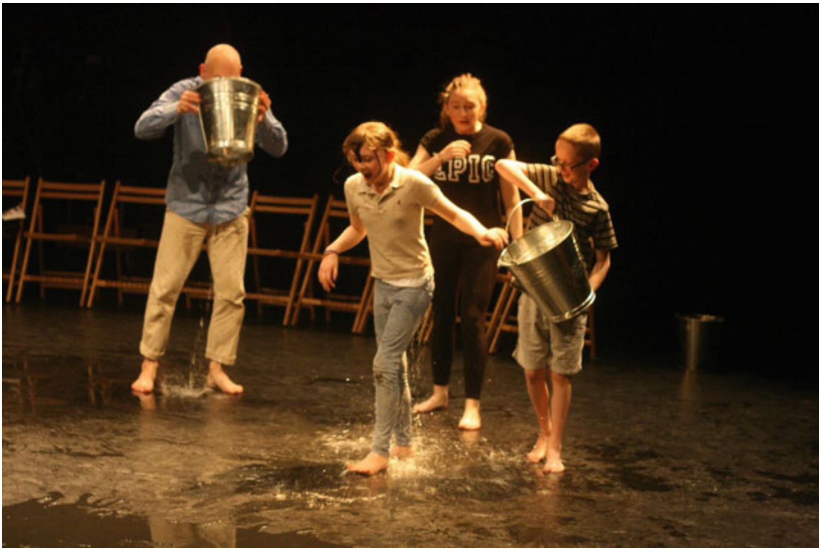

Fig. 1 Performance documentation 6

actual response-abilities' (2016, 29). Whilst focusing on generalisations arguably fixes thinking and knowledge down, focusing on the specifics *lets us in*. Going into the specifics can allow others, and other readings, to comingle—and your readings of the ideas and perspectives in this book are perhaps a case of comingling?

Doing ecological entanglement: reading as active participation in the making and re-making of knowledge.

Your practice of reading this work now is a differential extension of the knowledge-making practices of the research. For me, performance research shows how 'knowledge' is not, in any fixed sense, embedded anywhere or embodied by any *one* person or material. Rather, research and knowledge are (only ever) enacted, and can (only ever) be research-in-process and knowledge-in-the making. The creating, directing and performing of *Wild Life*, the various writing I have published about the research over the past four years including this one, and your process of reading this writing now, are all variegated practices of inhabiting and participating in the ongoing weaves of a dynamic entangled research ecology that materially travels across space and time (Fig. 2).

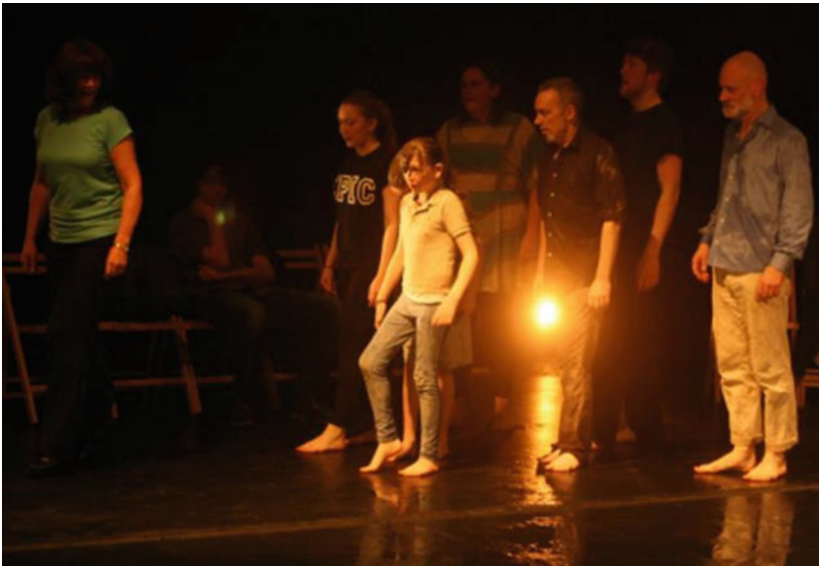

Fig. 2 Performance documentation 7

In writing these interludes I am *reading* my practice and my previous *readings* of my practice. Reading my own work—a performance, a piece of academic writing—is often an experience of becoming overly critical: I feel that, really, I have moved on from my thinking and I can feel resentful of returning to my past work. But with Barad's invitation of a practice of 're-turning' as a 'turning over and over', the process of creating these interludes has become an active, alive, kinder practice and, as a result, I think a more response-able process. *How* we think through performance matters—how we write and reflect contributes to what diffraction patterns occur and thus what knowledge emerges. Haraway's *Tentacular Thinking* shows that 'it matters what ideas we use to think other ideas. It matters what thoughts think thoughts' (Haraway, 2016, 34–5). *How* we read across different writing and research *matters*—the atmosphere and approach we (the writer and reader) take influence what kinds of thinking and knowledge emerge. Haraway further describes her approach as one in which she wants to 'make a critical and joyful fuss... [and] the only way I know to do this is in generative joy, terror, and collective thinking' (2016, 31). What if reading our own and each others' work (from within

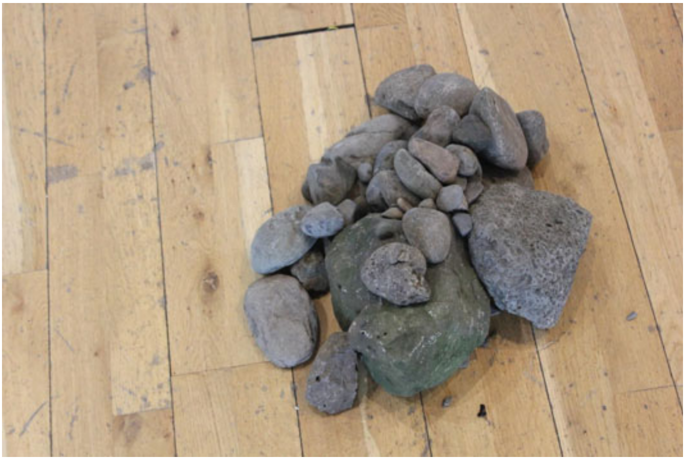

Fig. 3 Performance documentation 8

and across disciplines) is approached as acts of critical kindness, care and collectivity? What if artistic research attended not only to the ways in which we make art but also the qualities and attitudes with which we re-turn to/over that art? What if we wrote with rigorous tenderness for the humans and nonhumans we are marking and being marked by? Perhaps attending responsibly to the atmospheres within which we re-turn, read and write enables us to develop what Haraway calls 'attentive practices of thought, love, rage, and care' (2016, 56). If reading is a world-building activity, then the qualities with which we read and write will contribute to the kinds of worlds we build (Fig. 3).

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Inhabiting

That entanglement is always emergent and in the process raises the question of what movements are occurrent in inhabitation? What explorations and experimentations might be found in settlements of matter and matters, and habits and habitats, in occupying other bodies and spaces of/that matter. What agencies emerge as we occupy, bodies and spaces, pooling as masses of bodies and matter(s), flowing into different contexts and complex places? A question I have asked before, and shall ask again (by habit perhaps), is who or what has tiled the banks of the river anthopocene?

Inhabitations are haunted by the towering architectures of humanism, representationalism, and metaphysical individualism; ghosts that both inhabit and continue to be inhabited both consciously and unconsciously. Such towers, even as they crumble, continue to coalesce in our realities, co-existing as habits in practice and thought. To understand that we are both immersed in matter(s) and in forms of matter(s) is also to acknowledge the porosity of our edges and the saturation of our bodies that seeps out and takes in. We inhabit and are inhabited by the world.

In the crumble of towering architectures, practice (as an agential movement) has the potential to disrupt and disaggregate the dust that falls to settle on the ground, as dust won't settle if we are dancing on the surface. Occupation and inhabitation can therefore be methodologies of settling in that disrupt settling-downs. Inhabitations can be choreographed in the density of dust, the movement of bodies in matter(s), movements and gestures in histories, and an activity that disrupts established modes of knowing.

As a methodology in praxis, modes of inhabitation can be diffracting of pre-imagined and established constructions of spaces, places, sites, and locales. They might involve practices of mapping, re-mapping, and unmapping bodies of matter and terrains of matter. Boarders and edges are materialised through social interactions and can be disrupted through artistic intervention that materialises edges anew. Inhabiting therefore is not merely a passive existence in, or an encounter with, a particular environment, circumstantial context, a site, a sight, a place, or a body, but it is rather an active ontological praxis. It is the turning of attention to being in a world, a certain world of possibility.

In the twenty-first century, such inhabitations can no longer be considered localised, not least because global digital connectivity has revealed our close proximity and the mutual influence of gestures and actions once considered to be far far away and across both human and non-human actants. Our inhabitations are plural, infinite, and viral, existing in many locales at once, far beyond the edges of our bodies. Inhabitations always outlived inhabitants themselves.

Plastic Critique

Kélina Gotman

While changing it rests.
Heraclitus, *Fragment 84a*

I have become interested again in "reading"—the way while sitting in this place or that, all sorts of sense impressions interrupt, "intra-act," become entangled in the work of reading—reading which then becomes choreographic, a mobile set of trajectories, trajectories of the mind and of a body that stands up, wanders around, comes back to a place, figuratively and more literally. When I write of "here" in what follows, there is a palimpsest of a sort at play. "Here" signals the now of writing, or writing/reading, and it signals something a bit more opaque: something like the feeling of "here," the feeling of nowness or presence. What this chapter offers is a bit of a split-apart set of engagements then, or engagements sewn together, with seams left exposed, rough, and ready. Contrary to standard, expected, academic prose, nothing is neatly tied up and rendered coherent or whole; the "whole" is a set of fissures and cracks. It is offered up here as a coagulation of moments and reveries, theorizations born from a

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A. Bayley and JJ. Chan (eds.), *Diffracting New Materialisms*,
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kind of present and embodied thinking-through. What I write, then, are some moments, not quite authoritative, but authorial-forming, in that they give space and time to thought, to writing, to writing that does not sit apart from, but emerges inextricably with and through the tools with which thinking takes place, the landscape of meditative encounter: here, books, tables, seminar rooms, but also something like weather commingle to form a scene through which the institutional becomes choreographic otherwise, I think. The rhythms or trajectories of thoughtful life are disordered, or disorderly, or left, like this, pell-mell, in disarray. Perhaps this disorients the reader somewhat, a bit; perhaps this disorientation is what allows for a kind of orientation otherwise—not a specific "-wise," but at least an unhinging, all while still, yes, it is of course an "academic" conversation, one that thinks and writes alongside kindred thinkers, writers, who are, I think, offered another sort of a scene or a frame, one within which I set myself also—such that we are all a bit alien, a bit hanging out. So towards the end of this piece, I meditate, in a long stretch, over a day, and overlapping returns to this day, on the work of Ragnar Kjartansson, *The Visitors* (2012), and although it appears so strange and alien, this wispy sort of hanging out that he stages offers a view to what I am trying to get at as another occupation of time, and this includes the time of thought, of thoughtful life. Or of living and working as not so distinct from leisure or pleasure, though when these are overly much collapsed (through institutional pressures that aim for us to be always aligned with our work lives through unconvincing discourse on "balancing" "work/life," always meant to be leaning more heavily on the side of work, one understands), that is another kind of capture of time distinct, perhaps from this; there is, I hope, in what I am offering, another occupation of thoughtful life as one full of love for thought, for feeling this emerging, almost tangibly, almost like a visceral sort of a cry or a hiss. This is the sort of "amateurism" that refuses capture, that finds a way to disalienate. I have decided to call this method of working across planes of thinking and feeling and disciplinary lines "plastic critique," in part because this plasticity conjures at once a softening and congealing, transformation that nonetheless at a certain point sticks; we find this here as a document, the document of a sticking, a sticking that has hardened into this. "This" is writing enacting, or having enacted, or having let act, a breathing, attention to what can be construed as an intimate arena or stage or scene for attending; the "subject" of the attention is nearly immaterial—what *matters* is that there is the emergence of a patchwork, quilting, collage, and none of these exactly; disjunctions as much as conjunctions, rough angles, adjacencies—another architecture or dramaturgy of the page. And of course, this is "professional" too—offered as method or anti-method. But every method, and every anti-method, rather than seek in this case the "methodical," the pathway that can be followed, also at its best, I am arguing, can show (or perform?) something of a seeking feeling—that knowledge that one does not quite know what happens when this and that is thought together, or mixed; this is another form of critical experimentalism, attuned to aesthetic modes, as I will outline also below—responsive to aesthetics of vulnerability and to the radical and necessary uncertainty that comes with thoughtful work. Nothing is to be "imitated"; but perhaps always invented anew again, and transformed. This is a vibrant form.

… and so, within the fissures of this, something unfolds: not quite dark mattermatter, not quite white matter either, but something like the entangled geometry of thought—between emergence out of the idea and inscription within the spacetimemattering of written form. And so there are two "parts," and neither a half, rather epigenetically, as I outline here, what appears out of the languaging is adjacency and riff or put otherwise an angular and a smooth play with refusal to capture and constrain or to *make perform* lived and intimate time.[1] "Performance" as a forming-through—plastic, in that it has come to take (a) shape.[2]

I.

Thus this chapter experiments with concepts of the choreographic as a rhythm and form for thought, another writing body; and specifically with what I am proposing to call *plastic critique*, a way of thinking about how models of bodily function, materiality, matter, form, and capacity for transformation or fluidity map onto—or not—forms of writing, reading, critique. This aims to further Gregory L. Ulmer's to an extent still unheeded call to criticism to stand up to the challenge of aesthetic experimentation and attend to the politics of form. In "The Object of Post-Criticism" (1983), Ulmer suggested that the "issue of 'representation'"—or, as he put it, "specifically, the representation of the object of study in a critical text"—was challenged with what can broadly be called "postmodernism," briefly a "break with 'mimesis,' with the values and assumptions of 'realism,' which revolutionized the modernist arts" and which, as he put it, was at the time of his writing "underway (belatedly) in criticism, the chief consequence of which, of course, is a change in the relation of the critical text to its object—literature."[3] Thirty years later—I have been wondering—what purchase does this aim to match anti-representationalism in art with anti- (or a-) representationalism in criticism still hold in the university, in an academic setting? How have early experiments in performative writing, choreographic writing (or, in Susan L. Foster's terms, "choreographies of writing"[4]), transformed the choreographics of language—and how might these continue to transform? Is transformation a "value" in this (post?-)critical landscape at all?

I turn to Catherine Malabou, to think where aspects of the playful Derridean corpus (Jacques Derrida was her teacher and colleague), specifically where thought around forms of philosophy writing, as forms of transformation—ways plasticity, malleability, fluidity, and structure—may be conceptualized. For Malabou, deconstruction, taken in the expanded field of lived thought, thought lived over generations and bodies, gives way to plasticity: "plasticity," she writes, is itself a "plastic" concept—one whose "metabolic power" is manifest in its own "capacity for *ordering transformation*."[5] Transformation continues to transform—metabolically, concepts are labile, mobile; but they do not just move hither and thither—they do not merely move for the sake of moving ("moving," one might add, is itself not necessarily a "good"). Rather, what matters for her, for me here, is to conceptualize thought itself being conceptualized, and thus also continuing to draw on conceptual resources—our minds, our worlds—which are themselves, of course, changing, shifting, morphing—plastic. The language of "plasticity" could arguably be replaced with some others (I think of "elasticity," a close cousin, though working in different ways)—but for now, "plasticity," with Malabou, suggests a manner of shaping and yet also gathering form; of slipping, moving, sifting, angulating, sliding, undulating—or what have you—so as to conglomerate, to gather, to stiffen, perhaps. Rigidity is not the "opposite" of all that is fluid and flexible. This matters, for quite a few reasons. Flexibility, precarity, movability are part and parcel of a socio-economic landscape requiring a highly "mobile" workforce, just as security is ever more squeezed. Enough has been written on this problem not to belabour it here[6]; suffice to say, the forms this "mobility" takes have to be understood as themselves changing—just as the underlying conditions within which intellectually, materially, affectively these categories themselves are conceptualized. The notions of "matter" or "affect" are not merely undergirding a concept of plasticity, but are transformed by it and vice versa.

Within this broad ecological landscape, it is not enough to say everything is connected. The "moving metabolic ground" ("*sol métabolique mouvant*") on (or in or within or alongside) which metaphysics, for example transforms, constitutes a manner of seeing (conceptualizing) the "earth" (the ground) itself, on which thought happens as a force of change, in change; the further we may dig in thinking about what ground there may be, on which thought lies, or bodies lie, the more entangled we discover these concepts and realities are. As Karen Barad puts it, succinctly, "[m]atter and meaning are not separate elements"; "matters of being, knowing, and doing, of ontology, epistemology, and ethics, of fact and value" are "entangled"—"poignant[ly]" so, "tangibl[y]" so.[7] Even atoms can be split—refracted, diffracted.[8] Matter is full of diffractions and entanglements: these micro modulations, we might say, render the world "plastic." What changes are infinitesimal increments which resonate, gather, and multiply; thus there is no distinction between major entities (Right and Left, high and low, etc.) without infinite, infinitesimal shifts, and changes. The "metabolic ground" on which these differences lie shakes and shudders. What to do with choreography then? If we are moving—if our bodies are themselves entangled, diffracted within a world of changing particles and atoms, of matter that itself jumps about in invisible and ungraspable quantum leaps—if in fact to talk of "motion" is to talk, really, of nothing at all (if everything moves, then what does "motion" amount to?), then how do we conceptualize choreographic "art"? Or, put another way, how can we re-entangle relationships between body or matter concepts and aesthetic ones? What is at stake is what may be perceived to be beautiful or true; "political" or effective. "Diffraction," Barad writes, in "Diffracting Diffraction: Cutting Together-Apart" (2014) "troubles the very notion of *dicho-tomy* – cutting into two – as a singular act of absolute differentiation, fracturing this from that, now from then." She posits instead "intra-action" as a way of seeing particles, people made up of particles, people made up of matter and particles and waves, in contradistinction to the notion of "interaction," which suggests people are whole and interact with one another on this ground. With intra-action, "there is no absolute boundary between here-now and there-then."[9] There is, instead, a perpetual set of exchanges (vibrations we might say, or resonances): an entanglement—including, of course, of matter and meaning. For Malabou, epigenetics, rather than quantum physics, provides a model for thinking about incremental change—a way of seeing transformation taking place in slurs rather than jumps: there is no origin, upon which or after which "change" takes place, she writes. The epicentre of any now-moment is itself on a changing course, a shifting ground. The "*milieu mobile*" or "mobile environment/mobile middle" ("*milieu*" conjures both a middle and an environment) between archaeology and teleology suggests an unfolding self ecstatically caught up in the work of reason, of imagination: like an earthquake, whose epicentre is to be found far above the "focus" or *foyer* (the hearth, the home) of an eruption, thought—self—being—mind/body are all enfolded in an ontological horizon whose motion forwards renders impossible the thought of an origin. The origin is itself, at every moment, displaced.[10]

What I have done here is to "cut together-apart" Malabou and Barad; to diffract, to set-with, to intra-act their thinking. Different, slightly, from the way criticism aims to enter colleagues, people, writers into conversation—to set thinking into "interaction," to *stage* a theatre of critique in which there are voices, each of which is whole and self-contained, each of which is self-reproducing, too. Rather, here, portions of thought intra-act and intermingle, set on the surface of this page—its ever-shifting, ever-evolving epicentre. Is there a teleology at play, or transcendence? Is this criticism of a quantum sort, a plastic sort? What would that be—what would it look like, or feel like? How would it move? Why would it aim to copy the matter it thinks with? It does not. It aims—I aim—to shift-with neurology, quantum physics, philosophy, poetry—these categories that hardly capture the thinking here!—so that the work of criticism is itself an enactment of some moving-along, some sort of writing that hears and attends to and with.

I was writing: Malabou suggests the epicentre (in Kant) may be situated between a priori and a posteriori temporalities—that "before and after" (if we recall, Barad's "here-now" and "there-then") "oscillate"; in effect, "between structural fixity and historico-adaptive transformation" there is a fragmentation, what Heidegger sees as "now-time" ("*maintenant*"), and which she suggests has to be understood further as a now-time that once "framed" (made into a "scene") sets the stage for thought and "objectivity" to assemble. "At the epicentre of this, emerges ['*jaillit*'] a series of images that orient the transcendental towards the object."[11] In other words, the ecstasy that is produced in contemplating a present time that is both transcendental and enframed, as it were; that is simultaneously a thrusting out (*jaillissement*), an explosion, or emergence, flowing out and springing as well as a sort of detachment—that all of this constitutes the awesome coincidence of pure image and being (in Kant).[12] The ecstasy between past, present, and future is an inter-holding—to translate quite literally from the French here ("*les trois extases (passé, present, avenir) s'entretiennent*"); that is to say, they maintain one another, these three ecstasies, they hold one another, they also care for, and entertain one another. "The pure image (of) time appears thus as absolute antecedence": time is conceptualized as the ground on (or in) which reason takes place—"time is the inaugural poetics of reason."[13] Malabou reads Kant here, and Heidegger; reading her on the surface of these philosopher-men—skirting at the epicentre of her own philosophical thought, far above the focus of this set of image-thoughts—allows a kind of ecstatic presence/detachment—a plastic criticism that misreads, mishears, misshapes, just as what it hears, and shapes, is something other: an orientation towards thought, a deliberate attempt *not* to engage in "interaction" but to intra-act with these thought-images, with this poetics. Of course there is the work of Heidegger, of Kant; they are on my desk too. I hesitate and hover over them, thinking what choice there is in this… in this reading: how (following Sara Ahmed) may I orientate myself towards one or another voice, attend to or towards one or another hearing? If, perhaps, I might make a choice, here, as she did in *Living a Feminist Life* to include (primarily?) women in this particular conversation; to see what that sounds like then. To open, first, mostly, perhaps only—for a try!—those books, now.[14] (This also is *dicho-tomy*.)

Malabou writes of and with Derrida, Heidegger, Kant; she writes of plasticity as of after deconstruction—the thing that takes place alongside, or through. Plasticity encompasses deconstruction; it is—after its birth—the mother of it all. We could say. With plasticity, we find a "transformation mask," what Malabou writes of as her own "journey" ("*parcours*"), her own "*métamorphose formatrice*" or "formative metamorphosis": "I have no need for 'post,'" she writes ("*'Post' ne signifie rien pour moi*"). "The ground where I learned to walk from the very beginning presented itself, retreated, gave of itself and hid" ("*Le sol où j'ai appris à marcher s'est d'emblée présenté et retiré, donné et dérobé*"). Our intellectual trajectories and our life "histories" are not linear, not full of "posts" but rather meander, toggle; we come and go, ebb and flow in our understandings, desires, and grounds; these journeyings are transformations, non-doctrinal. "Dislocation" is another way to think deconstruction, which in and with "plasticity" can be imagined—imaged—as a "*spontaneous organization of fragments*," an anti-system. If deconstruction foregrounds relationships between form and writing, plasticity perhaps thinks the enigma of relationships between figure and writing, a "symbolic break between the plastic and the graphic element of thought": to entangle questions of the differential structure of form and of the formal structure of difference, one finds oneself, Malabou offers, in articulations, facets, faces, links between transformation and substitution—one is not prior to or post the other, there is no there-then and here-now.[15]

Where am I post-this? If there is no post—only, I would submit, perhaps, a wavering—the ecstatic temporality of now, *kairos*, the chasm in which we are or before which we find ourselves, in the opening onto futurity that allows for all… all. Yet all is not separated out from there-then, it is entangled, and in the moment of crisis that creates a rupture—bigger than before—as big as now—we find ourselves thinking, what now/next? Between now and next is the ecstatic temporality of presencing, of becoming-towards something, yet that will then be an epicentre, entangled, and within that then this here will have morphed, slid. Come-into. To act, then, to be effective—agential—as a political being—we must first of all (we may first of all) understand this *orientation*, this way of shattering, of tucking into home; understanding that "homework" (as Ahmed puts it) is also academic work: that the theoretical is personal.[16] The personal is theoretical—inasmuch as we see first, and sense, first, that something has become (or unbecome) a structure, that this structure is a wall, that this wall is an institution, that this institution has authority, that to speak with authority is to speak within the wall, with the wall. It hurts to break, yet it shelters us. I do not wish to break all walls; but some walls, yes.

Reaching|Outreaching|In Slow Time…

What I would like to call *ecstatic temporality*, perhaps *spectacular uneventful temporality*, is a way of feeling-with temporality at a remove; the way a chasm opens, a gap. I co-ran a "seminar"—a day—the other day, with colleagues, a few of us, a really small group, really. We ended up not "getting to" the end of our day—as it had been planned. There was a roundtable that fell off the temporal map. It got squeezed out. We had allowed ourselves to hang out with our time, in our time, to enjoy being-with and we had lunch, and thought, and talked. It hurt, in the end, to feel we had ended, cut short, snap! (as Ahmed would say) the very last bit, the friends and colleagues who had prepared and had to go. The feeling of failure one had not managed properly to host; the attempt at collectivity that left some of us off the page, at the end of the day; the sense of co-responsibility, a utopic ideal of timelessness or framelessness shattered, the disappointment; also, the promise to return to this, for those papers, and we have, taking further still the conversation about institution and form. One thing this provoked us to think about was the way a wish to "do time" otherwise ended up, before we realized, leading to this absencing, this chasm—the fact of not performing to the "standard" of an academic symposium in and with the walls, but to allow ourselves other sorts of rhythms, open temporal walls, such as we had set up. The realization, also, that one can "let go" the thing prepared as that which is to be done and give oneself over also to that which is a conversation—not so performative. We had all been doing this throughout the day. The conversation was spilling, teetering, full, pregnant—we will bring it into the home, we thought, convivially, as another way to understand the symposium "post"; do our "homework" here, at leisure, over more meals still, knowing that it can be a liberating and dangerous border to cross, that we had to do this with care; we were and are influenced in this by the Great Lakes Feminist Geography Collective, who in "For Slow Scholarship: A Feminist Politics of Resistance through Collective Action in the Neoliberal University" (2015) argue for a practice of collectivity and care—for a temporal reset in a world of "fast-paced, metric-oriented" work, the constant stream of demands, and the ever greater pressures on time—so great that it comes to be impossible to think and to pause; having a meal together, reading work, this is not merely a utopia (a communal pipedream) but a rigorous practice of allowing scholarship to build, to simmer slowly—to grow sustainably.[17] Perhaps the attempt was to find the subtle, lived difference between the work one takes home because it is forced, it is too much, and that which we do because this is the marrow of the life we have chosen; because this sort of thinking together, this culture of friendship, this intellectual and affective life, is what we care about, and how we care for one another, as people engaging in this side by side. "Care work is work," the Collective write. "It is not self-indulgent; it is radical and necessary." Care work is marginalized and feminized—it can be made (recognized as) feminist, an ethics of "'self-care as warfare,'" after Ahmed.[18] To make time is to refuse to have time taken—it is to rearticulate the spectral and spectacular bounds of temporality, to reclaim the unevent, uneventful temporality—temporality understood (in a neoliberal environment) as that which has to be indexed onto a particular sort of productivity—visible, countable, accountable. The work that slips and slides, appears unapparent, perhaps tucks itself away (hides? as in Malabou's description of the grounds of her journey) in order to protect itself, to care for itself—for the work (ironically!)—this is work that reclaims, in the form of peaceful warfare, the right to life. The right to slow-moving, collective, sharing, caring emergence; of course it can move fast too; but it will do so at its pace, at a pace that is a not-jostled pace, not constrained or pressurized.

To fight pressure; panic; acceleration; depression; this is the institutional choreography we fight for now. In *Reaching|Outreaching*—the event co-curated with Daniela Perazzo and Fred Dalmasso, held at the slightly chilling site of Here East, an art depot housed in the re-used Olympic site, sitting on homes robbed from residents displaced—the poethics of temporality were at the forefronts of our minds.[19] We had sought to "hang out" somewhere disorienting, displacing; to feel in our bones, our rhythms, the thinking taking place within this. We "aimed"—[is this military language?]—to rearticulate the choreography of the "reach"—the "outreach"—what I am always discomfited by as language that says it is imperative (institutionally) not merely to perform, but to reach and to reform, to save, to help, to aid, to spread out towards those—all of those—supposedly in need. But what if they are in no need at all, or what if the need is not for this? What if those reaching might (need to be) transformed too? Proper security, housing, salaries—this is not what the institution aims to offer (usually) in its benevolent "outreach." We wanted to think, choreographically, about the gesture of unhinging, disembalancing; what it is to be here, and not there (as Arabella Stanger put it). What is it to conceptualize some being here, and others there; and that "here" (perhaps here-now, but also here-always-having-been-here) might, colonially, missionarily, redeem itself in this gesture of going-towards? It is not to say all going-towards is a violence, an imposition, a performance of one's own here-ness, and the other's alterity (one's ascendance, the other's position as one to be changed or saved); as Rita Marcalo showed us, there is a reaching dance, a manner of holding oneself out towards others, at the borders, in the Jungle, in Calais, and then to find oneself, too, forced out, dislocated, because of other border wars.[20] All of this is a set of intra-actions, of permutations; the epicentres morph and they shift; our journeys come with many masks—with swerves and hiccups and slowing down and speeding up moments and rhythms. I had found myself there, shaken with laughter, joy, and relief, in so many moments, experimenting with Israeli choreographer Sivan Rubinstein's "Active Maps," to think where is home? What home would I wish for, then[21]? I had just done a first session of Rolfing; whole tectonic plates were shifting in my body–mind, falling off, liberating, and baring a self I had braced against change, against pressures, against people exerting pressure.[22]

So we come to this, all of this, with our choreographic maps; our body–mind anatomies, our plasticities, our entanglements. To play with the institutional choreopolitics of this space, of this time, we had to create a rupture or a rift, to open space out; to produce a pocket of alter-temporality—how? Owen Parry and Johanna Linsley showed us (offered us) a "performance hang-out," a space and time in which nothing much happens; the diminishing returns of this non-event show us that time does not equal accumulation, profit. But also, the "diminishing returns" (Linsley's observation—sitting watching for so long) offers a space of emptying and of quiet—a meditation, a collective, corporeal "time out."

To think plastic critique is to think of our thinking as embodied and entangled, situated and wavering, oscillating, in quantum shifts with ecologies—imperative, quiet and loud ones, invitations too. Attending to the rhythms of critique—as Judith Butler writes of Michel Foucault, of attending to the present moment[23]—is tending-towards (reaching?) for that in-out to conjugate with the here-then, the there-that, the this-other; multiplying dyads so they dissolve and disorientate, cultivating within that a grounding, on shifting ground, means—perhaps—allowing ourselves for this moment here to tune out, to tune in. To call this plastic critique is not to say very much at all, except it is not "post" but with and alongside, something that was always there, that is here now, that is emerging also in the towards that we orient ourselves with. Erin Manning offers the suggestion of a "minor gesture": she would "like to think the time of the body in the moving as the shape of enthusiasm. Think the shape of enthusiasm not as a personalized body that is enthusiastic, but as the experience of bodying that shapes the event and is shaped by it." More than this, "The shape of enthusiasm is itself a spectrum that swings in an oscillation that moves from the potential energy or the energy-in-waiting of petrification, to the expressive, potentialized energy of the spark."[24] She is writing here of "depression"—what in neoliberalism, Franco "Bifo" Berardi writes, comes after panicked acceleration; what we are squeezed into, exhausted into, from "'sensory overload,'" "'competitive and narcissistic structures,'" leading to "withdrawal" or the converse—overactivation, dispersal[25]; with digital capitalism, we are driven into negative ecstatic temporality—a dissociation without joy, a standing-out in the within of walls that clamp, that bind, and refuse to secure. We are without protection, and in this open space, this vulnerable place, without solidarity, except that which we build—for Fred Moten and Stefano Harney, "policy" is when "command takes hold"[26]: in this non-place space, this neither-nor time, under duress, under pressure, without breath, without reach, how are we to "dance"—if that is to say to move in a way that displaces-towards, that goes-with and alongside? If to rearticulate our everyday institutional choreopolitics is to rechoreograph, to rearticulate the matter of bodily being, of lived temporality, then what is it to write—to figure—to form-with matter, with thinking matter, with the changing brains that we have, as these are themselves colonized into submission, into pressure, entrapped so as pliably to *conform*? Perhaps, it is to become rigid—unyielding—that we have to tend. So that in our out-reach, our in-reach too, we stand ground, on shifting ground, and the ground we stand on and with shifts with us towards another place, that we steer—we, you, I, them, but there is not a distinction, not a clear one, not a This and a That exactly, and that is the space away from linear time that we inhabit, in the other grounds post-postmodernism, if we call it that. This is far, far from pastiche; and far, far from irony; and far, far from mimesis or anti-mimesis, representation or anti-representation; this is not, actually, about representative structures—it is a more radical, a more anarchic, a more *anarchaeological* proposal than that: it aims to shift "intervention," "action," "being," "critique" towards—first—standing, together, ground. Together-with just one other, first of all. Mary Rawlinson writes of Ismene, Bonnie Honig too: she is the sister who buries her brother, furtively, under the cover of night: this is a structure of "sorority" that binds and fights.[27] It is not "autonomous," not "upright"—not with Adriana Cavarero within the philosophical choreographics of rectitude,[28] but inclined-towards and yet within this motion of inclination, this gestural towards, certain, intractable—open, too. To be open within unstructured temporality, within an uneventful ecstatic time is to allow for another future to take slowly, slowly shape; away from radical revolutions, this one is already forming here and now.

This was, in the writing, an acceleration, an intensity, a whirl—it is nice to know it is not over yet.

II.

Of Ecstatic Temporality|Of Spectacular Evanescent Time

What follows was written initially in response to an invitation to reflect upon the question of the postmodern today, extended to me by art critics Chantal Boulanger, Nicolas Mavrikakis, and Laurent Vernet; at the time, though I was happy to oblige, the main thought running around and around was that I was not certain really what this was, the "postmodern," at all; I had learned initially of postmodernism in my late adolescence as of a fiction, a fantasy, something that simply extended the modern, something that signalled architectural pastiche, quotations of Greek architecture in papier mâché, playful form; in cutting together-apart the reflection I offered them with the reflection above on *Reaching|Outreaching* as an institutional/para-institutional/contra- or anti-institutional event, and wrapping these together with further thinking on what I am now seeing as plastic critique, I aim here further to think ways we entangle or embroil or have intra-act our manners of working and our work. Ways we return to bits of writing that have been done. This one was written within presence, as presence, as was what precedes it; in adjacency, then, they are like two halves of a book, one page, the other page, or a continuity, separated and joined by breath. This is the entanglement of matter and meaning in the most diffractive sense, as a method and as a way of making sense, another sense. It aims further (as at the start) to disengage or to reengage the politics, the practice of (aesthetic) form; to think here with or within temporality, intimacy, something like the feeling of historicity, that is to say, the entanglement of intimate and historical time. The way we are at once at our desks, here, now, like this, with that breeze coming through the cracks in the window, and that noise of a delivery truck; and that we are within this moment aware (sometimes) of a kind of "historical turning point," something that would be experienced as a rupture or a shock; or else as a sort of linearity, a going-beyond. In effect, time swirls between or through the intimacy of this keyboard, this hurting back or neck, and the sense that there are events that are going on. And when we write, like this, in an academic context, or some other, there is also always a sense of needing to create novelty, to find a relation to what came before, to go beyond; it is the "beyond" that I am attending to and delicately, gingerly, refusing, by creating recursive loops, by attending to ways moments of writing intra-act with something like an experience within and outside historicity, ecstatically, a kind of standing outside looking in.

31st May 2018.[29] I decide to scrap what I had written and make of this writing an event. It is humid outside and I am tired. There are emails, and I am at the edge—something has to be produced. All that came before—the months of simmering, historiographical theorizing—thinking what is this feeling of historicity? What is postmodernism, postmodernity, the illusion of that? All this has fallen by the wayside. I didn't know then and I do not know any further now. It was a thought, then: postmodernism—it never existed. What is the fantasy of that?

And now, here, I am still thinking—and I fail to care [a cringe in reading this over! Can I say this?].[30] What I care about is that we should care; that we should aim to periodize, to imagine periodicity; to situate ourselves within a temporal frame. That is the fantasy that I want to work through, and the mind is a fog. It reaches towards the idea and there it hovers.

And so, I write.

I took a moment, a moment ago, to pull out some books I had set aside for this: some old Derrida I had never gotten around to reading—the tome, *La carte postale* (1980). I flip open to the start, this is 1977, then forward to 1 June 1978; I wonder what he was doing May 28, or on this day, those years ago. It occurs to me now this was forty years ago.

He is writing a letter. A love letter.

I think of Fanny/Franny, and Derrida, in the film, with his cat; his bathrobe and cat.[31]

There is not a letter, here. This is not a letter, but it is a record; a record

of a moment; a moment of writing; a far more institutionalized moment than was Derrida's, perhaps—a moment within which time is meant to count in this or that way. Words to minute ratios, translatable into countable things—and this fatigues me, this thought. That was not what I had meant to write. It was not of that pressure, that pressure to produce.

But it is a pressure to produce a certain work within a certain frame, that I would like to think about; the desire and pressure and fantasy to imagine oneself within a "post"—for example. For to be "post"—as I am “post” Derrida’s “post” (his mail, his postcards)—is to be genealogically in relationship with, and be surpassing; it is in a Freudian fashion to overthrow; to be a Titan, to be Zeus overthrowing a Titan, etc.

We see ourselves smaller and smaller on a receding horizon, or else we are larger and larger; is the horizon open? There is a creature far and rushing towards us getting bigger to the eye, or else we are in a forest of indigenous men and women who see trees and the infinitesimal variations within them, but no distance—not in that way. We fantasize about time on a chronological scale, and within that we aim to imagine a situation for ourselves.

This is what I aim to write about.

So the writing of this inhabits a small pocket of that time; it is on a scale, and it aims to be not quite so much on that scale, or not to inhabit that time in quite such a measured way—but rather, if this is what writing does (writing and art and event), to stretch, to macerate that time. For that is what we have.

If postmodernism is an illusion, it is the illusion that there should be a “post.”

Of course there is a “post.” There are those who come after, and those who come before.

*

In *The Visitors* (2012), Ragnar Kjartansson’s video installation in homage to ABBA—the piece I had meant to write about—friends loll about in chairs doing nothing much, strumming guitars and cellos and tapping at piano keys; the women are flimsily dressed. The group, inhabiting an open near-ghostly mansion—leant to them by patrons, we learn—perform a fantasy of naturism (nearly), bacchanalianism (nearly), carefree chastity (nearly), sexual pleasure (nearly) and most of all time spent doing very little at all. This is what I propose to call evanescent temporality or more yet, spectacular evanescent temporality, a way in which the affect of time passing is performed for us to gawk at, to contemplate. What we see, spectacularly, is a sort of frittering away of time—the way in which these youthful mostly pallid nymph types are spending time in this strumming—while (of course) around them, the world is crashing down. We are in a crisis, and here, in this pocket of wealthy leisurely expenditure, this waste, there is—it seems—none. Outside the window, rolling fields.

This is also, we could say, spectacular uneventful temporality: what is taking place is barely the event. There is a spectacular uneventfulness—all that is taking place is time passing, staged wispily as if nearly to conjure a realm of spirit creatures. But we are not fooled. They are playing out a fantasy—which?

Outside, the world is burning. The economy is crashing—to a standstill. So within this time, we are no longer feeling posthistorical; it is rather that the edge of the world is here, and there is a dull and a vacant waiting.

The fantasy this represents is that of an exit outside time; *ek-stasis*.

*

Giorgio Agamben writes recently of monastic culture as a form-of-life: the way in which monks lived temporally within a framework that required the expenditure of time their lives represented to be—to shape—that which it was their lives were. The timeframe was the vow. There is something more interesting to this yet: what Agamben notes were “blind” moments in the temporal framework. Because the monks used sun clocks, time stopped at night; or when it was not sunny. In the summertime, days were longer for working in; in winter, there were fewer daylight hours. Or rather, more wonderful yet, the daylight hours were always the same—only their length shifted. An “hour” could last up to ninety minutes, or as few as forty, say.[32]

*

Within my day-frame, my work-light, there is a pushing. I reach towards ideas, and falter; I reach towards the incline. Adriana Cavarero writes of this as a maternal manner: an inclination—against rectitude, against all that which says we must be upright, morally, physically; erect; that this masculinist choreography (if we call it that!) requires a vertical axis that reaching-towards faults.[33]

So to reach in this writing—this is a tumbling off an axis—towards.

*

What the towards is, is precisely not an is but an arrival; yet the arrival does not get to its destination. It inhabits a space–time, which is this writing; in this, the form of the essay is, to quote Gregory L. Ulmer, “oscillating between presence and absence”; this is (he is writing of Derrida) an “undecidable reading effect.”[34] The work in question for Ulmer is *Glas*, and for now—why not—I will return to Derrida, grandfather of this; and to “grammatology,” if the object of this (post-)criticism is such writing. “In criticism, as in literature,” Ulmer writes, “collage takes the form of citation”—and he goes on, to cite extreme forms of citation, “grammatology being the theory of writing as citation”[35]; it is ironic to cite this here. What I mean to do is extend an arm, a hand, genealogically, towards this prior time of thinking about the relationship between let us say form and content, to attempt to work out what it is that writing might be now, “post-critically.” I do not have an answer. Perhaps there is not a post.

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Heiner Müller retorted, when asked whether he was a postmodernist, that the only postmodernist he knew was a postman who was a modernist.[36]

*

And so perhaps this leaves us with the question of modernism—the illusion of that? Not to be propositional about this.

*

It is still 31st May. Not very much time has passed. The books are scattered. Which to open now?

*

There is a throw of the dice—is this modernist?

*

For Michel Foucault, thinking of *Aufklärung*, of Kant, and of "modernity," there is a feeling that modernity should sit on a spectrum, preceded by "pre-modernity," and followed by "postmodernity"; but there is also a set of characteristic traits that define "modernity." The question is whether this "modernity" should be continuous with *Aufklärung*, etc.; pre-modernity would be "archaic" and "naïve," postmodernity "worrisome" ("*inquiétante*").[37]

Interesting in this conception of modernity is what Foucault calls the "historical ontology of ourselves" ("*ontologie historique de nous-mêmes*"), the way in which we may situate ourselves—critically—within a present moment; to take distance from that present moment, to the extent of what is possible. That "modernity" should be (here, he cites Charles Baudelaire) an attitude towards oneself, a sort of attitude towards betterment, towards cultivation of a self.[38]

Foucault has much to say about cultures of self, about the aesthetics of existence; what matters for the purposes of this thinking around post-modernity here is the way in which a critical attitude towards modernity/postmodernity/post-postmodernity has to situate itself (I would argue along with Foucault in this case!) on an axis that revolves, that looks back towards the imagination of a linear historicity (or the circumvention of linear historicity) conjured.

In other words, to ask ourselves the question of postmodernity is to ask ourselves the question as to our feeling of historicity—the extent to which we situate ourselves within a line, or where to place the line, the rupture; or whether there is a rupture. And what we will do with this, ethically, aesthetically—critically. Is the observation of the present moment enacted such as to enable distanciation, intervention, transformation, rectitude, lassitude? Where does the frame end—the frame of this scenography of contemplation?

*

The last was a bit jumbled. The thoughts got away. It is a bit abstract, this; the feeling-towards a present moment. The feeling-towards the form within which this exercise of critique takes place.

*

Let me try again. Perhaps take a step back. If we may wonder what it is to contemplate "modernity" as a period and as a set of character traits; and to wonder at "postmodernity" in much the same way—perhaps the pesky "post" suggesting there is some way in which postmodernity aims to get past that which saw itself as modern (scientific, pure, straight; or on the contrary squiggly inasmuch as capitalism—modern, surely—shoots off in every which way around the globe)—then to wonder at wondering about postmodernity is itself a structure of feeling, a manner of performing critique. Illusoriness is a characteristic trait of postmodernity, we could say, with the classical postmodern thinkers: Guy Debord, among them. He writes of spectacular temporality—a way in which holiday-time becomes that which is spectacularly consumed, rendered desirable, shown.[39] Much as selfie culture today shows the dish eaten, the holiday tour; but also, significantly, the banal everyday. This is, again, uneventful spectacular temporality—a way of being-within the present so as to bask in that which is merely, perhaps, waiting for the end of history to come. If postmodernity was a pastiche, post-postmodernity has forgotten what pastiche was. But I do not think we are post-postmodern.

Let us try, then, again.

*

Thus, I will have performed this thing.

*

For Foucault, rather than distinguish premodern from modern and postmodern periods, what matters is to think about what ethos, what attitude has been formed, since the advent of modernity, against modernity—what battle ("*lutte*") is waged against modernity, as a "counter-modernity": this is not a period, but, he notes, an attitude. Just as modernity is also an attitude. Once again, drawing from Baudelaire, he describes this as a consciousness of the discontinuity of time ("*conscience de la discontinuité du temps*"). "Rupture of tradition, feeling of novelty, vertigo relative to what is coming to pass" ("*rupture de la tradition, sentiment de la nouveauté, vertige de ce qui passe*"). Thus, Baudelaire—the primary thinker of modernity—defines it as "transitive, fugitive, contingent." But—importantly—to be modern, for Baudelaire, is not to identify with these traits necessarily; it is rather to recognize them as traits—to see oneself against and within them. Foucault writes: "*pour lui, être moderne, ce n'est pas reconnaître et accepter ce mouvement perpétuel; c'est au contraire prendre une certaine attitude à l'égard de ce mouvement; et cette attitude volontaire, difficile, consiste à ressaisir quelque chose d'éternel qui n'est pas au-delà de l'instant présent, ni derrière lui, mais en lui.*"[40] The act of recognition—this seeing as if at a theatre—is a manner of auto-alienating oneself within a structure that aims to alienate, to render transitive, disconnected; modernity therefore is an attitude of contemplative detachment just as it notes the whirlwind, the constant rush towards novelty, the perpetuum mobile of industrialism, consumerism, capitalism, shopping, and all the rest. So counter-modernity? This would be in fact to be-within the moment without stepping aside; without seeing oneself within it. It would be an act of blindness, an attempt to get beyond, an attempt to go backwards in time, or to rush to the future. Thus, Foucault, reading Kant, sees in this a critical attitude—what Kant called critique, and what Foucault sees as necessary for distinguishing the ontology of the present from the rush of current events, fads, fashions, etc. Modernity is not just a feeling of novelty, then; rather, it is a feeling of being within a world of constant novelty-fashioning. That disjuncture is properly modern, just as counter-modernity is what—merely?—goes with the flow.

If postmodernism is an illusion, then, the illusion it describes is that there shouldn't be any postmodernism at all; and yet, if we follow Foucault's train of thought, drawing on Kant and Baudelaire, we could argue that there is indeed postmodernism—to the extent that the critical attitude may be lost. And that therefore to step outside of postmodernism is to regain a critical bent, a manner of seeing the present as present, as an ontology, a style; and of living, oneself, a style—not superficially (this or that length of trouser or skirt, etc.) but as a way of carving out a choreopolitics, a manner of pacing, of rhythming one's life relative to cultural, social imperatives, and the like. In this way, we are still—some of us—modern. Modernity is contrapuntal. It aims to look two ways, three ways; and in the end looks full front, full down. We have not just never been modern (Bruno Latour's formulation, suggesting modernity is a purism and we have always been networked, hybrid, complex[41]); we have never not been modern, to the extent that we have never not also critiqued that present within which we reside. The question is who is this "we."

It is not the "we" of the philosopher, or the artist; or the critic. Nor of the white man—though of course it is that. It is a structure of reaching that suggests entanglement and distanciation. A reflectively and productively affective manner of articulating relations between bodies, critical genealogies. We get lost in this "we." I get lost in this "we." I do not know if I am, we are—a we. I am certainly not a he: not him, or him. Not her, either—not in that way. It is a complex social and historical anthropology, even to untangle these ways of seeing, these disciplines; that there should be, say, "art" or "criticism" that should reflect upon one another or "history" running through the "present." For the present is a full open plasticity, a manner of stretching, and inhabiting; Catherine Malabou writes of epigenesis as a way of conceiving of the present as going always along an axis. There is not a primordial past time, an origin; nor is there merely development; at every centre of time, every axis, every space, there is a new node, that draws the others, the old ones, along. The transformation is constant and total, and it is also contingent. This is another way of worrying about the distinction between "then" and "now"—chronology and eternity. If there is an outside to this present moment, which is that which we might stand within or reach towards, then for Malabou there is also a sense within which now-time can only be that which is reaching down and along, towards another origin and futurity; the centre of change is itself changing with the change—the beast is always evolving, and in that evolution-towards, every point is a new centre.[42]

She writes: "*L'épigenèse peut ainsi être pensée comme un processus de temporalisation au sein duquel horizon ontologique et maturation biologique, venue en présence et croissance naturelle ne se distinguent plus. La temporalité épigénétique est transcendantale sans être originaire, naturelle sans être dérivée. Il est impossible de la séparer du procès biologique qu'elle désigne, de la croissance organique, de l'avenir du vivant.*"[43] And because this "*vivant*" is a thinking being, a reasoning being (and a feeling being as well), structures of thought are themselves evolving—moving along, transformed epigenetically in their unfolding. And so it is impossible for me to "return" to Derrida or to Foucault, though it may appear that I do. Structurally, the time binds me to a full present ontological horizon within which rationally, and all the rest, there is here and now (31 May 2018) a bio-ontological horizon or zone of intensity within which that "*carte postale*," that *Glas* are irretrievable—they may be cited, but they have shifted, moved along, with the ecology I find myself, here, in. Thus, the modernity of this is to recognize that shifting: that present. Not to bask in a full sentiment of chronological continuity (the idea that they might then still be relevant now) or perpetual novelty (a rejection that say, there is more that is newer at the present). Instead, what we do is to cognize the distance and proximity, in the unfolding of lived thought. It will, perforce, be genealogical: we read those who came before, are saturated by these figures; I do not aim to reject that—least of all in a forum (this!) which aims to think that which came and comes before and stretches towards a version of futurity that might divest itself or not of that.

Here is more from Malabou: on the concept of plasticity, which she reads in Heidegger, she writes, almost poetologically, of the "serenity and the peril of the Sunday of life"[44]: this is what I see Kjartansson doing, to return to his work gestured towards above. There is a flirtation with the "Sunday"—serene, away from work, and dangerous, away from work. A sort of empty bookend whose emptiness threatens and makes the work week, work life. Without Sunday—without the Christian fantasy of Sunday—what is life in modernity? The fantasy of Sunday (as of vacation) is that of uneventful temporality—perhaps spectacularly uneventful, if it is caught on camera. Perhaps evanescent, inasmuch as Sundays may be frittered away; they pass, always, too quickly. What they do, in effect, is to pass. Certainly, work days pass; it is dawn, then day, then dusk; but a Sunday is there for shifting affective structures of time—for slowing time down—for feeling time passing. Anarchist philosopher Pierre-Joseph Proudhon in his 1850 "*De la célébration du dimanche*" (roughly, "An Ode to Sundays") suggests Sundays are designed to nurture "civil, domestic, moral and hygienic" functions, which in turn feed the nation and its people; that if Jewish tradition with regard to the sabbath was converted with Christianity in terms of the day of rest (Sunday, rather than Saturday, sanctified), still the duties involved had to be heeded, and these included, by way of religious law, joyousness, rejoicing…spiritually as well as materially ("*la loi même commandait de se réjouir, et de rejoinder la joie sensible avec la spirituelle*").[45] What Proudhon sees as a "rhythm" associated with the complex fact of governmentality becomes today, in the extended modern moment, an urgent cry to take "time out" seriously, as a matter of individual, social, public, and political health. It may appear spectacular, evanescent, mildly offensive, mildly appealing, in the aery work of Kjartansson; it is also a matter of life and death, in some ways: of sustainability, a "medicine."[46] Fine for some. Impossible, when there are children to take care of, or elderly relations; something collectively to tend towards—so there might be the cultivation of a leaning in, a lending hand. Proudhon sees this monotheistically, the alignment of godhead, nation, people; one could also see this as entanglement, tender acts of diffraction, and recombination and care.

This May day is an end of spring, a beginning of summer—*une journée-charnière, si l'on veut. Mais elles le sont toutes*. A hinge-day; but are they not all.

*

And so here, like Malabou, I have performed—enacted—epigenetically—the unfolding of this thought, of this chapter. The arrival towards what at every moment is in its becoming, its being. There is temporally like rationally a situation within the present that simultaneously reaches in its inclination towards a future time—when perhaps the idea will have clarified, arrived into its full tilt—and at the same time full cognizance of the arrival towards this writing that is in itself an event, an event of thought in its unfolding and its emergence. For the thought is always there in its full present—there is no arriving for it to do. For thought not to arrive but to be within in this journeying is for it not to be harnessable for use—it is to refuse to put it to use, not that sort of use. Not a use that makes it a sort of a tool—consumable and saleable. For that would be to be postmodern, caught in the flux, or premodern, naïve, and archaic; or counter-modern, simply. Modernity, if we see it as this perpetual oscillation, this rhythmic tug and flow, and counterpoint—infinite counterpoints—refuses closure and passage, refuses the sense something may be done. Full stop. And so while we may not have grand narratives quite (if that is the mark of postmodernity!) (again the pesky "we"), there is now and here a sense that unfolding all around us is a new era of crisis, and that within this (yet again, familiar and entrenched) crisis there is not merely novelty, flux, fashion but a perpetual stammering unfolding that is panicked and afraid and thus, as in *The Visitors*, seeks wispily to set the forward march of time aside—to exit out back, ek-statically.[47] This is the tension of now, as it has always been—then, and then, and then, as well. Put another way: what is illusory is the sense that we might pass beyond anxiety or disjuncture; that we might wish to. Rather hang onto the terrifying night and the oscillations of the day so that we can jump full throttle into the full present—*kairos*—not knowing what may be to come. I think here, in this image, of Toni Negri: "In postmodernity," he wrote, "in the polar night of a theory of truth founded upon the end of time, the circularity of relations between the name and the thing render the event definitively ephemeral and illusory."[48]

What this means is that "postmodernity" is itself that which construes ephemerality and illusion as constitutive of the relationship between names and things; that therefore inasmuch as we hold onto the idea of a fundamental illusion at the heart of life, we are—still—postmodern. This is not a period, but a structure of feeling, an ontology (or anti-ontology).

It is still May 31st and I am still, here, writing; this is not an illusion. It is another day and you are, there, reading: that is not an illusion either, to the extent you are there—and in the differential, there is epigenetically a teasing-out of the shift that your timeframe and mine have provoked in the structures of our understandings. Thus this page sits within a continuum (temporally) and it sits, uneventfully, spectacularly, on a horizon that does not aim to go somewhere but here, to dig further down, to be more fully open onto the present—*présence à soi*, but the "*soi*" too is changing, not clear-cut, not singular. Fred Moten says this best: "consent not to be a single being"—a riff off of Édouard Glissant's phrase, "*consent à n'être plus un seul*"—transformed and translated as it sits on Moten's page, Moten singing jazz into it and through it, a full present moment of writing splayed open in the "scream"—"the scream's content is not simply unrepresentable but instantiates, rather, an alternative to representation." Frederick Douglass's Aunt Hester's scream cannot be "[emptied] […] of content"; but the scream can "[contain] (and [pour] out)" "in black art"—slipping and shifting through language that prismatically refuses to capture being, to capture colour, time, if time is the frame within which being is made to split—to sit—to be splayed apart. Moten is writing of writing that is "more preliminary still" than previous writing—proving, at least by this assertion—that writing can do that, go back, or in; it is not a motioning towards some sort of complexity and clarity that would go ascending always up and out.[49]

There is nothing postmodernism can "do" except sing along with and against "modernism"—and, of course, "counter-modernism"—indeed "alter-modernism"—anarcho-modernism, ana-modernism, and what have you. We could go on and on. The thing is, we will go on. Thus, it is not the name, or the illusion of the representational value setting the name to the thing, or of the thing either; but the complex of relations by which this act of naming is itself indicative of a desire to hold, a desire to distantiate, to become proximous—to what? What is it we are reaching towards or perhaps—rather—when is it we will cease, for once, to reach? This might be the final anti-colonial condition, the one that is not invasive, or acquisitive; it is different to move towards and to reach for; if we move-with and -within, scream and cry and empty our screams of content and refuse to empty our screams of content; if we dance on lost and invisible bones and scatter the bones, then there is a sense we may ground ourselves in other narratives—these too are grand and they are very, very intimate; what is political is this, here, and the way this is entangled in an ecology it cannot separate itself out from. That to carve time, to carve space, to carve the being-towards—this is a refusal of co-optation, and thus also intimacy with a sense of full, lived temporality—call it whatever, whenever you will. Perhaps it is that there is a use for the term modern and another we may reclaim.

III.

The Back Flap

This is then a version of Jacques Derrida's "*mimique*" and also his *La double séance* [*The Double Session*], juxtaposition as method, as a way to displace[50]; we could say, with Barad, the performance of *dicho-tomy*, a doubling that is not 1 + 1 but diffraction, splaying, cutting together, yes, apart; and so within doubling or the fissure or the fold or the attempt to mirror within a refractive anti-logics, nothing really will have taken place except the place (Kristeva[51]), one could add, in its dissolution. Time has become in itself even more evanescent, even more a crumbling, a void, the nothing that takes place, the choreographic ontology within stillness and gaping sorts of holes, an eternal set of Sundays, and all the while, within whirling speeding up and catastrophic sensations and grief, the Sundays become Mondays, again, and again, and again; this then is within the fissure, thinking the "blind night" that transpires as Sunday and Monday toggle, work and not-work, work and "life," the writing day in its *dicho-tomy*, a labour of loving the thoughtful unfolding as something that cannot take hold except if it should be of the very feeling or gesture of taking hold. What takes hold is a refusal to seize or to grasp—outreaching, perhaps, rather than outreach; and outreaching is also never after, it is also always and inextricably again before.

Notes

1. I experiment with intimacy, temporality, and writing life among others in "The Time of Philosophy (with Svetlana Alexievich)," *Comparative and Continental Philosophy* 11.2 (2019): 161–177.
2. The reference here, implicitly, is to Julia Kristeva's landmark essay, "Le théâtre moderne n'a pas lieu," published in English as "Modern Theatre Does Not Take (A) Place," trans. Alice Jardine and Thomas Gora, in *SubStance* vol. 6/7, no. 18/19 (1977–78): 131–134. Kristeva argues that after the radical poetics and experimentation of Stéphane Mallarmé, modern theatregoers are deprived of a "place" or "site" for theatre, which now takes place on the page. It is beyond the scope of this chapter to go into the politics and poetics of that debate, which I do however echo here, in thinking the relationship between the performativity of language and writing within the essay form, and the choreographics of thoughtful life as that which is intimately imbricated in writing as well as the whole (diffrative) ecology of reading, place, time. I discuss Mallarmé's experimentation with language and performativity, as well as the "theatre/life/book" project, in "Mallarmé's '*Livre*': Notes towards a schizotheatre," *Textual Practice* 33.1 (2019): 175–194.
3. Gregory L. Ulmer, "The Object of Post-Criticism," in Hal Foster, ed., *The Anti-Aesthetic: Essays on Postmodernism* (New York: The New Press, 1998 [1983]): 83–110, p. 83. I develop the notion of plastic critique also in "The Inappropriable: On oikology, care, and writing life," *SubStance* 50.1, no. 154 (2021): 116–139. I'm grateful to Gil Anidjar for drawing my attention to the unarticulated presence of reading in my work on writing, and to conversations on poetics and prose.
4. See Linda Caruso Haviland's pointed reading of Susan Foster's performative lectures, particularly "Choreographies of Writing," at http://danceworkbook.pcah.us/susan-foster/choreographies-of-writing.html [last accessed 7 May, 2021]. Foster's work has long engaged with "choreo-graphy"; see in particular Foster, ed., *Choreographing History* (Indianapolis: Indiana University Press, 1995).
5. Catherine Malabou, *La plasticité au soir de l'écriture: dialectique, destruction, déconstruction* (Paris: Éditions Léo Sheer, 2005): 47. All translations mine unless otherwise indicated.
6. See most influentially Luc Boltanski and Ève Chiapello, *Le nouvel esprit du capitalisme*, new ed. (Paris: Gallimard, 2011).

7. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham and London: Duke University Press, 2007): 3.
8. See also Karen Barad, "Diffracting Diffraction: Cutting Together-Apart," *parallax* 20.3 (2014): 168–187.
9. Barad "Diffracting Diffraction" 168.
10. Catherine Malabou, *Avant demain: Épigenèse et rationalité* (Paris: Presses Universitaires de France, 2014): 275, 304.
11. Malabou *Avant demain* 194–197. She is reading in particular Martin Heidegger, *Kant et le problème de la métaphysique*, trans. Alphonse de Waelhens and Walter Biemel (Paris: Gallimard, 1953), as well as Martin Heidegger, *Interprétation phénoménologique de la "Critique de la raison pure" de Kant*, trans. Emmanuel Martineau (Paris: Gallimard, 1982).
12. Malabou *Avant demain* 199.
13. Malabou *Avant demain* 198.
14. Sara Ahmed, *Living a Feminist Life* (Durham: Duke University Press, 2017): 15–16.
15. Malabou *La plasticité* 11–22.
16. Ahmed *Living a Feminist Life* 7–10.
17. Alison Mountz, et al., "For Slow Scholarship: A Feminist Politics of Resistance through Collective Action in the Neoliberal University," in *ACME: An International E-Journal for Critical Geographies* 14.4 (2015): 1235–1259, pp. 1236–1237. I treat the question of slow scholarship in regard to another event run with Steve Potter at hART-slane Gallery, London, 11–13 July, 2016, "smooth & striated: form," in Kélina Gotman, "On the virtues of slow scholarship and small numbers," https://blogs.kcl.ac.uk/english/2016/09/13/on-the-virtues-of-slow-scholarship-and-small-numbers-2/. The event co-organized here was "Reaching | Outreaching," Loughborough University London, 9 June 2018, with Daniela Perazzo, Fred Dalmasso, Owen Parry, Johanna Linsley, Sivan Rubenstein, Rita Marcalo/Instant Dissidence, Sofia Boito, Arabella Stanger, Diana Damian Martin and Nik Wakefield.
18. Mountz et al. "For Slow Scholarship" 1238–1239.
19. I draw the concept of poethics from Joan Retallack. See *The Poethical Wager* (Berkeley and Los Angeles: University of California Press, 2003). Poethics involves radical involvement in ways of living and making world; poetry, poetics, art do not just describe the world around us but for Retallack are transformed by and transform it. This is an ethical injunction, an invitation to attune to and to attend to the granular and the tectonic in the every day. Her work is influenced by and fundamentally in conversation with that of John Cage.

20. See Rita Marcalo [Instant Dissidence], *Dancing with Strangers: From Calais to England*, https://dwsfromcalaistoengland.tumblr.com/. Accessed 8 September, 2021.
21. On Sivan Rubinstein's *Active Maps*, see https://www.sivanrubinstein.com/active-maps-2. Accessed 8 September, 2021.
22. Ida Rolf (1896–1979) developed a system of bodywork which she described as structural integration, and which has subsequently come to be known as "Rolfing"; this system aims to work at the level of the body's fascia, or connective tissue, to realign muscles, joints and bones misaligned through mis- or overuse. While the primary aim of Rolfing is ostensibly to relieve pain, and restore energy and integrity to body (and mind) processes, it is typically also the case that people who go through a ten-step "Rolfing" programme (i.e. who undertake the standard ten sessions of Rolfing bodywork) experience radical shifts in their concepts of self, world, and more. This tends to be attributed to the typically scientifically overlooked imbrication (one could say intra-action?) of "physical" and "mental" tensions and states. See, e.g. the Dr. Ida Rolf Institute pages, at https://www.rolf.org/rolfing.php. On questions of emotional upheaval, due to the release of long-held tension patterns, see also https://www.rolf.org/rolfing_faq.php#:~:text=Rolf%20made%20the%20point%20that,that%20is%20healing%20and%20transformative. Accessed 8 September 2021.
23. See especially Judith Butler, "What is Critique? An Essay on Foucault's Virtue," at http://eipcp.net/transversal/0806/butler/en [last accessed 7 May 2021]. I discuss Foucault's concept of critique in Kélina Gotman, "Foucault, *Aufklärung*, and the Historical 'Scene,'" *parallax* 24.1 (2018): 45–61.
24. Erin Manning, *The Minor Gesture* (Durham: Duke University Press, 2016): 176.
25. Manning cites Franco (Bifo) Berardi, *After the Future*, ed. Gary Genosko and Nicholas Thoburn, trans. Arianna Bove, et al. (Oakland, CA: AK Press, 2011). In Manning *The Minor Gesture* 171. See also Berardi, *The Soul at Work: From Alienation to Autonomy*, trans. Francesca Cadel and Giuseppina Mecchia (Los Angeles, CA: Semiotext(e), 2009).
26. Stefano Harney and Fred Moten, *The Undercommons: Fugitive Planning and Black Study* (New York: Minor Compositions, 2013): 74.
27. See especially Bonnie Honig, *Antigone, Interrupted* (Cambridge: Cambridge University Press, 2013); and Mary C. Rawlinson, "Beyond Antigone: Ismene, Gender, and the Right to Life," in Tina Chanter and Sean D. Kirk, eds., *The Returns of Antigone: Interdisciplinary Essays* (Albany: State University of New York Press, 2014): 101–121.

28. Adriana Cavarero, *Inclinations: A Critique of Rectitude*, trans. Amanda Minervini and Adam Sitze (Stanford, CA: Stanford University Press, 2016).
29. A version of this section appears in French as "Une temporalité spectaculaire sans histoire," trans. Christian Roy, in Chantal Boulanger, Nicolas Mavrikakis, and Laurent Vernet, eds., *L'illusion postmoderne? Réflexions sur l'évanescence d'un concept en arts visuels* (Montreal: Éditions Varia, 2021): 241–255. The short essay was originally written in English; it appears here in the original for the first time. Toggling between English and French, copy and original, before and after, imbrication and embeddedness, "remainder" and return, I am also echoing at once Rebecca Schneider's "reperformance" or "redo" of her essay on the archive, in "In the Meantime: Performance Remains," in *Performing Remains: Art and War in Times of Theatrical Reenactment* (London: Routledge, 2011), as well as Jacques Derrida's notion of the double session, as alluded to in closing and in n50 below. What I offer here is a twist that further thinks the aesthetic and methodological questions pertaining to ghostly haunting and the recursive processes of thought, the way our thinking, metabolically, moves; and the way this diffractive approach to the "redo," the copy and the original, posits an order of performative play that subverts, or anyway showcases, the constant act of quotation, self-quotation, and intra-action in the work of authorial originality: a *sui generis* work is always in echo of genera that have come before; to show these seams then allows offering "another take," another angle, perhaps the theatricalization or staging of the work of thought as it continues—epigenetically?—to move.
30. A footnote note, another layer in the onion of temporality: the bracket signalling another moment, a different time, another voice: when is this voice from? It was an echo of that original, and here a further reflection on the grammar of temporality again: as alterity, as comment, the voice of distanciation stands out and dissolves in the always erased temporalities of writing and reading once the work has gone to print.
31. *Derrida* [film], dir. Kirby Dick and Amy Ziering (2003).
32. Giorgio Agamben, *The Highest Poverty: Monastic Rules and Form-of-Life*, trans. Adam Kotsko (Stanford, CA: Stanford University Press, 2013 [2011]): 18–20.
33. Cavarero *Inclinations*.
34. Ulmer, "The Object of Post-Criticism," 88.
35. Ulmer, "The Object of Post-Criticism," 89.
36. Heiner Müller, "I Am Neither a Hope—nor a Dope—Dealer," in *Hamletmachine and Other Texts for the Stage*, ed. and trans. Carl Weber (New York: PAJ Books, 1984): 137.

37. Michel Foucault, “Qu’est-ce que les Lumières?” in *Dits et Écrits II. 1976-1988*, ed. Daniel Defert and François Ewald, with Jacques Lagrange (Paris: Quarto Gallimard, 2001): No. 339, pp. 1381–1397, p. 1387.
38. Foucault “Qu’est-ce que les Lumières?”1389, 1393.
39. Guy Debord, *La société du spectacle* (Paris: Gallimard, 1992 [1967]): esp. 148–164.
40. Foucault “Qu’est-ce que les Lumières?” 1387–1388.
41. Bruno Latour, *Nous n’avons jamais été modernes: essai d’anthropologie symétrique* (Paris: La Découverte/Poche, 1997 [1991]).
42. See esp. Malabou *Avant demain.*
43. Malabou *Avant demain* 304.
44. Catherine Malabou, *The Future of Hegel: Plasticity, Temporality and Dialectic*, trans. Lisabeth During (London: Routledge, 2005 [1996]): 193.
45. Pierre-Joseph Proudhon, “De la célébration du dimanche,” in *Œuvres complètes (Éd. 1850)*, 2 vols., vol. 2 (Paris: Imprimerie L. Poupart-Davyl, reprinted by BnF Gallica/Hachette Livre): 117–192, pp. 122, 131.
46. Proudhon 173–4, 189.
47. In the palimpsest of this writing, rereading these words, first set down in 2018, I am struck by another layer in this: how the “pandemic moment” performs another order of temporal suspense, one that allowed, temporarily, the full pausing of some things, just as others went into full throttle acceleration; everything now is unmoored, all of the structures in disarray, capitalism is shown to be unravelling, yet there is it seems a holding fast to its broken forms, its tentacular grasp. Within this context, more actual “Sundays” would do well to allow for some rest, that is to say, for recalcitrant slowing, recalcitrant refusal of capture at the level of micro-energy and time.
48. Antonio Negri, *Time for Revolution*, trans. Matteo Mandarini (New York: Continuum, 2003): 149.
49. Fred Moten, *Black and Blur* (Durham: Duke University Press, 2017): viii–x, xv.
50. See Jacques Derrida, *La dissémination* (Paris: Seuil, 1993 [1972]).
51. Kristeva, “Modern Theatre.”

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Beating Around the Bush: Non-human Theatre in Manuela Infante's *Vegetative State*

Camila González Ortiz

During the preparation of this article, a friend of mine posted online a picture of a flat in Paris in which a bunch of potatoes in the kitchen had all their sprouts grown up through the wall. The flat's owner has not been there for a while, unintentionally giving the vegetables free reign. How do the potatoes know where to extend their sprouts? On this phenomenon Hegel was fascinating by the way the sprouts "climb up the wall as if they knew the way, in order to reach the opening where they could enjoy the light" (Hegel, 1930, p. 306). Philosopher Michael Marder has dedicated a vast portion of his research to studying plants' behaviour wondering what it means to learn from non-human beings. At the same time there is a long-established relationship between the agency—and therefore potential discourses—present in all matters, and performative practices (Schneider, 2015). In line with these philosophical and performance studies genealogies on plant studies and art; and matter and meaning, respectively, lays *Vegetative State* (Estado Vegetal), directed by Chile-based multidisciplinary artist Manuela Infante and co-written by herself and the play's only actor Marcela Salinas. The play title

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has a double meaning. On one hand, it refers to the medical condition of someone alive but without consciousness. On the other, the title plays with the idea of a state—as a political-territorial organisation—based on vegetal structures rather than an animal. In the words of Infante *Vegetative State* "is not a play about plants; it is an exercise to see which things from the vegetative world can help us to rethink theatre practice and the place of acting" (in Artezblai, 2019). Conceiving theatre as a space for "embodied philosophy" (Infante, 2019) *Vegetative State* is informed by the ideas of Michael Marder on Plant-Thinking (2013) and neurobiologist Stefano Mancuso's work on plant perception, and it is part of a larger practice-as-research lead by Infante on the articulation of a non-human theatre which can be traced back to her earlier work as a member of the Chilean company Teatro de Chile.

This chapter will analyse *Vegetative State* identifying not only Marder's ideas on plants intelligence and alternative modes of speech-making (2017) present in the play in terms of dramatic structure and themes, but also the presence of other ideas associated to New Materialisms, such as diffraction (Haraway, 1992; Barad, 2003, 2007), entanglement, and intra-action (Barad, 2003, 2007). For Karen Barad "a diffractive methodology is respectful of the entanglement of ideas and other materials in ways that reflexive methodologies are not" (Barad, 2007, p. 29). Similarly, for Donna Haraway "A diffraction pattern does not map where differences appear, but rather maps where the *effects* of differences appear" (1992, p. 295). Based on these ideas, I argue that *Vegetative State* not only attempts to create a diffractive play through the devise of a branched dramaturgy based on plants' behavioural patterns, but also—on an ethical, ontological, and political level—the play suggests a utopian existence, in which a diffractive behaviour of entanglement between the human and the plant could be adopted, in order for human to recognise *the plant* in themselves.

TEATRO DE CHILE: FROM HISTORIC REVISIONISM TOWARDS A NON-HUMAN THEATRE

When looking at the body of work of Manuela Infante, it is key to examine the work she devised as a core member of the company Teatro de Chile (Theatre of/from Chile) and the company's interest in challenging the representative nature of theatre and dramaturgy; an exploration that will also inform her latest work. Founded at the start of the 2000s and active until 2016, Teatro de Chile played a seminal role in the arrival of a new generation of theatre makers in post-dictatorship Chile. For Carlos Labbé and Monica Ríos, the choice to name the company Teatro de Chile could be interpreted as an irony which encompasses the decline during the 90s of Pinochet dictatorship (1973–1990) as the main topic reference for theatre makers,[1] and at the same time the obvious fact that the company comes from Chile which therefore, "reveals that the national construction we called Chile is a theatre created from certain actors or characters which forged an identity"[2] (2009, pp. 213–214). The plays from their early repertoire present themselves as critical artefacts offering an alternative to hegemonic historic discourses. Within this context, it quite significant that the company's first work *Prat* (2002) is now remembered as one of the biggest scandals in the Chilean theatre community. The play aimed to be a reinterpretation of the life of Arturo Prat, Captain of the battleship *La Esmeralda*, and national hero, who died in combat during the Pacific War (1879–1883) between the Chilean fleet against the Bolivian-Peruvian alliance. In the play Prat is not portrayed as the intellectual, patriotic, brave, and successful figure from the nineteenth century, but as a 16-year-old young Captain in charge of a whole crew, "overprotected by her mother, and who caressed and let another man caress his hair in return" (Carvajal, 2010, p. 75).[3] *Prat* brought the attention of a broader audience due to its controversial portrait of Arturo Prat. For a conservative and misogynist perspective, portraying Arturo Prat as someone weak, doubtful, and potentially homosexual was unacceptable.[4] Using a historical figure or using Chilean history as a source of dramatic material was not something common within the contemporary Chilean theatre repertoire. During the second half of the 80s and the transition to democracy in the 90s, the narrative tendencies from playwrights and directors were rooted in micropolitics represented in fiction that although they were inserted within a historical context, tended to be centred around anonymous characters and within private spaces. Moreover, the act of choosing specifically Arturo Prat as a vehicle for challenging official historical narratives, was highly provocative, as he is one of the few Chileans that generates a unanimous positive opinion from all sectors. He is seen as an extraordinary leader who gave his life for his country (and hence for all Chileans) instead of surrendering to the Peruvian fleet, representing the sum of Chilean values (Swett, 2002, p. 2). In this sense, the cultural construction of a heroic-type figure around Arturo

Prat has served as a modern-humanist symbol of national consensus operating in pursuit of the construction of a common historic narrative. By portraying Prat on stage as "a faithless and fragile hero" (Costamagna, 2001, p. 22),[5] the play problematises the politics of memory and of representation, and therefore the dynamics behind the construction of a hero and official history (who is remembered and how they are remembered), revealing the artificial nature of patriotic and nationalist icons. In line with this iconoclast approach, Teatro de Chile's second play *Juana* (2004) problematised the figure of French saint Joan of Arc portraying her as a young farm girl in a constant battle with the voices inside her head. For Eduardo Thomas the treatment of historical figures in both plays "propose a healthy transgressive, desacralizing and revitalizing way for art to relate with the historical memory of people"[6] (2010, p. 189). Regarding these two first plays, Infante stated that she "has written some texts about the past full of holes to see if the present insert its face and complete the entire figure. To see if it would somehow confess"[7] (Infante, 2004, p. 120).

With *Cristo* (2008) the company continued with its interest in revisiting historical figures, although this time they incorporated the use of video on stage and a mockumentary-based narrative structure. The play put on scene actors and technicians facing the task to represent Jesus Christ. Rather than focusing on the life of Christ or his historical and religious significance, the company used his iconic status as an excuse—a creative cue—to devise a performative essay on the possibilities, or in this case, impossibilities of (re)presenting a reality in its purest state. This resonates with Barad's criticism of representationalism and its ontological effort to distinguish between the representation(s) of something and the thing itself that is meant to be represented (2003, p. 804). Instead, for Barad "a *performative* understanding of discursive practices challenges the representationalist belief in the power of words to represent pre-existing things" (2007, p. 133). In *Cristo* the symbiotic relationship between reality, performance, and representation became evident in—for example—the choice to stage a mockumentary in which the company restaged *the scene of the scene* of the team discussing the creative process (first screened on stage in a video as part of the Making Off of the play, which later the audience realised it was also scripted). *Cristo*—as a performative event—also challenges the power given to language (words and images) proposing a Russian doll-like narrative artefact in which reality is nothing but an accumulation of infinite representations, including the very same object/subject it intended to represent in the first place (Jesus Christ in this case).

Although theoretical scholarship has always been a strong component in all Infante's work, it was in Teatro de Chile final piece before its dissolution, *Realismo* (Realism [2016]), where philosophical approaches explicitly informed the dramaturgical and staging decisions. In *Realismo* the company explored the ideas rooted under the philosophical umbrella of Speculative Realism and its aim to go beyond the critical and linguistic turn, that is, beyond a reality whose nature depends on thought and humanity (Bryant et al., 2011, p. 3). Specifically, the making process of the piece established a dialogue with object-oriented metaphysics which, taking Graham Hartman definition, define objects as "unified entities with specific qualities that are autonomous from us and from each other" [A4] [A5] (2011, p. 23). Within this context the company wondered:

> ¿What does it mean to be *true realists* in the theatre, that is, understand the stage as a web in which humans and inanimate objects are all in the same plane? Would it be possible to think a non-anthropocentric theatre, or even a post-anthropocentric? Could this turn out to be a strange form of *neorealism*? (Matucana 100, 2016)[8]

Realismo tells the story of one Chilean family through four generations, experiencing a different key period in Chilean history during the twentieth century and the different dynamics that each member of the family began to establish with the objects in the house. The realistic acting style and genre seem, at first, odd within a play that it supposed to problematise an anthropocentric theatre. However, perhaps it is through this paradoxical choice where the ontological and epistemological enquiries on the relationship between human and the immaterial world—made by Teatro de Chile in the previous quote—find some compelling answers. As Cynthia Francica states (2020, p. 329) "it is precisely from the very centre of the realistic and anthropocentric drama tradition that the play proposes to reveal the scenic strength of the non-human as a multiplicity of everyday objects gain space on the stage to imprint on the play other rhythms, textures and shapes".[9] This potential of the scenic strength of the non-human stated by Francica could echo Barad's pursuit of a performative understanding of discursive practices over a representationalist one, precisely to challenge "the excessive power granted to language to determine what is real" (Barad, 2003, p. 802). Similarly, Coole and Frost claimed that elements associated to the human nature (such as language, agency, subjectivity, and meaning) “have been presented as idealities fundamentally different from matter and valorised as superior to the baser desires of biological material or the inertia of physical stuff” (Coole and Frost, 2010, pp. 1–2). In line with these ideas, Infante in recent years has begun to explicitly refer to a *teatro no humano* (non-human theatre) stating:

> After much coming and going, my definition of non-human has been simplified: everything that cannot be fully assimilated within/by human knowledge is no-humanity. Someone might say: *but that could be everything, anything*? Well, yes…Who said that humanity has ever existed? Who said that humanity hasn’t been nothing more than a European construction to barbarise everything else?[10] (Infante, 2020)

In this sense, a non-human theatre would challenge a content-centred spectacle that searches for definitions, and where history, meaning, and politics are offered as topics to be consumed by the audience (Infante, 2020).[11] Alternatively, a non-human theatre would therefore advocate for the right to perhaps never fully understand *that other*. A theatre whose stage strength (taking Francica’s views) emanates from the “opacity of all things that habit, transit and withdrew in a play” (2020). [A6] [A7] For Infante, the non-human theatre should allow itself to also imagine and enact a world in which there is nothing to be said about. Her next work, *Vegetative State*, presents itself as part of this exploration towards a non-human theatre, in which—as I will discuss in the next section—we can identify several dramaturgical, performative, and staging decisions that could be associated to some New Materialism approaches.

VEGETATIVE STATE

Premiered in June 2017 at the NAVE Centre in Santiago, *Vegetative State* follows up Infante’s interest and conceptions around a non-human theatre. The play has been performed in Madrid, Brussels, Chicago, and Berlin and represented Chile at the 2019 Venice Biennale, so far receiving critical acclaim. Lucy Cutter, when reviewing the show in Portland, stated that “the singular brilliance of Estado Vegetal lies in the ways it renders the state of planthood tangible” (Cutter, 2019).

On a narrative level, the play tells the story of a motorcycle accident where the driver hit a tree ending up in a vegetative state (hence the title of the play). The play can be defined as a polyphonic monologue due to the fact that it is played by one actor, Marcela Salinas who tells the story through a mosaic-type structure exposing the points of view of different characters involved in one way or another in the accident: Manuel, a fireman and the motorcycle's driver; his mother; María Soledad, a mentally challenged girl who coincidentally was climbed on the tree during the accident; Eva, a neighbour, member of the local council and the first to arrive to the scene of the accident; Raúl, a civil servant in charge of the green areas in the borough; Nora, an 80 years old lady who twenty years prior to the accident half buried herself in the floor of her house along with all her interior plants, which coincidentally is also the house next to the tree involved in the crash twenty years later; and Joselino, another neighbour whose younger self-discovered Nora buried. Marcela Salinas, the play's only performer and co-author of the script, makes use of her own vocal and physical abilities, microphones, and live-recorded loops to differentiate each character. Simultaneously, the play uses the stage and its multidisciplinary nature to establish an experimental dialogue with the ideas of philosopher Michael Marder on plant-thinking and plant intelligence, and with Stefano Mancuso's research on vegetal communication, which informed several of the decisions made by the creative team in the terms of dramaturgy, performance; and set, light, and sound design. On a political level, the play explores a series of paradigms or alternative world orders regarding the dynamics of power between humans and non-human entities in the world, which also link to the play's title.

In an entanglement of performance, philosophy, science, and political thinking *Vegetative State* becomes part of a repertoire of artists, scholars, and other multidisciplinary initiatives which aim not only for a shift in the humanity-centred understanding of our reality, but also to shed light on the crucial and foundational role that the non-human domains of life have had within the development of human life. In fact, since the beginnings of life on Earth, non-human species have shared a co-dependency which seems vital to their individual survival. We see this, for example, in the symbiotic relationship between plants and the fungal web that surround the tree's roots allowing the tree's existence, and the roots provide a structure for the fungal web to develop (Sheldrake, 2020, p. 2). In other words, each domain exists from within the relationship with the other.

In the introduction of *The Language of Plants: Science, Philosophy, Literature* (2017a) the editors noted:

> Plants are perhaps the most fundamental form of life, providing sustenance, and thus enabling the existence of all animals, including us humans. Their evolutionary transition from Paleozoic aquatic beginnings to a vegetative life out of water is undoubtedly one of the farthest-reaching events in the history of the earth. It was the silent yet relentless colonization of terrestrial environments by the earliest land plants that transformed the global landscape and radically altered the geochemical cycles of the planet. This resulted in lowered concentrations of atmospheric carbon dioxide and thus set the scene for the emergence of terrestrial animals about 350 million years ago. (Gagliano et al., p. vii)

A similar view is shared by Heather Sullivan stating that "our entire human bodily existence has always been and continues to be a plant-based ecological system" (2019, p. 152). Sullivan refers to "dark green" specifically in relation to the pre-historic plant-based sources of current fossil energies and how this petroleum-fuelled anthropocentric industrialisation has affected the world's ecosystems (p. 153). Whether referred to as dark green, dark ecologies, critical plant studies, or simply plant science, these projects place their interest in exploring and re-assessing (Sullivan, 2019) the active nature of plants reflected in their inherent agency, intelligence (decision-making systems), and intentionality. Thematically *Vegetative State* is concerned with aspects familiar to the dark green, particularly in Manuel's monologue which is a diatribe towards the devastating effect of the Anthropocene. At the same time, the play proposes a new materialist production-making methodology to challenge the dominant narrative discourses brought by the cultural turn (Coole and Frost, 2010) that have informed Western theatre practices. The play's ultimate goal is to explore domains of life in order to find that *otherness* within ourselves; the plant in oneself as stated by Marder (2013b). If for Barad "[…] diffraction involves reading insights through one another in ways that help illuminate differences as they emerge: how different differences get made, what gets excluded, and how those exclusions matter" (2007, p. 30); then it could be argued that in her early work—described in the previous section—Infante already began to *flirt* with some elements associated to Barad's ideas, by highlighting the artificial nature of official politics of memory regarding how historical-heroic characters' lives have been represented, labelled, and ultimately remembered, at the exclusion of other non-official historical narratives. Following this trajectory: To what extent would we consider *Vegetative State* a diffractive play? The next sections will attempt to answer this question by—on one hand identifying and analysing the dramaturgical and performative mechanisms deployed on stage, which contribute to articulate a diffractive pattern,—and on the other hand by recognising the potential political discourses of the play, which emerge precisely from the intra-action (Barad, 2007) of these mechanisms.

Branched Dramaturgy

The pursuit of Manuela Infante for articulating a non-human theatre is at the core of *Vegetative State* staging process and in the devise of a narrative-dramatic structure, which can be labelled as branched dramaturgy. Methodologically, the material was devised through a series of residencies in Chile and abroad, where director, performer, and stage designer experimented with dramaturgical, performative, and visual narratives through improvisation. This collaborative way of working responds to Infante's own understanding of her role as a playwright in each of her projects. For Infante "playwrighting is not the practice of writing scripts, but rather a type of architecture, if we want to use a spatial metaphor. It is the organization of a path" (Infante, 2019, Master class).[12] This mode of thinking on playwriting echoes her views regarding the texts of *Prat* and *Juana*—stated previously in the chapter—in that she does not conceive them as fully formed dramatic and biographical scripts, but rather incomplete pieces from *a past*, with holes that elements of the present (brought by the creators and the audience) complete to form the full performative event. Infante considers herself a playwright, but not within the modernist-humanist theatre paradigm, where the author's words, the story, and a cohesive plot take a central position. Instead, she aims to practice a non-humanist dramaturgy whose prominence is shared among other theatrical materials (sound, image, bodies, etc.) involved in the performance. In line with this, the architectural dramaturgical path of *Vegetative State* is articulated following a plant's behavioural patterns, which inform the play's literary language, the overall structure regarding links and transitions between scenes, and the ways in which the performative material is deployed on stage.

From a linguistic perspective, many of the characters' monologues/ testimonies make use of plant-related lexicons or commonly known expressions. In the first scene, in which Marcela Salinas plays Raúl telling his account of the accident, the character makes expressions such as "this is the root of the problem"[13] (Infante, 2017, p. 1) to point out that the tree's branches slow but steady growth towards the electric cable has been a problem for years. On two occasions the character says to the audience: "Look, my point is…Cos sure, you are gonna say; Don Raúl you are beating around the bush"[14] (p. 1) as his account of the accident keeps diverting towards other topics. Later, during Eva's account of the accident, she states "aquí no se mueve una hoja sin que yo me entere" (p. 5) which literary means "not even a leaf moves here without me knowing", and she believes that Manuel's mother must have been "sleeping like a log"[15] (p. 5) when the accident happened.

Plants' behavioural patterns influence the overall structure of the play. Like the co-dependency between a tree and the fungal network living on the tree's roots—mentioned earlier in the chapter—the play's seemingly individual sections emerge in entanglement with one another. In the context of quantum physics, entanglement takes place when two particles share a common state, and the interaction of something external with one part of the entangled system causes the entire system to be affected. Entanglement is a key aspect of Barad's notion of intra-action (2007). Defined as the "mutual constitution of entangled agencies", the dynamic of intra-action "recognizes that distinct agencies do not precede, but rather emerge through, their intra-action" (p. 33). Following this mode of thinking, it could be argued that in *Vegetative State* each scene works as the branch of a tree or a climber, and its dramatic purpose within the overall structure will emerge from the intra-action with the other branches/scenes.

We see this for example when Raúl, in one of his many diversions from the main topic (the accident), begins to talk about Adam and Eve:

> RAÚL: And the woman ate the prohibited fruit from the tree in the Garden of Eden. She ate a little bit, almost nothing, but she did and as soon she ate they felt so ashamed that…what did they do?...they covered themselves with a LEAF. The cake covered the cherries. EVE!.. That's the name of the lady from the local council.[16] (p. 2)

What seems to be Raúl beating around the bush in an irrelevant mediation about Adam and Eve, will semantically and plot-wise make sense later in the play when we hear Eva's account. She will also bring Christian references, describing the scene of the accident and the burned tree as biblical (p. 4). Moreover, the phrase "I can't move" is said by María Soledad at the very end of her monologue when she is recalling being trapped up the tree, which then merges with the start of Eva's monologue:

> MARÍA SOLEDAD (in a loop): I can't move. I can't move. I can't move.
> EVA: "I can't mooooove!!!" The girl screams and screams stuck up the tree while the firemen were trying to get her down.[17] (pp. 3–4)

At the end of Joselino's monologue recounting how he discovered Nora buried with her plants and a piece of paper with a poem, he states:

> JOSELINO: It is written in the poem that the lady left, I brought the *hoja*[18] so you can understand.
> STAGE DIRECTION: Joselino opens an envelope. From inside, he takes a dry *hoja* from a tree. It's not a paper *hoja*.[19] (p. 19)

The entanglement narrative also operates on a sound design level at the end of the scene. Marcela Salinas takes the dry leaf from the envelope towards one of the standing microphones and crunches it, recording the sound of the crashing leaf in a loop. As the recording is played the sound first slowly begins to resemble the sound of a bonfire and then of a wildfire, which coincides with the start of Manuel's monologue which takes place in a burned forest. Earlier in the play, Salinas builds a soundscape by overlapping loop recordings of different ambient sounds she makes with her own voice. It is a multi-layered soundscape which *sort of* resembles a natural landscape but at the same time, it doesn't refer to any specific ecosystem. It could be a jungle, the countryside, or a desert; the soundscape is simultaneously familiar and strange. The infinite possible meanings in these two examples emerge from the intra-action between the sounds made by Salinas' body, the loop recording, and the audience's own references of how a natural soundscape should sound like.

Within *Vegetative State*'s plant-based branch dramaturgy of loose endings and random narrative paths, [A8] [A9] we can also identify elements associated to chaos theory, which focuses on analysing unpredictable phenomena. For chaos theory, what on an external level seems a disordered of chaotic behaviour, on an internal level it reveals to be a complex system with clear patterns and structures. In the play, the repetitions of expressions among the characters, and the apparent randomness of the intra-action (following Barad's concept) between scenes [A10], are understood by some characters as part of a bigger structure. These elements are particularly clear in the Mother's monologue, which Salinas delivers as if she is giving her testimony to a police officer. She refers to the relationship with her son Manuel and recalls a memory from when Manuel, as a child, performed in a play:

> MOTHER: He even joined a Theatre workshop. He was very upset because they gave him a character that couldn't move. Can you imagine. He must have been 6 or 7 years old. He cried: "I can't act this, mum, I can't move. I can't move!". We rehearsed together. Because he was struggling. We even made the costume together. I remember that at first he was moving too much, I told him "stay still Manuel", "It's windy mum!! It's too windy!" All the other kids played real people and came in and out from the stage. They said things. Some even sang. And there was Manuel, standing still, dressed as…a TREE. (Infante, 2017, p. 7)[20]

The phrase "I can't move" is repeated again, after also being uttered by María Soledad when stuck up the tree and acknowledged by Eva. The use of capitals in the text to write the word tree is performed by Salinas/the mother as an *anagnorisis*; an instant of revelation in which she realises that perhaps random elements of her life and her son's life are part of an alternative power structure—ran by non-human *others* with their own agency and motives—which might have played a role in Manuel's accident. I used the word *perhaps* because the mother based her realisation only on intuitions rather than full-shaped certainties. Moreover, James Gleick states that "to some physicists chaos is a science of process rather than state; of becoming rather than being" (1987, p. 5) and which acknowledges the matter's potential for self-organising and intricate relations (Coole and Frost, 2010). Chaos theory's [A11] focus on process and becoming and Coole and Frost's remarks on the dynamic nature of matter, find a point of contact with Barad's intra-action when looking at the entanglement between words, space, lighting, and the presence of Marcela Salinas and her use of a loop sound recorder to create live-media content [A12] [A13]. In this context, the narrative and discourses are being both processed and performed at the same time, emerging from the intra-actions of the agencies involved in the event. This dynamic is particularly evident in the mother's monologue, introduced above. In this scene, the monologue is constructed and delivered through three layers of loop recordings recorded by Salinas in real time. The first time, Marcela records a set of sentences leaving long pauses between them. When we hear the recording, Salinas uses the pauses in between to record a second set of sentences, also leaving pauses in between, this time shorter. When both recordings (sets 1 and 2) are played, the audience starts to identify a sense of narrative, a story. She records a third and last set of sentences filling the gaps created in the first and second recordings. If we take as an example the first part of the excerpt selected above, it would look like this:

> MOTHER: He even joined a Theatre workshop (set 1). He was very upset because (set 2) they gave him a character that couldn't move (set 1). Can you imagine (set 2). He must have been 6 or 7 years old. He cried: "I can't act this (set 3), Mum (set 1) I can't move. I can't move!" (set 2).

When the three recordings finally play together, what at first seems to have been a series of random loose phrases—recorded by Salinas and leaked by pieces to the audience—begin to be articulated in situ into her full testimony to the police officer. Narratively, each set works on its own and in relation to the other two, giving the potential for different interpretations.

Contrary to what is usually the norm on stage, Salinas performs/records each set of the mother's monologue, following the light cues (instead of the light following her). Evidently, she is performing a human emulation of heliotropism, the motion of plants in response to the sun. Rocío Hernández's light design accentuates this by placing each PAR lamp's PARCAN in the ceiling in a parabolic layout mirroring the sun's movement. Exploring on stage the natural phenomenon of heliotropism is a clear example of how *Vegetative State* establishes a dialogue with Michael Marder's concept of plants' non-conscious intentionality.[21] For Marder "[…] the non-conscious life of plants is a kind of 'thinking before thinking', an inventiveness independent from instinctual adaptation and from formal intelligence alike" (2013a, p. 126). Epistemologically, thinking before thinking produces non-representational meaning. If humans store their memories in their brain (centralised) as images (representational), plants store in their cells (decentralised) as "imageless and non-representational material memories" (127). In the case of the phenomenon of heliotropism, plants remember the sensation of light in their bodies rather than the image of the sun itself or what the light has revealed. In this sense, Marder labels heliotropism as "the most iconic illustration of its non-conscious noesis, or act of intending" (128). Marder's ideas of a decentralised memory system resonate with Infante's views on playwriting as an architectural craft. Interestingly, Chilean writer Andrea Jeftanovic back in 2010 the dramaturgical work of Teatro de Chile as a living system where the play's intersectionality is shared with the spectator with fluidity and unpredictability. *Vegetative State's* pluri-directional narratives oppose traditional dramatic unity in favour of an organic dramaturgy.

Plant Power

Botanists James H. Wandersee and Elisabeth E. Schussler (1999) coined the phrase "Preventing Plant Blindness" to draw attention to the tendency of biologists to overlook and neglect plants in favour of researching the fauna. The phrase was part of a larger campaign which also involved the print and distribution of posters with the phrase to over 20,000 secondary school teachers at teachers' conventions in the USA. The poster's design was also informed by this idea:

> The poster is designed to be initially puzzling. It shows a tree-lined, riverine environment emblazoned diagonally with the words "Prevent Plant Blindness." Hovering, Magritte-like, in the sky above is a pair of dark-red-tinted spectacles. The implication is that someone wearing these glasses could not see the green plants in the scene below - that if one's vision is "filtered," either physically or conceptually, one may easily miss seeing the plants that appear in one's field of vision. (Wandersee and Schussler, 1999, p. 82)

The underrepresentation of vegetative modes of life has also been addressed by Sullivan (2019) stating that "Plant blindness means that human beings perceive the surrounding greenery, however sparse or lush, as 'mere' background" (156) for animal predators even if in some cases, these predators are smaller than the plants (like a snake). Similarly, Marder in his *Plant-Thinking: A Philosophy of Vegetal Life* (2013b) claims that "If animals have suffered marginalization throughout the history of Western thought, then non-human, non-animal beings, such as plants, have populated the margin of the margin, the zone of absolute obscurity undetectable on the radars of conceptualities" (2). Yet, this role of a passive green backdrop for the faster or more active animals (Sullivan, 2019) has at the same time triggered a series of—sometimes contradicted—narratives regarding the relationship between humans and non-animal modes of life. From sustainable utopian co-existence or lush futuristic landscape, to "dystopian horror tales of overwhelming and nightmarish vegetal agency re-emerging and re-conquering the Earth" (Sullivan, 2019, p. 155). In line with these authors, *Vegetative State* also explores vegetal power and the potential narratives derived from it. In Eva's monologue, she envisions a future in which the plants will take over the planet:

> EVA: That's how I imagine the end of humankind…No, I don't imagine, I saw it on tv, when the human being is wiped off the earth, plants will take three months in cover everything. The planet will be like a one Green ball. (Infante, p. 5)[22]

Eva gives a great amount of legitimacy to fictional sources, which is not surprising given the extensive repertoire of films and tv shows that depict plants as an invasive force waking up from their passive state to terrorise humanity. From Audrey Jr. the carnivorous plant in Roger Corman's *The Little Shop of Horrors* (1960), the sentient tomatoes in John De Bello's *Attack of the Killer Tomatoes* (1978), to the plant-based toxin triggering humans to commit mass suicides in the more serious *The Happening* (2008) by M. Night Shayamalan; in these stories there is always a sense of mystery regarding why the plants are attacking humans. In the introduction of the collection of essays *Plant Horror: Approaches to the Monstrous Vegetal in Fiction and Film* (2016) Dawn Keetley states that "Plants embody an inscrutable silence, an impeccable strangeness, which human culture has, from the beginning, set out to tame" (p. 1). Eva argues that eventually someone will crush their vehicle towards the tree, stating "I saw it coming" (4).[23] Raúl also makes the same comment in his testimony earlier in the play complaining that the tree should have been removed years ago. Yet, he expands on this by also expressing his fears and apprehensions towards the plants' slow-scale movement:

> RAÚL: [...] A tree moves so slow that it seems still. Why? What is happening? A tree lives…How many? Hundreds of years! Then, imagine your life, your own, yes your life, stretch through hundreds of years…SLOW. So well, of course! Sure, you could say "we see it coming Don Raúl", "an accident waiting to happen Don Raúl", but I would have to answer: "Sure Officer, IT COULD NOT BE SEEN". That is the root of the problem, the matrix, the core of all this: This is a COMING that is NOT SEEN. (Infante, 2017, p. 1)[24]

It is precisely Raúl's recognition of his own plant blindness—and therefore his incapacity to understand other ways to be in the world—that ultimately fuels his perception of the tree as dangerous. A different dynamic takes place in the case of Nora, whose scene takes place twenty years before Manuel's accident. It is not performed as a testimony to the police, like the other monologues, but as a scene between Nora and her plants in her house. In fact, the plants are just as many characters in the scene as she is. She treats her plants as if they were people giving them names, gender, and personality traits. She chats with them about their daily care: "You are too pale", "You are reaching your peak", "You need more light" (p. 7).[25] Suddenly and surprisingly, the plants answer back to Nora. They demand her to plant them back on the grounds of the house, reminding her that this place belongs to them in the first place: "But, why do you want me to destroy my house's floor? What do you mean with this isn't my house?!" "What do you mean with you were before me?"[26] (p. 8). The plants ask Nora to write a letter they will dictate her. Unlike Eva's and Raúl's rather alienated relationship with the vegetative world, Nora's openness, care, and ultimate empathy towards the plants allowed for a chance for communication between species. The scene ends with Nora writing down the plant's message. Whatever the plants communicated to her remains a mystery for the audience; we only hear Nora's reaction: "Come again? Oh, what a beautiful image, it seems such a biblical image"[27] (p. 8). Whether the plants actually spoke to Nora or she imagined it is not really the point. As we have seen, *Vegetative State* is not concerned with how plausible the overall plot is but rather with using the story as a concrete structure, a path (following Infante's architectural understanding of her dramaturgy) that can sustain an interdisciplinary approach to plant-based dynamics and their inherent agency. In this sense, highlighting a world in which plants raise their voices and demands (as they do to Nora) resonates with some of New Materialisms' views in which animal and the vegetative world do share qualities exclusively attributed to humans such as self-awareness and self-reflection [A14] [A15]. Under a New Materialism perspective, as Coole and Frost point out "the difference between humans and animals, or even between sentient and non-sentient, is a question of degree more than of kind" (Coole and Frost, 2010, p. 21).

In Joselino's monologue he tells the police officer how twenty years ago he discovered Nora naked and buried in the floor with her plants. It is through his testimony that we learn that after Nora was rescued, the house was abandoned, and the vegetation took over the property. Moreover, he tells that the roots of the vegetation in the house became entangled with the roots of the tree outside the property. Attuned with *Vegetative State*'s branched dramaturgy, Joselino reproduces the lines "Look Officer, I saw it coming, but it is coming so slow that you don't *see it*[28] coming" (Infante, 2017, p. 9) which are not exact the words but similar to Raúl's testimony. In these testimonies there is the suspicion that plants somehow have agency and are devising a long-term plan for re-claiming the planet. We see enacted the fear towards plant power—represented in the narrative figure of the "monster plant"—whose agency challenges human control and revengefully arises against humans' extractive paradigm.

Although *Vegetative State* tries to avoid relying on a conventional dramatic structure, the play reaches an epic scale and climax with Manuel's monologue. As stated earlier, the scene begins with the loop recording of a leaf being crushed by Salinas at the end of Joselino's testimony which becomes the sound of a wildfire. The actor is surrounded by standing microphones which represent the burned tree. The back of the stage is completely lit with a red-pink light simulating the flames of the wildfire. The setting has moved from the city—*the place of thinking* under humanist terms—to the natural environment. Salinas is now dressed like a fireman. She is Manuel—the victim of the motorcycle accident—standing and contemplating the burned forest. The scene represents a shift from the previous monologues, which take place in an every-day setting (a police station, a living-room) and are performed in a relatively realistic style. Manuel's monologue presents itself as a diatribe whose text and delivery are more in line with the classic acting style. I argue that the monologue can be divided into three parts: recognition and guilt, utopian desire, and an epistemological-political alternative project. In the first stage Manuel claims:

> MANUEL: I'm an animal. New to this living business, this survival business. You were all here before me, but here I am still surviving with limited understanding, like the guilty flip-side of an absolute mystery which even so, you all know, much better than me. Because it's as if you live within time, not against it. I'm animal. My answer to the world was to pull up, therefore my sentence is to move. Where you stay, I move forward. Where you show your face, I avoid. Where you settle, I invade. I'm animal. (Infante, 2017, p. 10)[29]

In the excerpt above Manuel is devastated and ashamed. He acknowledges clear differences between humans and the vegetative word in how each species conceived their role in the world. He endows plants with all the positive qualities usually attributed to human behaviour and refers to humans as ignorant and predators. Therefore, by repeating "Soy animal" he is not just re-identifying himself in terms of a biological species, but also in ontological, ethical, and political terms. This is reinforced later in the monologue, when Manuel wishes to acquire plant-based behavioural qualities:

> MANUEL: I ask God, absolve me from the animal forms! Give something from them! Let my lungs beat! Let the tips of fingers breath, let my stomach think! Let my skin feed so the act of eating be more similar to touch rather than gobbling down. (p. 10)[30]

Manuel wishes for a diffractive existence because he doesn't want to *just* understand this *otherness*, he wants to incorporate what is intrinsically non-human into his own humanity and be defined by this relational dynamic. Moreover, Manuel's celebration of a non-human, yet still conscious mode of existence is reflected in his wish for acquiring a decentralised intelligence. In this sense, his desire is entangled with Marder's ideas on plants' intelligence when he states that "in refusing to treat intelligence as an exception in the order of life and in the evolutionary process, will we gain admission into the yet-uncharted terrain of plant thinking" (Marder, 2013a, p. 126). Finally, the monologue shifts towards an epistemological-political demand for the rise of a Vegetative State, with Manuel stating:

> MANUEL: […] Autonomy. You can't represent the hand with ideas from the brain, nor with the eyes' needs. No! It was only from political physiologies that the tyrants emerged or representative democracy which is the same […] Let the world be a pure green ball again. A sovereign vegetative state […] I'm the last animal. Come. Let me do what animal can and plants cannot: let me die. (Infante, 2017, p. 11)[31]

Manuel's outcry against traditional modes of political representation illustrates *Vegetative State*'s ideological core, as it reaffirms the play's position within the repertoire of academic and artistic works which have turned their eye into exploring and embracing plants' behavioural patterns—specifically in relation to their decentralised decision-making system—precisely to seek for alternative political modes of power distribution. In tune with this context, it is not a coincidence that Stefano Mancuso's latest book is titled *The Nation of Plants* (2021). The work is a manifesto in which the author playfully assumes the role of the translator of a constitution devised plants and based on their own modes of organisational structures and principles that regulate the lives of these organisms (10). Moreover, looking at the Chilean context, Manuel's outcry has become particularly relevant as currently in the country there is a constitutional reform taking place in which the new constitution will be discussed and devised. This reform was triggered by the 2019 Chilean Revolt in which different massive citizen-led protests were held throughout the country demanding structural changes to Chile's neoliberal model and the constitution—devised and approved during Augusto Pinochet's dictatorship (1973–1990)—that has sustained this model for over forty years.

Placing itself at the intersection between performance, philosophy and plant studies, *Vegetative State* represents a key contribution within a wide range of areas and disciplines. As part of Manuela Infante's artistic quest for devising a non-humanist theatre, the play establishes a practice-based dialogue with modes of thinking and concepts associated to new materialisms, such as Karen Barad's entanglement and intra-action and Michael Marder's plant-thinking. The result is a theatrical experience whose dramaturgical and performative strategies challenge notions of centralised plots, monolithic discourses, and ultimately how meanings are produced, performed, and perceived. Moreover, the play's non-humanist nature, not only asks audiences to turn their focus to plant-based ontological dynamics for alternative modes and collective relations of power, but also—and mainly—it invites them to dive into the unknown and the unconsumable in human terms.

NOTES

1. During the late 70s and 80s most of the theatre and arts in general in Chile became a place for cultural and political resistant against the authoritarian regime. The topics of the dictatorship, the denunciations of the human rights violations, and the demand to return to a democratic state became a matter of urgency. In order to avoid censorship and violent repression by the military (in the shape of forced detentions, disappearances, and death in some cases), these artists made use of the metaphor

as a key narrative devise. With the arrival of democracy in 1990 many playwrights and directors began to explore other topics and narratives devises.

2. "[P]or otra parte, que la construcción nacional llamada Chile es un teatro creado a partir de ciertos actores o personajes que erigieron una identidad" (All translations from Spanish are by the author of this chapter unless otherwise indicated).
3. "sobreprotegido por su madre, que acariciaba y se dejaba acariciar el pelo por otro hombre".
4. Representatives from the most conservative and *machista* areas of Chilean society began a campaign to censure the show.
5. "un héroe descreído y frágil".
6. "Un modo saludablemente transgresor, desacralizador y revitalizador de relacionarse el arte con la memoria histórica de los pueblos".
7. "He escrito entonces unos textos sobre el pasado lleno de agujeros para ver si el presente ponía su rostro y se hacia figura. Para ver si de algún modo se confesaba".
8. "¿Qué significa ser *verdaderos realistas* en el teatro, esto es, entender el escenario como una red en la que los seres humanos y objetos inanimados están todos en el mismo plano? ¿Sería posible pensar en un teatro no antropocéntrico, o incluso post-antropocéntrico? ¿podría esto llegar a ser una extraña forma de *neorrealismo*?"
9. "[…] es justamente desde el centro mismo de la tradición dramática realista y antropocéntrica que la obra propones visibilizar la fuerza escénica de lo no humano a media que una multiplicidad de objetos cotidianos ganan espacio sobre el escenario para imprimir otros ritmos, texturas y formas a la obra".
10. "Después de mucho ajetreo, mi definición de no-humano ha terminado por ser simple: todo aquello que no puede ser del todo asimilado en -ni por- el conocimiento humano es no-humanidad. Alguien dirá: *¿pero eso podría ser todo, eso es cualquier cosa?* Pues sí… ¿Quién dijo que la humanidad ha existido? ¿Quién dijo que Humanidad, no ha sido más que una construcción europea para barbarizar a todxs lxs demás?"
11. During the pandemic context, Infante has been particularly critical of theatre via streaming, considering a space where the anthropocentric theatre is consolidated (Infante, 2020).
12. "La dramaturgia no es la práctica de escribir textos, es mas bien una forma de arquitectura, si queremos usar una metáfora espacial. Es una organización de un recorrido".
13. "este es el tema raíz".
14. "A ver, y ¿a donde quiero llegar con esto? Porque claro, usted me va a decir Don Raúl usted se estás yendo por las ramas".
15. "durmiendo como un tronco".

16. *"Y la mujer comió el fruto prohibido del árbol del jardín del Edén. Comió levemente por no decir poco, pero comió y apenas comió les agarro una vergüenza tan grande que ¿qué hicieron ambos? … se taparon con una HOJA. Las guindas se taparon con la torta…Eva!…Eva se llama la señora de la junta vecinal, no, centro de mujeres, centro comunitario que no es lo mismo pero es similar".*
17. "María Soledad: No me puedo mover. No me puedo mover. No me puedo mover / Eva: "Na ma pada mavaaar!!" gritaba y gritaba esa niña encaramada arriba del árbol mientras los bomberos trataban de bajarla".
18. In Spanish *hoja* can mean both a leaf but also a paper sheet.
19. Joselino: Eso está escrito en el poema que dejó la señora, le traje la hoja para que usted pueda entender. / Acotación: Joselino abre un sobre que trae. De adentro saca una hoja seca de un árbol. No una hoja de papel.
20. Madre: Hasta en un taller de teatro participó. Una vez estuvo súper complicado porque le habían dado un personaje que no se podía mover. Imagínese. Tendría unos 6 o 7 años. El lloraba: "Esto no se puede actuar, mamá, no me puedo mover. No me puedo mover. ¡No me puedo mover!" Ensayábamos juntos. Porque le costaba. Hasta hicimos juntos el disfraz. Al principio se movía mucho me acuerdo, yo le decía: "más quieto, Manuel". "¡Es que corre viento mamaaaá! ¡Corre mucho viento!" Todos los otros niños hacían de personas y entraban y salían. Decían coas. Algunos hasta cantaban. Y el Manuel ahí parado quito, vestido de…ÁRBOL.
21. Marder's plants' non-conscious intentionality is part of a bigger conceptual umbrella he denominates *Plant-thinking* which simultaneously refers to: (1) the non-cognitive, non-ideational, and non-imagistic mode of thinking proper to plants (hence, what I call "thinking without the head"); (2) our thinking about plants; (3) how human thinking is, to some extent, de-humanised and rendered plant like, altered by its encounter with the vegetal world; and finally, (4) "the ongoing symbiotic relation between this transfigured thinking and the existence of plants" (Marder, 2013b, 2).
22. "EVA: Así me imagino yo cuando se acabe el ser humano… No, no me lo imagino lo vi en la tele, cuando se acabe el ser humano de la faz de la tierra, las plantas se van a demorar tres meses en cubrirlo todo. El planeta va a ser como una pura bola verde" (p. 5).
23. "Se veía venir".
24. RAÚL: Un árbol se mueve tan lento que parece quieto. ¿Por qué? ¿Qué pasa? Un árbol vive…¿Cuánto? ¡Cientos de años! Entonces claro, imagínese su vida, la misma, suya, de usted, estirada en cientos de años… LENTA. ¡Entonces bueno, claro! a ver…usted me puede decir "se veía venir pues Don Raúl", "se avecinaba la tormenta pues don Raúl", pero yo le tendría que responder: "sí pues mi cabo, pero NO SE VEÍA" Ese

es el tema raíz, matriz, central de todo esto: Este es un VENIR que NO SE VE.

25. "Tu está en tu mejor momento", "Tu estás muy pálido, a ti te falta luz".
26. *"Pero ¿Por qué tu vas a querer que yo destroce el piso de mi casa?! ¿Cómo que no es mí casa?! ¿Cómo que ustedes estaban aquí antes que yo?!"*
27. *"¿Cómo? que imagen más hermosa, me parece a mí una imagen tan bíblica"*.
28. My emphasis.
29. "MANUEL: Soy animal. Criatura novata en esto de habitar, en esto de sobrevivir. Vosotras estabais aquí antes que yo, sin embargo acá sobrevivo con limitado entendimiento, como culposo reverso de un misterio absoluto, que vosotras conocéis aun así, mejor que yo. Porque es como si vivieseis en el tiempo, no contra el. Soy animal. Mi respuesta al mundo fue arrancar, mi condena entonces, el movimiento. Donde ustedes se quedan, yo avanzo. Donde ustedes plantan cara, yo evito. Yo en dificultad, me desplazo. Donde ustedes se establecen, yo invado. Soy animal".
30. "MANUEL: A Dios pido: ¡Absuélveme de las formas del reino animal! ¡Dame algo que es de ellos! ¡Que latan en vez mis pulmones!¡ Que respiren las puntas de mis dedos, que piense mi estomago! Que sea mi piel la que se alimente para que comer sea mas parecido a tocar que a engullir" (p. 10).
31. "MANUEL: Autonomía. No se representa a la mano con ideas del cerebro, ni con necesidades de los ojos. No! Solo de fisiologías políticas animales pudieron surgir los tiranos o la democracia representativa que es igual. No avancemos mas por la ruta inmadura del animal [...] Que el mundo vuelva a ser una pura bola verde. Un estado soberano vegetal [...] Soy el ultimo animal. Venid. Dejadme hacer lo que los animales hacen y las plantas no: Dejadme morir".

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The Iridescent Creature: Notes for Performing a Webcam-Based Investigation

Alice Gale-Feeny, Andrea Stokes, and JJ Chan

> There are myriad ways and modalities of middling: art, in its most radical and affective moments, it plunges into and from the middle of events; political constellations and social assemblages, far from providing fixed or stable formations....
>
> (Manning et al., 2019, p. 10)

This writing is formed from a set of workshop notes for performing webcam-based investigations. Here, we use diverse registers to articulate the multi-faceted nature of an event that took place. This event involved a number of voices, not least our own as the writers of this text. Our experience as writers shifts in the writing, as does the subject of our writing. We

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employ the structure of an annotated monologue as a means of drawing you, the reader, into a collective landscape, situated at once within us, and within ideas and theories from intersecting contexts. Oscillating between separation and togetherness, the text weaves together multiple voices in the performance of a shimmering iridescence.

This conversation has emerged from a series of workshops titled *Performing for the Camera*. These workshops, held annually with students at Kingston School of Art in London, investigate performing to, with, for, alongside, and in spite of the camera, drawing on historical and contemporary practices that manifest as video art, moving image, and performance. Finding ourselves teaching and learning behind a screen, we invited our students to extend this interrogation towards the specific experience of the interface of Microsoft Teams. In this text we draw on our work as artists, studies in semiotics, post humanisms, and feminist science studies, as well as our own emerging conversations both in and beyond the workshop, to diffract (Barad, 2007) our relations to the camera and interrogate the agency of the camera in the twenty-first-century art school.

Whilst the camera and its lens have been undeniably influential to artists in the academy since the first daguerreotypes—including contemporary works that deal directly with the camera in the age of the selfie and social media—it wasn't until the global pandemic of 2020 that the camera was a daily unavoidable fundamentally entangled apparatus of higher education and artistic practice. Whilst many of our activities as artists were no longer possible, our work as artists in the academy continued via the camera. The camera inevitably became an unavoidable frame of workshopping, research, and of knowledge production in the contemporary arts.

We quickly realised that the architecture(s) of the art school had shifted to a different set of parameters, which were previously set around the studio, but that were now being significantly derived from the interfaces of webcam-based conference software. In 2020, Microsoft Teams suddenly became our primary mode of communication. As artist-teachers who have found ourselves visibly in the midst of this architecture, and framed by its borders; we realised we had to adapt. Microsoft Teams is an interface which is designed for the purpose of holding business meetings and enabling efficient teamwork in office environments. Networked conferencing software is designed to mimic the conference room over distance and enable group meetings of people located in different spaces.

No longer did the event of meeting require a central location but instead occurred across multiple sites at once. The decentralisation of meeting one another was distributed across multiple screens, from an encounter with proximity to an encounter with digital images, which not only positioned photography, the camera, and the screen as key agents in the event, but also seemingly as an abstract non-geographic space existing in multiple, simultaneous 'places' at once.

At the same time we experienced the centralisation of the Microsoft Teams interface and a shift in the significance of the camera. Whilst the camera is one visible component in Teams, the hidden representational mechanisms behind the interface have as much, if not more, impact. The interface makes participants into sets of abstracted data points that have the potential to go on performing or intra-acting after they have left. We wondered how the algorithmic decision structures of Teams, for example, facial recognition; contrast normalised to white skin, etc., would manifest in our performance.

We were aware of the oppressive implications of datafication and the challenges of operating within a panoptical system such as Teams, acknowledging the relationship between surveillance and education that goes back to earlier pandemics (Piro, 2008).

We knew that this alternative architecture for the art school could not be understood as a neutral passive holding space, since it cannot be separated from the phenomena emerging from and through and with it. We sensed that it could leave permanent marks both on bodies and bodies of work, and it is from here that our questioning of the interface begins.

The following performance notes attempt, not to describe the conditions of a performance, but to seek out new questions. What might we need to ask of our performance to the camera? What does it mean to place our attention here? How does our sense of individualism and collectivity get shaped by the interface? To what extent do we feel part of the same or different space? In the same or different moment? How do we problematise our supposed adaptation of the art school into an office-based labour-centric platform? With these questions amongst others, we shall revisit some of the activities of the workshop, pulling us from one thought into another via a series of investigative exercises. In doing so, we position workshopping as a participatory methodology of research, using intense and intimate conversation, improvisation, gameplay, and instruction as a means of seeking and (re)searching our relations, surfaces, distances, and the interfaces which mediate, co-create, and seep into artistic practice and our performances to camera.

Artist and writer Tavi Meraud articulates the complexity of our experience as ‘A dynamic coherence of multiple images each operating at varying degrees of reality, brought together into a scintillating iridescence’ (2017, p. 159). These notes act as an invitation to workshop with us towards the emergence of an iridescent creature; twitching and glitching together.

ACT 1: THE WARM UP

> In this workshop we will consider what it means to perform to and for the camera, as we become increasingly aware of our entanglement with digital bodies through cameras, screens, networks, and systems. Diffracting Microsoft Teams as a site, we will consider where this interface exists and ask what are the possibilities of its ontology?
>
> We shall consider what it means to be a performing body that intra-acts (Barad, 2007) with an interface that teleports us, echo’s our voices and our movements, and extends our bodies beyond our fleshy boundaries into pixels and reverberations, exciting in multiple places at the same time.
>
> Let’s begin with a ‘warm up’ of sorts. A ritual borrowed from sports and theatre, this will prepare us for physical exertion; for performance. Stand so you can see your body in the middle of your screen, with your feet hip-width apart. Stretch both arms out to the side at shoulder height. Bend your right knee and rock to the right. Keep your arms parallel to the ground and stretch until your fingertips appear to meet the edge of your screen. Return to the middle, bend your left knee and repeat, stretching to the left edge. Repeat this rocking motion five times. Rocking left, right, left, right. Pay attention to the conditions of your image on screen, the layout of our individual rectangular frames. Arms outstretched, from side to side, the tips of our fingers’ touch the edges of our frames pointing into one another’s spaces, tips touching tips on screen. Between each of these frames, draw your attention to the edges that are between us, at once vanishingly thin yet radically untraversable.

To conceive of this pointing of fingertips as a meeting of edges, where the surfaces of our fingertips meet the boundaries of another edge in *contact*, provides us with a sense of touch within the digital; a touch that interacts with the frameworks and spaces of this interface and a touch that allows us to reach towards one another in any and all directions. Within this experience we are prompted to consider the nature of the surfaces that are present. There are the external and internal surfaces of our bodies, and there are the surfaces of our rooms; the wall; floor; ceiling; and objects. These surfaces are then doubled or mirrored in screen space. In her book *Surface* (2014), Giuliana Bruno formulates an understanding of surface not as a concrete state but rather a densification of information and material. Tavi Meraud (2017) goes on to describe how 'surface cannot be considered a site of monolithic concretion but rather at most a locality of perceptual density' (2017, p. 156). These densities can present themselves here, as edges and boundaries within densely populated masses of loose matter, perceived as objects and bodies.

Bruno argues for a notion of materiality that is not a question of materials but rather 'the substance of material relations' and 'how they manifest themselves on the surface of different media' (2014, p. 2). Her concept of surface as a densification of information allows us to posit a membrane that can act as a meeting point between states. If surfaces are *localities* of density then they can be experienced as connective membranes where subjects and objects can meet, and touch (Barad, 2015); a porous and receptive skin (Chan, 2020).

But how can we approach the specific experiences of touch and intimacy within the video conferencing programme?

Barad (2015) offers the quantum physics of touch as 'radical performativity' (Bayley, 2020). 'When two hands touch', Barad writes, 'there is a sensuality of the flesh, an exchange of warmth, a feeling of pressure, of presence, a proximity of otherness that brings the other nearly as close as oneself'. The keyword here is *nearly*. Barad goes on to explain that 'all we ever really feel is the electromagnetic field' (397), and that all of these sensations, the roughness and suppleness of another's skin, are effects of electromagnetic repulsion. **Nearly, nearly, nearly… nearly one and nearly an-other**.

Bruno suggests that screen space is haunted by surfaces and that we can experience these doubled and mirrored surfaces as meeting places where a kind of 'touching' can occur (2014, pp. 101–105). Screen space is thus considered a site of shared intimacy that can be inhabited. We are already familiar with entering spaces of shared intimacy via screens; in cinema for example where emotions are distributed across a crowd, or on the screens of our personal mobile devices where the intimate exchange takes the form of digital interaction. Screens are a condition of a 'betweenness' (Bruno, 2014, p. 5), suggesting a point of contact where mediated reality and the physical spaces that surround us could (however unevenly), intersect.

In attempting to touch each other's edges, attention was brought to the edges of our boxy uniform frames in the interface. When surfaces present themselves, they can distinguish bodies from one another. In a glass of water with an ice cube, for instance, the edges and surfaces of two bodies of water are visibly obvious even as they immediately melt, and they remain obvious until they become a body together.

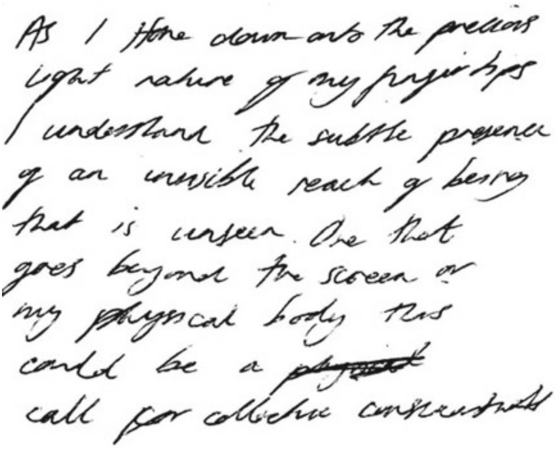
The multidimensionality of the water/ice-cube's surface-becoming-body whilst body-becoming-surface, can act not only as a model for understanding the boundaries between one another and how our own watery bodies are entangled, but also how our bodies are entangled with a multidimensional situatedness across the place, image, body, and the screen. The surfaces of the image, body, and screen melt into one another; their edges remain obvious until they become a body together. In the digital interface, we might consider the surfaces of bodies and their images as holographic co-constructions. The concept of the hologram allows us to extend the idea of image or metaphor, to posit a three-dimensional reconstruction which has the agility to absorb, emit, and embody. Nearing (nearly, nearly) one an-other.

> Existence is not an individual affair… individuals do not preexist their interactions; rather, individuals emerge through and as part of their entangled intra-relating. (Barad, 2007, p. IX)

Rocking left, right, left, right, our understanding of where we are becomes disrupted through multidimensional situatedness. We are phenomena whose entanglements for which we owe these images are hard to identify, and least acknowledge. How do we reconcile eschewing a view from nowhere with the sense of a view from everywhere? (Fig. 1).

ACT 2: BEGIN IN THE MIDDLE

Somatics is an umbrella term coined by Thomas Hanna (Eddy, 2009, p. 6) for a range of practices that were pioneered by F.M. Alexander and Moshe Feldenkrais, amongst others (Eddy, p. 12). It refers to a set of concepts and theories concerned with the awareness of sensation, that



As I Hone down onto the precious
light nature of my fingertips
I understand the subtle presence
of an invisible reach of being
that is unseen. One that
goes beyond the screen or
my physical body this
could be a ~~physical~~
call for collective contributions

Fig. 1 Workshop notes by Ratiba Ayadi

supports an understanding of one's own body from the inside out. It can be a significant source of material for dance and performance makers, and in therapeutic settings, as well as anyone dealing with bodies in artworks; it supports an understanding that goes beyond what the body looks like, and instead prioritises the internal landscape of shifting experiences.

> I notice that it's easy for me to sense how my hands feel from the inside out, but my stomach has and continues to be a grey area that I cannot really access. It's important to acknowledge the emotional relationship we may have to parts of our anatomy too, particularly if we experience physical pain.
>
> Place one hand on your sacrum, and one on your belly. Notice the touch of each hand. Can you sense your front and back simultaneously?
>
> Make contact with your own bodies through the touch of your hand; place attention on the spinal column which meets the pelvic girdle via the sacrum; a bowl-like void space.

Locating this interface from our anatomical perspectives was one of the methods we used to ground the investigation and provide analogous imagery that each person could apply to their own experience. Through workshopping, the spinal column and the pelvic cavity become two of our reference points for locating *anatomical interfaces*; spanning the front and back of the body. At these bony edges we asked; if we touch two places at once does this allow us to occupy the space in between?, to 'Begin in the middle, catch a thinking in the midst….' (SenseLab, n.d.).

In this exercise, movement, screen, and interface do not interact but 'intra-act' (Barad, 2007) in a complex, shifting field of phenomena, where 'phenomena are differential patterns of mattering' (Barad, 2007, p. 140). Barad (2007) writes that it is 'a well-recognized fact of physical optics, that if one looks closely at an edge, what one sees is not a sharp boundary between light and dark but rather a series of light and dark bands — that is, a diffraction pattern' (156); the midst. Diffraction 'has to do with the way waves combine when they overlap and the apparent bending and spreading out of waves when they encounter an obstruction' (Barad, 2007, p. 28). In thinking about diffraction patterns we were also led to consider iridescence, both as phenomena and method. Iridescence reveals patterns of interference, making visible any sites of encounter. The points where things overlap in patterns of surface iridescence, are a mapping of those encounters, momentarily coming up and into potentially new encounters with 'discovery'. For Barad, diffraction is understood as a critical methodology, an implication of which is a respect and responsibility for 'the entanglement of ideas and other materials' (29). In our attempts to seek out our edges, we sought to make visible a diffracted space both between us (the we) and in between our edges (the I's). For us to be asking, '*what is the interface?*', is for us to assert an assumption that an interface exists somewhere in the midst of this multiplicit encounter. To then ask '*what does it do?*', is to imply it has agency. The interface we refer to, here, though visible as a flat plane of pixel-rendered displays, possesses an invisibility that reaches far across geographic planes, into spaces separated by a great distance.

In many ways, the spine seemed akin to the screen itself, perhaps due to its bony edges; its slimline qualities; its strong sense of *directionality*, compared to the fleshy torso that surrounds it. The presence of multiple *screen-spines*—due to the group of participants present in the workshop—prompted notions of a collective body. When dealing with screens and video conferencing calls we are very frontal-focused; our observation is located on the surface of the screen. Whilst we focus on what is happening on screen, the volume of the body and the room recedes from our attention. As dancer and choreographer Deborah Hay asks: 'what if….every cell in my body – and there are over 84 trillion cells in my body-… what if every cell in my body at once has the potential to choose to surrender the pattern of facing a single direction?' (Hay, 2012). The subsequent exercise was designed to wake up the backspace, as well as to draw attention to the multi-directionality of the body.

> Begin walking away from the screen in small increments. Witnessing the distance growing between yourself and the screen.
>
> Can you sense the walls or objects behind you before you get there? What happens when sight is directed forward, and attention is placed on the felt sensation of the back?

As attention is brought to a peripheral vision, the gaze is not so acutely narrowed and directed, and begins to allow the room *in*. This exercise was offered as a tool to support a broadening of awareness beyond the somewhat 'portaled' focus that the screen demands; recalibrating our surfaces and densities. Simultaneously divided in our own rooms, we are together on screen, on camera; here and there; separate and in relation. When the backs of our bodies are activated, on a frontal-focused video conference call, what happens? Where are we? When we hold front and back in mind at once, can we experience the multi-directionality of the body in space?

By bringing attention to different (changing) spatial reference points; by locating anatomical interfaces that may prompt us to imagine a body that has less a front and back, less a right and left, but rather a *multi-directionality*, draws us back to the question, *what does the interface do?* Where is it, if it is not in any given place, and if we are not facing any particular direction? We inevitably grapple with the complexities of alterity when we talk about directionality. Sara Ahmed's assertion that perception is based on where we are situated is pertinent to build upon considerations of directionality and the positioning of the (singular) body. Her use of the term orientation is used to discuss how we are turned towards certain directions and thus objects in the world, over others: 'I can perceive an object only insofar as my orientation allows me to see it (it must be near enough to me, which in turn means that I must be near enough to it.)' (2006, p. 27). Our positioning, therefore, determines our perception of the other, as well as the extent to which we see ourselves as separate from or part of, the world we perceive. What is crucial here is the two-way action of orienting ourselves.

In Andrea Olsen's discussion of infant development, she positions 'measuring' as a key part of recognising self from other '…by firstly experiencing the distance between hand and mouth, then by reaching out for an object, then by pushing away from or crawling toward a parent' (2002, p. 64) (Figs. 2 and 3).

> Reaching one hand towards the screen, look at your fingertips. Measure the distance between the torso and the ends of your fingertips; between the ends of your fingertips and the screen surface; extend that further from your fingertips to another person's fingertips visible to you on the video conference call.
>
> With these distances in mind, make a diagram that maps out the spatial relations between yourself, the group, and the interface. How do our spaces interact and where would the interface be placed within this arrangement? Where are the linking spaces? How might we think about distance and proximity?

In this diagram-making exercise the group were invited to map out the field of relations from their perspective and share diagrams with

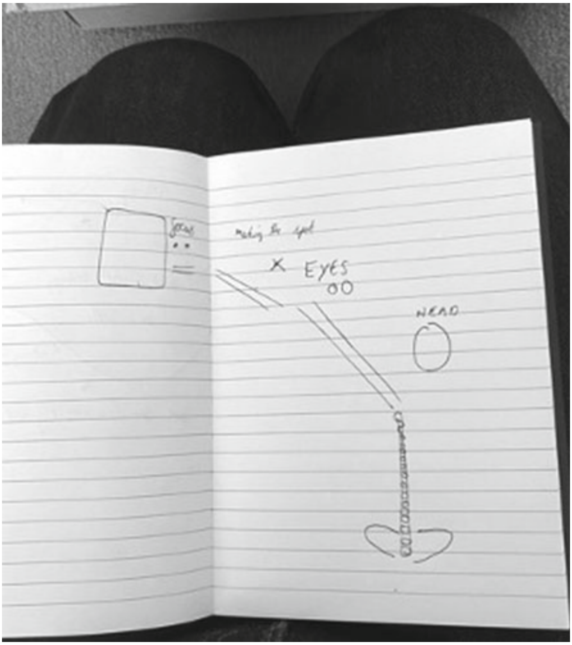


Fig. 2 Notes by Daniella Scozzari

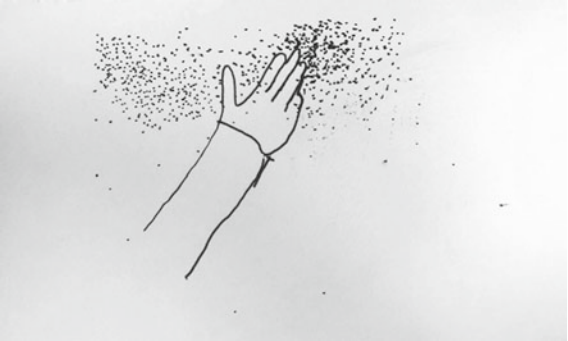


Fig. 3 Notes by Ahlam Ahmadi

each other: '…the diagram is a sort of drawing (or visual poem) that mediates the dynamic flow between words and images – discursive and non-discursive spaces – or literary and plastic spaces, etc.' (Basbaum in Clapham, 2010, p. 29). Witnessing the plurality of perspectives can manifest the interface in relation to its users, and folds that image back into the entanglement. Translating the relation of bodies and interfaces into another form; taking it *into our own hands*, produces not only images, but proposals for how we may wish to be here together.

Certain principles from 'Bohm Dialogue' and the theory of 'Third Space' can contextualise ideas that emerge when writing about this diagram-making exercise; specifically Bohm's idea of 'the new' that can arise from dialogue (1996, p. 7), and a both/and also logic (Soja in Ikas and Wagner, 2009, p. 50) of Third Space (Fig. 4).

In the late physicist David Bohm's writing 'On Dialogue' (1996), principles of the framework and how to practice it are outlined. Bohm states how the word 'discussion' etymologically means to break things up (p. 7), whereas he frames the potential of dialogue as producing something '…new, which may not have been in the starting point at all' (p. 7). There is the suggestion that this newness is a place of measurement from which subsequent new locations between a group can arise. It seems that in showing each other the diagrams we produce; making the interface manifest in our own image, we inevitably start creating locations, from which there are further gaps or interstices. Perhaps the interface shows *itself* in these *gaps*.

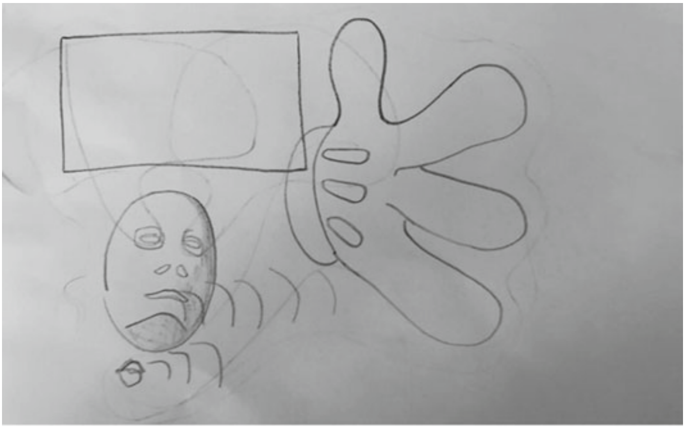


Fig. 4 Drawing by Leon Watts

Theories of Third Space help us to consider how the interface could be a 'reaching out to what is liminal' (Bhaba, p. xiii) in order to find a potential common ground, rather than needing to meet around a common idea(1). Let's not mistake this idea of inhabiting the interface as a metaphor for flattening differences, where social and political struggles and power structures, privileges, and hierarchies do not exist.

Third Space resists a binary logic for thinking about space even going so far as to suggest that as a term, it may be renamed by whoever wishes to do so (Soja in Ikas and Wagner, 2009, p. 50). Third Space adopts a perspective to the theorising of space whereby space and identity relate and create one another (Soja, p. 50) crucially recognising multiplicity rather than singularity, resisting a homogenising principle that may 'precede and guide all others' (Soja, p. 57), whilst acknowledging the importance of ontological separability. It offers examples that suggest that Third Space is about creating openings (Soja, p. 56) and bridging spaces; it may offer a sense of *belonging* that is both attributed to the individual and the group at once (Bhaba in Ikas and Wagner 2009, p. ix); and is a space of mediation that may be a radical alternative for groups in conflict (Bhabap. x). It is interesting to consider how this theory, as well as Bohm's principles of dialogue, deliberately point towards a bridging space between binaries of self/other; offering an alternative space of occupation or inhabitation. What is clear is that both Bohmian Dialogue and Third

Space advocate for a continual re-configuring of the space depending on the individual and the group present.

Can we begin to diffract the workshop through such principles as Bohm Dialogue and Third Space as a way to think about notions of the individual, group, and the place of the interface; to go so far as to rename the interface?

As well as outlining diffraction as a physical phenomenon, Barad also treats it as a tool; '[a] methodological approach that I use of reading insights through one another' (Barad, 2007, p. 71). Can we think through the diagrams in the context of Bohm Dialogue; as something new that emerged between the group? Can we read the interface *through* these diagrams?

Diffraction offers an opening for the difference to arise, rather than for ideas to be reflected back: 'Diffraction patterns record the history of interaction, interference, reinforcement, difference' (Haraway in Barad, 2007, p. 71). Diffraction is not a reflexive process of looking back at the ideas from the same viewpoint; rather looking back via an 'obstruction' (p. 74); a new lens from which to find difference rather than sameness. These drawn diagrams were a subsequent part of the interface we were entangled with.

And what about the role of the interface in mediating, facilitating, or intercepting this process of being together? In Bohm Dialogue, the idea is that the facilitator works themselves out of a job (p. 17). In this instance, it is interesting to consider firstly where the role of facilitator is located: with the interface or with human facilitators? A key decision within the workshop was to participate in one another's exercises. Through this we became *one another's* students; implicated in these experiments.

What is the relevance of terms such as 'measurement', as referred to by Olsen, when thinking about the interface? How does measurement and the non-linear processing of information within diagram-making relate?

What contradicts this very question is Barad's reminder, via Bohr, that ontology changes depending on the apparatus used to measure it with:

> …Bohr has an explanation for this, which is to say, again, that the properties that we measure are not attributable to independent objects. Independent objects are abstract notions. This is the wrong objective referent. The actual objective referent is the phenomenon—the intra-action of what we call the electron and the apparatus. And so the fact that its ontology changes when we change the apparatus is not a surprise, because

> we are investigating an entirely different phenomenon. (Barad in Dolphijn and Tuin, 2012, p. 61)

What appears to be suitable about diffracting principles of Bohm Dialogue through diagram-making in the context of this workshop, is that both propose thinking *with and through*. In Bohm's case, when a group engage in dialogue a purpose and a topic may arise (p. 17) and hierarchy and leadership have no place in a successful dialogue (p. 17).

Barad discusses diffraction as a means of finding differences from within (p. 89). Our diagrams emerged from within the entanglement of body and interface. Reflecting back on these multiple perspectives was a way of pointing not only to the interface and the participant-interface relationship, but also to the way in which participants felt in relation to the group. In the framework that Barad sets up, what the interface does is not separate from who is on the call. The formation of participants and interface undoubtedly reframe one another time and time over.

> Write together in silence for five minutes. Where do we picture ourselves right now? Are we floating or grounded? Do we experience ourselves as being in a space or place?
>
> Do we feel like we are in or on the interface? Are we in pockets? Drifting together under a strange rectangular parachute?
>
> It has gone quiet. The lighting shimmers as each thinking head sways in front of its camera. For a moment this collective shifting and stirring; the clicks, buzzes and clearing of throats, coalesce into a creature caught in the act of thinking.

We discussed the implications of how we 'picture' a location in our minds-eye and where we position ourselves in relation to it, using examples from Bruno Latour. In Down to Earth (2018), Latour's diagrams articulate the way that a Western view of the earth has dominated world politics. This view 'pictures' earth as if we were located on another satellite looking back at ourselves. He reveals how this has engendered a narrative of disconnection from the earth as if anything we do has no impact (and as if the earth cannot act back). He argues that our relationship with our planet could change if we pictured ourselves on the surface, looking *with* the creatures, materials, and substances. How we picture ourselves within an architecture affects our relationships with it and how we behave within it: 'It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with'

(Haraway, 2016, p. 12). As such, the imag(in)ing of ourselves within the interface both determines the outcome of our performance to the camera and the forms and bodies within this exchange. The relationship co-creates the realities which form relations; the relations that go on to form architectures, bodies, and bodies of work.

ACT 3: Sight/Site/Cite

We began to unpick the language of the interface to understand how the interface sees *itself*. Our workshopping methods extended questions of 'seeing' to incorporate hearing, sensing, thinking, and 'being seen'. When we join a video conference call, we become visible to the platform; it gathers our data, it 'sees' us and turns us into sets of abstracted data points or second-order objects. Looking, watching, and analysing are part of its design. It monitors our behaviour and reacts, making decisions in response to our data and entangling us within the interface.

Built into the design is the ability to turn off our camera. In her book 'Lurking: How a Person Became a User', Joanne McNeil describes the act of 'witnessing on the internet, rather than opining and capturing the attention of others' as an act of 'lurking' (McNeil, 2019, p. 126). When we switch off our camera on a video conference call we are still part of the whole shape of the meeting—absent but present—a kind of 'phantom limb'. Our body is not even required to be in the room in order to register our presence via a pastel-coloured circle or an icon of our choice that pulsates in the grid.

If our microphone is on, we can also signal our presence through sound. An accidental noise will cause our icon to twitch into life; when we speak over someone the interface decides who gets heard. We get to witness ourselves as 'lurking'; ambivalent/hesitant/sceptical, or in the case of technical issues, excluded/silenced. Is this ability to move between different visual and audible registers of visibility and invisibility and moreover, to witness ourselves doing so, a particular condition of the interface that can furnish a plurality to the experience? As one of the workshop participants Ratiba Ayadi noticed: 'I felt less disconnected when I heard the echo's [of other participants] because it felt like there were multiple facets of each of us'. In response to this, Ratiba switched off her camera, not to *disappear* but to *appear* in another form. Listening to her voice without a visual cue, the sound waves vibrating within us, engendered a different understanding of where we were situated.

> I am going to do the act of disappearing now because my form today is acting erratically to speaking aloud so I am going to transition …. There is a hum of inquisition pondering on frequency that moves throughout the moment making it timeless….now you cannot see me and maybe I am somebody else or some other form of self. Terrestrial. Sit in this bubble. I don't want to imagine yours, I want to move through yours. I am no longer connected to a body. (Ratiba Ayadi)
>
> https://vimeo.com/693810637

Karen Barad (2007) reminds us that we cannot separate the tool used for measuring from the outcome of the material measured or tested upon (p. 169). How can we draw attention to the apparatus (p.169) we are working with in terms of its architecture, its way of framing, and most importantly, the position we take in relation to the apparatus; our distance to the screen and also our relationship to being-*part*? The interface is an illusive space. Where does the computer really start and end? 'Rather, as with the worms, data is always in the middle of things, contagious and highly vulnerable to contagion' (Murphie in Manning et al., 2019, p. 18). The skin too is a porous organ, made up of semi-permeable membranes, despite a dominant idea that the body is bound and we are separate individuals. This knowledge from the field of anatomy is also echoed in writing from physicians: 'What is the outline…it is not something definite. It is not, believe it or not, that every object has a line around it! There is no such line' (Feynman et al. quoted in Barad, 2007, p. 153).

> How to think the body as already prosthetic? I am an organism. I breathe, my heart beats, my pancreas controls my blood sugar….But I am also much more than an organism. I breathe a smell that tastes like the morning. The morning reminds me of the texture of the wood of the breakfast table, rough to the touch at the spot where the detergent ate through the varnish. To "be" a body is to become. To sense is to live in the beyond of the mere organism….. (Manning, 2007, pp. 157–158)

ACT 4: HIDE

> A Disappearing Act: Find a hiding place from the camera. Then bring the computer with you, so that we occupy each other's hiding places. We will pause the Teams recording whilst we disappear. We have five minutes.

> Something unexpected is happening. The atmosphere has shifted. Images, objects and sounds bump, twitch and crackle as we hide from each other, ourselves and the interface. Our surfaces shimmer, flip, come together, collide and move apart. We are a 'creature' pulsating in the act of camouflage.

Daniella Scozzari, workshop participant, spoke of the moment when the Teams recording was paused. She experienced 'a live moment' which felt more like a collective performance than at any other time in the workshop. Knowing that there was no archival documentation, was data held in the hidden body? Did the act of pausing the watchful eye enable us to experience ourselves as a part of this 'creature' we had created? Whilst 'disappearing' there is nothing but the interface and us, the users. We watch and the interface watches too. The interface has a different visual appearance for each participant, it depends on our hardware and viewing settings. A recording made on Teams fixes the view to the settings of the meeting's host and cannot hold the collective experience of multiple views and encounters. The view is momentary, implicated by specific contexts, positions, and other atmospheric conditions. Tavi Meraud uses the term '*virtuality*' to describe 'a quivering space.. between the real and the virtual…the experience of being present in multiple realities simultaneously' (2017, pp. 142–146). She adopts the phenomena of iridescence or 'scintillation' to articulate the complexity of our experience of multiple viewpoints and surface encounters within real and screen space. Iridescence is a phenomenon that occurs when the physical structure of materials provides the conditions for light waves to combine with one another in creative interference. 'Light waves combine so that the crests and troughs line up' (Yale, n.d.), forming momentary edges of intensity where light is reflected as vibrant and active. As the observer's viewing angles, frames, and ranges shift, the colours of the iridescent body change. Our twitching 'creature' with its shifting surface encounters, multiple combinations, and fractured viewpoints, shimmers and performs. Our vibrancy and visibility are at once our camouflage. 'Camouflage…. is not merely perception being tricked… It is rather that another reality has been momentarily illuminated' (Meraud, 2017, p. 154).

Is this 'creature' a hybrid of users and interface? A creature that is cunning and adopts constructive and destructive interference to undermine the oppressive implications of datafication in an era of global networked surveillance? Are we performing 'our entanglement as sentient and discursive beings in complex biological and technical networks' (Żylińska, 2015, p. 151) a 'dance with ambiguity' (p. 138) that lets us 'explore our machinic kinship?' (p. 151).

Imagine writing from the perspective of the interface, how would it 'reply' to our questions?

In writing 'about' the interface we have started giving voice to it. We feel like we are writing differently now. We would like to say that this focus on the interface has changed the way we articulate ourselves. Are we becoming-with, writing-with, or hiding with, the interface?

Born out of a digitised and globalised workplace, Microsoft Teams suddenly became our primary mode of communication. Its roots in the business conference room cannot be ignored, as it frames the way we conceptualise 'work' and now, art work, and the labour of art making. When it came to workshopping on the moving image in contemporary art practice, it became very clear to us that the very specific architecture of this interface was interacting and interfering with our working; it was creating an entirely new creature of contemporary art practice which hid amongst ongoing business, as much of the (human) world momentarily stopped to focus on more urgent matters. The significance of the interface's mimicry of environments away from the keyboard cannot be ignored. These architectures create recognisable workplace environments that enable recognisable intimacies, privacies, publics, and distances to be established for specific encounters and are being continually developed so that such specific encounters can continue. Whilst the urgency of our work has also been in question, as artists in a community of practice we have hidden and grown as a creature of collectivity: clusters of connected acts forming collectives of actions and utterances, together in a body that can shapeshift, trace forms, and take forms.

The urgency of our work lies here: an iridescent creature whose precise ontology necessitates a conscious collectivity, a recognition of entanglement, and a logic of becoming-with, which comes to bear on the urgent sociopolitical and ecological challenges we face today through a stubborn range for agency in a dense body of interdependence.

Our participation through it can already be considered a kind of resistance—an agitation against the structures of work under capitalism. Our participation forms a future for contemporary art aligned to environments of white-collar labour for the satisfaction of capitalism and consumerism, yet recognising our agency in the interfering patterns of iridescence, our impact on the environment has the potential to shape and shift the models of capitalist labour. How else do we problematise our supposed adaptation of the art school into an office-based labour-centric platform, if not to attempt a shift in labour towards radical creativity; creative acts that take place in spite of, and as a critical response to, the neoliberal capitalist structures they (for now) take place within?

We first considered the interface as something between us; between person and person. In doing so we realised the importance proximity had played in our daily work. We were drawn to consider touch; how we might 'reach' each other through the screen, if we could meet each other's edges, or the edges of our frames. If we could transcend our spaces into one another's. We then set out to understand ourselves as a group of practitioners, eventually coming to understand ourselves collectively as an agile, momentary iridescent creature. Following Barad's understanding of phenomena as inclusive of its own observation (2007), the watchful interface is not only in and of our participatory performance; our observations, and our questions, but also continually shifts it aside of our assumptions. This shifting appears to signal both a responsibility of our participation in the continual formation of the so-called interface, and simultaneously signals the interface's resistance.

A resistance which maintains a formal framework and the aesthetics of a professionalised labour in a capitalist economy. Barad's onto-epistemology of 'intra-action' allows us to view the activities of these workshops as apparatuses which intra-act materially, culturally, and discursively to initiate meaning-making amongst that which we inhabit, re-vision, re-search, re-create, and re-inhabit (Fig. 5).

Hold on….we are trying to re-connect you…

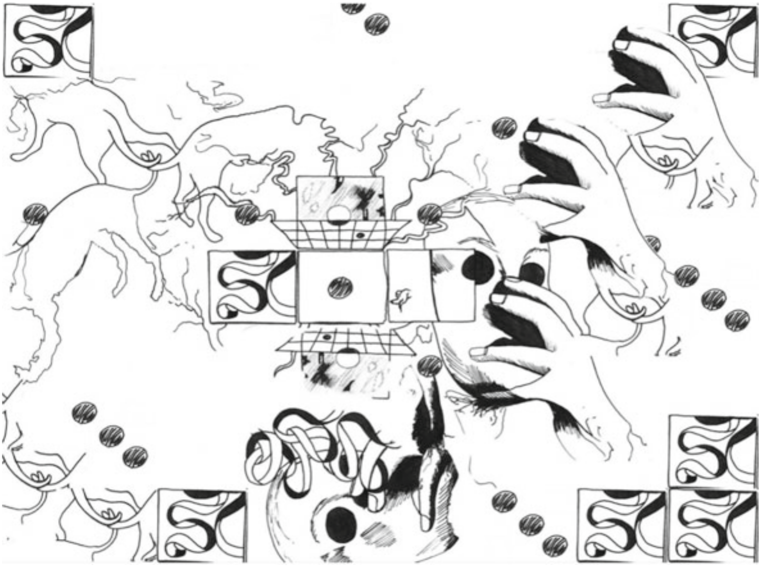


Fig. 5 Drawing by Andrea Stokes, JJ Chan, and Alice Gale-Feeny (2022)

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Entanglements and Response-Ability in Intergenerational Performance Ecology: Part V

Sarah Hopfinger

In returning to *Wild Life*, I have been concerned with re-inhabiting a performance ecology of rocks, water, matches, stones, children, adults, movement, running, carrying, flickering, hitting, flaming, flicking, carrying, and many harder-to-name forces, agencies, patterns (Fig. 1).

With *Wild Life*, I aimed for a performance that is not only about, or representative of, ecology, but that embodies and enacts ecological entanglement through the creating, making, and performing: performance as a case of *doing* ecological entanglement.

The matches are wet from the water, the human performers sit amongst the collection of bashed about rocks…a match ignites, the sizzling wet wood sounds out through the space to the circle of the audience, beyond to the theatre walls and, perhaps, beyond that to the *now* of these trying-to-return-to-a-performance-words that I write and you read-…and the eyes of the human performers follow the movements of strike-flame-smoke-flicker…human movements emerging in response to the agencies of water-wet-matches-flaming-smoking…nonhuman movements

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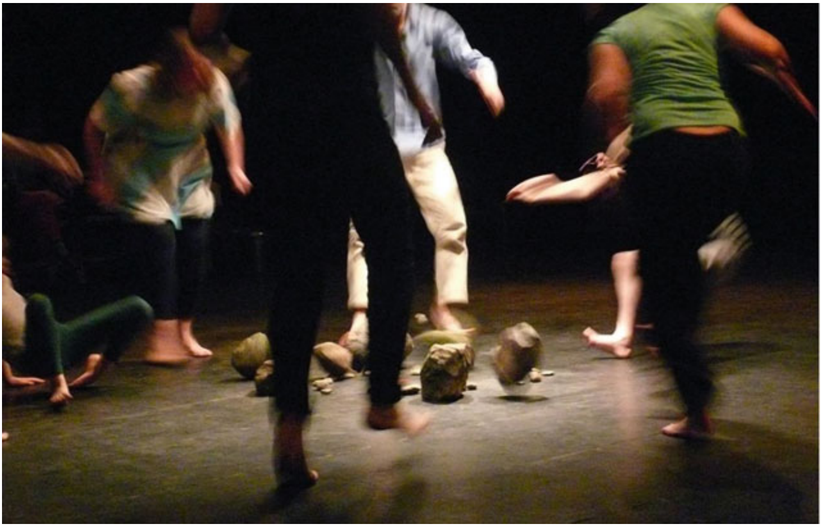

Fig. 1 Performance documentation 9

that are also responding to the directives of the humans holding-moving-matches, directives that are determined by the angle-shape-position of the rocks they sit upon. Doing ecological entanglement: performing as a case of embodied live response-ability to each (human and nonhuman) other. One of the young performers tries to impossibly catch the billowing smoke…here I try to impossibly catch *Wild Life* (Fig. 2).

I understand performance research as a matter of inhabiting diverse, yet entangled, modes of knowing. I call this approach, a 'thinking-doing' methodology.

Doing ecological entanglement: practice-as-research.

Kim Vincs argues that artistic practice is a 'process of thinking' and critical analysis is itself a practice that is 'alive, growing' (2007, 100; 108). With a thinking-doing methodology, I see the performance practice and critical-reflective writing as distinct yet enfolded in each other. Both are generative, creative, and performative practices and together they constitute the research trajectory and findings. I do not think that making performance and writing about performance are equivalent practices, rather they differentially pattern, disseminate, and dynamically carry on, the research. The research ideas and outcomes are, therefore, not

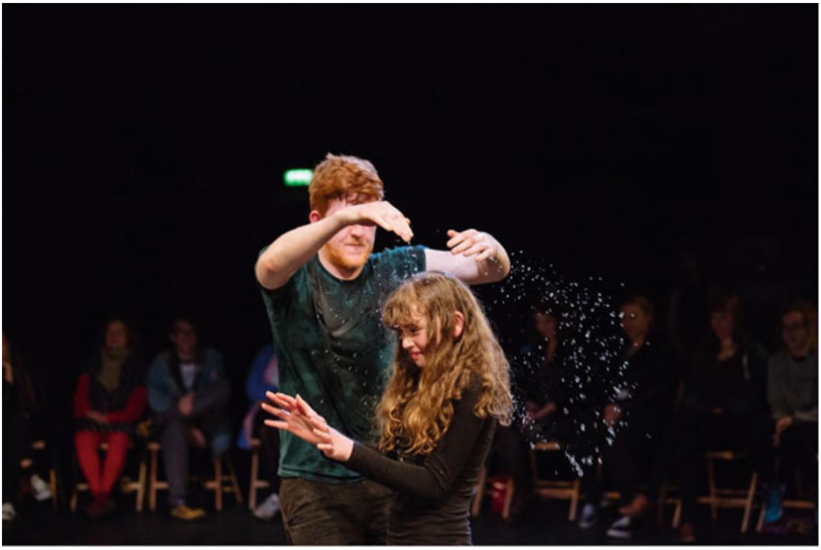

Fig. 2 Performance documentation 10

locate-able in any one ‘thing’: they cannot be located or fixed in *Wild Life* or my writing about *Wild Life*. Rather, my research is differentially carried on by inhabiting the distinct yet entangled practices of doing performance and critically reflecting on performance. Perhaps the radical potential of practice-as-research is its capacity to enact and demonstrate how theory and practice, and thinking and doing, are not (and never were) fixed and separable domains of knowledge? Me, my performance collaborators, the audience members, the (more difficult to name) nonhuman participants of *Wild Life*, and your comingling reading now, are all instances of the dynamic, and often unpredictable ways, in which the research continues to be manifested and differentially carried on.

I hope these interludes have been both interruption and flow between the chapter sections: interludes that interact and perform *with* the agencies and pages of this book. By paying attention to the *Wild Life* performance and process as an ecology of intra-acting human and nonhuman agencies, I have been concerned with an approach akin to Haraway’s demand to ‘think-with other beings, human or not’ (2016, 7). I have

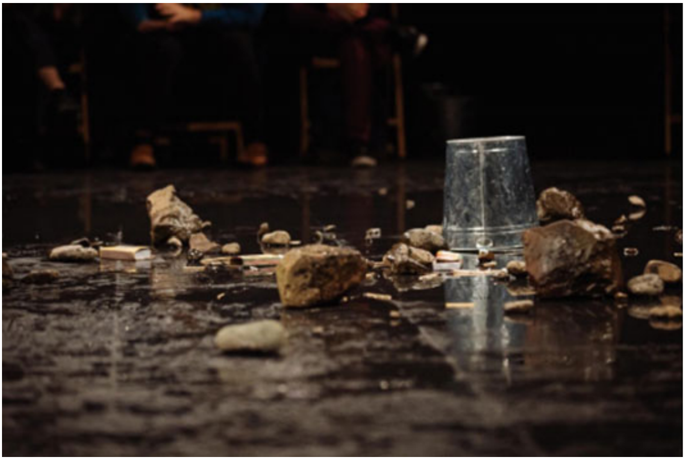

Fig. 3 Performance documentation 11

suggested how live performance has the potential to expose human–nonhuman intra-acting agencies: how performance can demonstrate—in its very liveness and methods of practice—the agential making and un- and re-making of differences and connections across the human and nonhuman. Writing might do this too. I feel less that I have (re)turned over *Wild Life* and more that *Wild Life* has (re)turned me to the matters and movements of humans, rocks, sliding, hitting, matches, smoke, striking, flaming, billowing, children, adults, stepping, stomping, sliding, stones, dropping, flicking, pushing, colliding, buckets, splashing, flicking, water, running, twisting, carrying, holding, dropping, and many more harder-to-name forces, agencies, patterns (Fig. 3).

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Folding

The last section of this volume is called folding, and it has taken till here for me to consider the -ing. The chapters of these books were of course not written in the order they are presented. This passage will not be the last words I write here, and so such a notion of last-ness exists on one or more planes but necessarily not on others. I will let you, as the reader, decide what ‘till here’ might measure.

Why, you might wonder, is the most appropriate place here, on this page, to consider the -ing? First of all, we must consider what the -ing is, and what the -ing does. The suffix -ing denotes the shifting of something that is, into a motion, an action, or a doing. The pages of these two volumes can be considered as flowing matters—thoughts flow from one chapter, unannounced and unexpectedly into another, in and then out of this collection into others. The section titles are gateways through which words flow in and out. They demarcate in ways that are intentionally provocative and anticipate unanticipated readings. Flows of matter are continually folding themselves up into various patterns of interference. Shifting, shuffling, turning, and bending, and these folds take on rhythms in their being read, becoming ripples and echos where force is material. What does it mean to fold, for edges to touch, for unfolding to mark, and for marks to matter? What happens next? Is -ing only a suffix or also a prefix?

As a suffix, it marks the end of a verbal phase, yet as a prefix, it marks the beginning of the mark; the fold of the -ing. Moving flows of matter continually fold over. At the intersection of this folding is the phenomenon that gives birth to the possibility of a stable image through the birth of rhythms and refrains that collect and cultivate form. Like the impro(vision)s of jazz performance, foldings (both human and non-human) reach points of expression continuously and continually, creating perceptible individual-ness and developing senses of visibility and a kind of newly admissible being-known. All seemingly visible demarcated bodies are the result of movements of flow and fold. Such folding produces identities, unitisations and digitalities, existences, beings, needs, senses, sexes, sex, mattering, and matters that form thinglynesses in moments of apparent solidity.

The methodology of folding entails its own undoing, since the fold affords the opportunity for creative cessation of the habitual, a recognition of temporalities and fluxing modes of being. Thus the method is to fold beyond, and to fold into our visibilities what might previously have been outside of our knowings and livings; the human and non-human edgelings that self-fray. Foldings manifest and form significances of meeting-matter(s): ambulant but perceptibly stable ensemble of established practices, relations, perceived capacities and capabilities, and acceptabilities which determine our social lives, relationships, sensualities, sexualities, diets, health, landscapes and architectures, creativities, and potentialities, and the ways and relations of our movements, migrations, economies, and histories of knowing, learning, domesticity, privacy, colonisation, and world-building.

The -ing is a suffix but also a prefix.

The Diffractive Power of Repetition

Filippo Romanello

Building on Karen Barad's idea of diffraction as 'material practice for making a difference' (Barad 2007, p. 381), and on Gilles Deleuze's theories of *Difference and Repetition* (1994), this text tests the extent to which repetition can be a practical method of diffraction and suggests how it could be applied in the context of performance research. In order to mark off the threads of the contributions of the authors above, their own terminology is often adopted within quotation marks.

AGENTIAL REALISM AND THE THEATRE

Let us approach the theatre not as we would a metaphor, whereby abstract ideas are represented to be made more accessible to the understanding, but rather as a 'physical apparatus' through which understanding is materially created and accessed, or as a site where 'phenomena' are produced and reproduced out of immanent 'material conditions'. These conditions involve the actions of subjects and objects that are set in relation with each other, and that get transformed, or redefined, as a result of their

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interactions. This way theatre becomes a laboratory experimenting with actions, and whatever is brought into it will serve as an objective condition, a 'reagent', for such an experiment. Those involved should therefore be aware of that to properly conduct the research and assess its results, namely the difference that it actually makes.

What I named interactions previously, I shall from now on rename as 'intra-actions', after Karen Barad, to signify the move from predetermined distinct individualities relating, to 'the mutual constitution of entangled agencies' within a relation (Barad 2007: 33), thereby acknowledging that their distinction does not precede their being in relation. In a theatrical context, for example, the dramatic subjects and objects would no longer precede the drama (as they do in a theatre of representation), but rather emerge out of the unfolding web of its actions, its dramaturgy. The improved awareness of the generative nature of relations, or 'intra-actions', will allow the performer not to aim at a predetermined effect, but to always test the effect that a certain experimental condition produces. This awareness cannot just be discursive, limited to an intellectual understanding of the principle in theory; in order to be effective, it must also be embodied, that is, materially experienced in practice. But such 'mattering', which is indeed already a simultaneously material and discursive process, must also remain rather spontaneous, unmediated by the intellect; there is, in other words, another, more primal level of discourse engaged in the matter, involving, as we shall see with Deleuze, a spontaneous faculty of the mind (or body-mind—since it is a faculty somewhat diffused across the whole body) that is ascribed to the imagination (Deleuze 1994); only then, at a later level, full understanding may settle through reflection. When effective, this awareness should manifest in an attitude of openness and trust towards the experimental conditions, an attitude that is, that does not invalidate them with an inappropriate intentionality.

At that point, even repetition will come to make a difference, and such difference will certainly be spontaneous, since it will be apprehended only in its emergence, since it could not be sought after in advance, since in repetition one seeks no difference, at least by definition. In repetition, what matters is the *attempt* to repeat without the aim of a predetermined result, as that would compromise the preliminary conditions of the experiment, regardless of whether these may be objectively reproduced or not, that is, whether repetition is actually possible or not. By compromising, in fact, I do not mean to simply alter the conditions but to alter them *inadequately*, which is, by the way, what seems to happen to Constantin Constantius in Søren Kierkegaard's story-essay on repetition (Kierkegaard 1983). What I am investigating is, in other words, what attitude may the repeater-performer sustain *to at least attempt* not to alter those conditions in the first place, and yet still make a difference. The paradox here is that it may be precisely by not wishing *a* (specific) difference that one actually makes the appropriate one. The affordance is particularly relevant in theatrical practice, where elements of repetition feature rather inevitably, whether it be text-based, devised or even, I would argue, fully improvisatory.[1] Ultimately, it is precisely this difference-making process, expanded upon in a dedicated section later on, that is to be understood as 'diffraction'.

The performance of dramatic actions is paradigmatic of how experimental conditions may be affected by the intrusion of predetermined intentions, producing altogether different results. That these results may be different is relevant not so much with respect to what they may finally represent but with respect to their *adequacy*, which, as we shall see, could still be objectively observed, despite the ontological indeterminacy of the notion in a theatrical context.[2] An adequate result would be the performance of an unpremeditated reaction to the preliminary conditions of the drama (i.e., the experimental conditions), one that maintains the dramatic logic of the experiment (and/or the experimental logic of the drama) by remaining ascribable to its conditions.[3] An adequate result is therefore immanent in its conditions, like a latent potentiality awaiting relation (i.e., intra-action). The extent to which such a (still causal) link is concretely observable will influence the experiment's objectivity. In a classical scientific scenario, one way to mark it would be to fix the experimental conditions so they can be repeated; this is how my proposed practice starts off too, to eventually diverge, subtly and yet decisively, in reconciling with the fact that fixing and repeating anything might not be a real but only an ideal possibility.[4] In this attempt to extend the notion of objectivity to theatrical experimentation, which is nothing but an attempt to adapt Niels Bohr's definition as it is referenced by Barad—whereby objective is the unambiguous *performance* of the results of reproducible experiments (Barad 2007: 174),[5] and an experiment '"simply (…) an event about which we are able in an unambiguous way to state the conditions necessary for the reproduction of the phenomena"' (ibid., 196)—objective becomes *adequate*.

The problem is whether this adequacy/objectivity is feasible at all to observe, let alone to achieve. Even assuming the reproducibility of a theatrical experiment (to be substantiated further on), performers will still need to find a way to 'inhabit' its conditions without presuming what they will come to mean, or how they will come to matter in performance. More than a method this way implies a subtle behavioural switch: a switch of attitude. The attitude of the performer who partakes in the experiment and nevertheless wishes too intensively to achieve a certain result may lead him or her to manipulate the proceedings accordingly, inevitably (and inadequately) altering, either consciously or unconsciously, the experimental conditions. Conversely, an open attitude may allow the performer to take part in the experiment without 'denaturing', by doing so, its material conditions, its contingent arrangement. If to take part is always already to alter (and be altered), it is not to denature, and adequacy may be the measure to reconcile objectivity with this ontological indeterminacy, at least in a theatrical context: the only objective alteration will therefore be the adequate *one*, which will be the spontaneous *one*. Such open attitude may therefore be qualified as responsible, or 'response-able', as it safeguards the contingent reality of the experimental conditions whilst facilitating the ability to respond to them (i.e., to 'intra-act' with them as a part of them). In this sense, theatre can be a valid laboratory to study the epistemological conflict between 'representationalism' and what Barad defines 'agential realism' (Barad 2007).

According to Barad's alternative methodology for understanding reality, based on the scientific insights of Bohr's quantum theory, there are no pre-existing 'objects with inherent boundaries and properties' (Barad 2003: 815), which can be independently observed and then put in relation, but only primary relational phenomena out of which objects emerge (once observed, and along with the relative observing agencies): '*A phenomenon is a specific intra-action of an "object" and the "measuring agencies"*; the object and the measuring agencies emerge from, rather than precede, the intra-action that produces them' (Barad 2007: 128, italics in the original). Nonetheless, a specific 'intra-action' involves a 'specific material configuration of the "apparatus of observation"' (Barad 2003: 815). A theatrical event may too be understood as an intra-action involving a specific material configuration, that is, a particular set of dramatic relations with specific and contingent material conditions, which are not defined by, but themselves define the dramatic subjects and objects involved:

> It is through specific agential intra-actions that the boundaries and properties of the “components” of phenomena become determinate and that particular embodied concepts become meaningful. A specific intra-action (…) enacts an agential cut (…) effecting a separation between “subject” and “object.” That is, the agential cut enacts a local resolution within the phenomenon of the inherent ontological indeterminacy (ibid.)

It is the ‘agential cut’ enacted within a specific set of relations that allows the identification of the characters involved, of what they do, and to whom or what. In other words, it is only at the point of observation, which in a theatrical context would be the point of performance, that a ‘local resolution within’ the entangled web of relations is effected, which makes it meaningful, intelligible.

As we shall see via Deleuze, ‘contemplation’ could adequately redefine what objective observation means in human beings. In a performance situation, contemplation would be the condition allowing a performer to notice the agential cut enacted by her/his own being in relation, which defines, at the point of observation and without premeditation, her/his role in the dramatic unit under observation, the specific intra-action. To be sure to account for, or rather entangle both actors and spectators in this ‘apparatus’, and thus also their mutual creative agencies, contemplation describes one’s ability to observe oneself in relation (and not merely whom or what is presumed already other in the same relation).

In a theatrical context, this web of ‘relations without preexisting relata’ (Barad 2003: 815) is actually a matter of emerging dramaturgy. It may involve considerations about proxemics, movement choreography, vocal orchestration, etc., as discursive, directorial choices materialised onstage, but also as discursive practices of the stage proper: the contingent material configurations of the scene, which inevitably matter more than whatever they were eventually meant to represent. This operation (of emerging determination) could be observed at the level of the drama as a whole, at the level of the action of a scene, at the level of a unit of action within a scene, at the level of an even smaller fragment of action within a unit, and so on. The smaller the level of ‘intra-action’ explored, the higher the resolution required to provide ‘the condition for the possibility of objectivity’ (ibid.).

But what does it actually mean to talk about objectivity in the theatre? I will first review the notion and its implications in the context of Barad’s ‘agential realism’, and then suggest how this alternative model can be translated into concrete practices of performance research. More specifically, I shall expose how, by guaranteeing the adequacy of observations, objectivity also indicates the way to achieve it, namely through repetition; the conditions for the possibility of objectivity are the conditions of repetition, as well as the material for it. I shall then gradually delineate repetition as a method to access a contemplative state ultimately enabling a performer to exert the generative nature of relations, whereby such generative potential is associated with diffraction, and performance with a 'material practice for making a difference' (i.e., for triggering diffraction). Should repetition be a way to facilitate contemplation, performance could then be approached as an instance of 'creative repetition' (instead of representation), namely as a practice that exerts the diffractive power of repetition, that enables a performer to mark the effects of difference and thus make a difference in her performance.

Objectivity

According to Barad's elaboration of Bohr's insights about quantum physics, the 'inherent ontological indeterminacy' of 'everything' (phenomena, objects, subjects, words, and things) can be resolved 'locally', as a sort of abstraction within the world's ongoing process of 'differential becoming' (Barad 2007). Phenomena display objective determinations as a result of specific intra-actions, involving specific configurations of the 'apparatus of observation', which enact a distinction between its components. Within ongoing phenomena therefore, contingent conditions can still be distinguished and ideally extrapolated at each observation. It is thanks to this '*agential separability*–the local condition of exteriority-within-phenomena–' (Barad 2007: 140) that observations can still be considered objective, even renouncing the 'metaphysical presumption of the ontological distinction' between objects and subjects typical of a representationalist approach (Barad 2003: 825).

The possibility of objectivity is therefore not altogether excluded by quantum indeterminacy; it is only limited to specific events, to specific observations: it is 'circumstantial'. More in general objectivity is, in Bohr's account, a matter of unambiguous communication of the results of reproducible experiments, whereby results manifest as material reconfigurations of the experimental conditions: 'objectivity is a matter of "permanent marks – such as a spot on a photographic plate, caused by the impact of an electron – left on the bodies which define the experimental conditions"' (Bohr as quoted in Barad 2007: 197). The possibility of objectivity is therefore the possibility of apprehending the specific difference made with an experiment.

Responsibility

From Bohr's assertion above, Barad draws another implication, that '*objectivity means being accountable for marks on bodies, that is, specific materializations in their differential mattering*' (Barad 2007: 178, italics in the original). All parts involved (in a phenomenon, observation, experiment, etc.) contribute with their intra-actions to results that are objective, consisting of material changes to the preliminary conditions, and are therefore responsible for them. Apparatuses of observation are 'the material conditions of possibility and impossibility of mattering; they enact what matters and what is excluded from mattering' (Barad 2007: 148). Consequently, since materialisations define what is of significance, objectivity implies that all agencies involved are responsible for that as well (i.e., for 'what matters and what is excluded from mattering'). Bohr's 'permanent marks' are, in turn, the embodiment of these material-discursive practices: they are marks of intelligibility.

To be in the world with this renewed awareness of how it works and becomes intelligible entails for Barad a renewed responsibility, more heightened than it would need to be if we accepted a world ruled by representation. In concrete terms, this awareness should result in a different attitude, a different approach, a different way of relating with the world: fully adopting this awareness means turning performance (and life) into a form of continuous experimentation.

Beyond Intention

We have seen how objectivity grants a certain degree of intelligibility to world phenomena (despite their ontological indeterminacy).[6] Barad associates this objectivity with responsibility, suggesting that responsibility comes with involvement. Involvement, however, may be intentional or not, and the agencies involved may be human and not; as a result, responsibility too becomes a diffused affair, something shared regardless.

That responsibility does not depend on intentionality is a follow-up of considering the world not as the linear unfolding of causes and effects, but as a far more complex entanglement of agencies in a continuous state of becoming. According to this worldview, 'Agency is not aligned with human intentionality or subjectivity' (Barad 2007: 235), and intentions are no longer to be considered 'preexisting determinate mental states of individual human beings' (Barad 2007: 22–23). Predetermining intentions, and sticking to them, would necessarily miss something of this entangled reality; doing that would lack accuracy, resulting in a deliberate lack of accountability.

So, agency is not a given of subjects or objects, as these do not pre-exist relations. Agency is diffused until a practice of observation is enacted, until a specific network of relations is impressed somewhere, making it intelligible. Perhaps, therefore, intentionality too becomes intelligible through specific observations, somewhat after the event, after a specific intra-action is observed, as a sort of emergent logic. If so, an agential realist approach to the theatre would imply that the character's intentions too only emerge in performance, as a result of it, that their predetermination could not determine the performance, unless merely aprioristically, as in a theatre of representation. What alternative kind of theatre would not determine intentions in advance? It would either be a Theatre of Spontaneity or a Theatre of Repetition: the former would attempt to exclude any form of repetition to avoid aprioristic characterisation (as well as aprioristic action and so on)—at least according to J. L. Moreno's theorisation (1983)[7]; the latter would attempt to achieve the same result through *pure* repetition. Both methods are ideal extremes, but share the common goal of triggering spontaneity as a fundamental diffractive force.[8] Ultimately, not even intelligibility (that of the world and its phenomena, singly extrapolated in 'apparatuses' and thus 'parted', made observable to another 'part') ought to be considered a 'human-dependent characteristic but a feature of the world', an immanent possibility, and knowing 'a matter of differential responsiveness (…) to what matters (…) a matter of intra-acting' (Barad 2007: 149). Knowing seems to be a matter of embodying adequate reactions (i.e., spontaneous reactions to certain preliminary conditions, specifically ascribable to them), and of apprehending the relative bodily reconfigurations. Theatrical performance ought then to be considered decidedly an instance of shared *poiesis*.

In short, human intellect and intentionality are not the preconditions of intelligibility, objectivity and responsibility. There *is* an agency other than human agency. Acknowledging this, however, 'does not lessen human accountability; on the contrary, it means that accountability requires that much more attentiveness to existing power asymmetries' (Barad 2007: 218). To be more responsible is to develop 'an embodied sensibility, which responds to its proximal relationship to the other through a mode of wonderment that is antecedent to consciousness' (ibid., 391) or, with the words of Emmanuel Lévinas: 'proximity, difference which is non-indifference, is responsibility' (Lévinas as cited in Barad 2007: 394).

Contemplation

I wonder whether what Barad calls 'mode of wonderment' is equivalent to the contemplative mode I touched upon earlier with reference to Gilles Deleuze. This seems reasonable since for Deleuze contemplation involves a somewhat passive and diffuse activity of the mind that anticipates reflection;[9] a sort of 'neutral' questioning and noticing of what is happening that draws something out of it. This 'something' is difference, which I understand as something new emerging rather incidentally from the contemplative act, something untethered to existing individualities being actively compared. To contemplate is to pose spontaneous creative questions to our sensibility, only there is no 'I' who poses them, but rather an immanent scanning agency, which triggers a sort of abstraction, which creates something other, the other, Barad's 'agential cut': an instance of proximity within what is continuously entangled and in becoming; a positioning ultimately enabling us to perceive difference whilst acknowledging an immanent connectedness: the condition of 'having-the-other-in-one's-skin' (Ziarek as cited in Barad 2007: 391); a condition that ultimately rejects indifference.

How does it work? According to Deleuze, who took reference from David Hume, contemplation enacts the 'contractile power' of the mind, which is the imagination. [10] Imagination operates 'like a sensitive plate, it retains one case when the other appears. It contracts cases, elements, agitations or homogeneous instants and grounds these in an internal qualitative impression endowed with a certain weight' (Deleuze 1994: 70). This sort of 'overwriting' of impressions (without erasure), is quite material, and 'is by no means a memory, nor indeed an operation of the understanding: contraction is not a matter of reflection' (ibid.). Deleuze describes it rather like a passive activity: a 'passive synthesis (…). It is not carried out by the mind, but occurs in the mind which contemplates, prior to all memory and reflection' (ibid., 71).[11] A parallel with

Barad's account of agency, of 'relations without preexisting relata' (occurring 'in the mind which contemplates' understood as one's 'apparatus of observation'), seems to *emerge which may be worth exploring.

Deleuze's 'difference in itself' becomes intelligible through contemplation, prior to any comparison of identities.[12] I like to think of this operation as a pre-intentional and creative instance of critical thinking of the body in action which, by checking over its marks, produces new ones: each 'check-over' would be an 'observation' itself provoking a new 'agential cut'.[13] But what are these new marks? What is this difference? The synthesis operated by the imagination 'contracts the successive independent instants into one another, thereby constituting the lived, or living, present' (ibid., 70). Perhaps then, it could be said that difference is nothing but the world, and 'a difference' but an instance of it the way it is perceived (which for a sentient being would be 'a life'); in other words, a phenomenon. Each instance of perception is different; it is new prior to reflection and representation. These reflexive faculties of the mind are 'superimposed upon and supported by the passive synthesis of the imagination' (ibid., 71), and can be consciously bypassed in contemplation. Contemplation would then be equivalent to Barad's 'mode of wonderment', only consciously achieved (since it would be antecedent to reflection, not to consciousness). As such it would allow the experience of 'exteriority-within' the phenomena: still an immanent experience then, unlike reflection, which is a transcendental one, lived as if outside of the phenomena itself.

This spontaneous operation which is the imagination also produces marks—Bohr's condition of objectivity—which Deleuze calls 'natural signs'; these 'marks on bodies' are indeed distinct to those of representation:

> they are signs of the present, referring to the present in which they signify. Artificial signs, by contrast, are those which refer to the past or the future as distinct dimensions of the present (…) Artificial signs imply active synthesis – that is to say, the passage from spontaneous imagination to the active faculties of reflective representation, memory and intelligence. (Deleuze 1994: 77)

Sensory Experience

That the mind which contemplates is an inquiring mind, however passive,[14] seems to correspond with sensory experience as it is described in phenomenology, namely as a response to stimulation, the addressing of a creative problem; here the experience is expressly said to involve the whole body:

> The sensible datum which is on the point of being felt sets a kind of muddled problem for my body to solve. I must find the attitude which will provide it with the means of becoming determinate (…) I must find the reply to a question which is obscurely expressed. (Merleau-Ponty 2005: 248–249)

Again, a matter of adequacy/objectivity, of finding resolution, of making intelligible something indeterminate; an operation involving both body and mind; a 'material-discursive practice'. But how can one reach this 'embodied sensibility'? How can imagination be accessed if it is an immanent faculty that cannot be willfully instigated (as to do so would be to fall back on reflection)? How does one contemplate? How does one assume an adequate attitude?[15]

Merleau-Ponty provides some hints:

> Sensory experience is *unstable*, and alien to natural perception, which we achieve with our whole body all at once, and which opens on a world of *inter-acting senses*. Like that of the sensible quality [i.e., smells, colours etc.], the experience of the separate 'senses' is gained only when one assumes a *highly particularized attitude*. (Merleau-Ponty 2005: 262, my italics)

The determination of a 'sensible quality' from the indeterminate whole of perception is again a matter of separation, a sensorial cut in Barad's words, and Bohr's condition for the possibility of objectivity. Such separation requires an 'analytical attitude', one that does not take anything for granted, and that is somewhat turned back on itself, in the sense that it observes itself observing. It is critical without being judgemental. The experience of a specific sense, like vision for example, 'is the peculiar product of an *attitude of curiosity* or observation. It appears when, instead of yielding up the whole of my gaze to the world, *I turn towards this gaze itself*, and *when I ask myself what precisely it is that I see*' (ibid., 263, my italics). By extension, it is to be asking the body (i.e., by engaging the body-mind) what is being done whilst doing it.

If contemplating is like having a sensory experience, if it is a matter of concentrating the attention towards the particular instead of the whole, 'separating the region under scrutiny from the rest of the field (…) interrupting the total life of the spectacle' (ibid.), then it would seemingly involve some exclusions, or at least remodulations. It would involve the passage, in the case of vision for example, from 'comprehensive vision' to 'an observation, that is, a localized vision which it [the gaze] controls according to its own requirements' (ibid.). But what does this do to the objectivity of the observation? Does this localisation make it more or less objective? As we shall see—in the sections on resolution and diffraction, as well as later on, with reference to the practice of 'segmentation'—the answer is a matter of continuity and resolution: continuous practice ought to extend the scope of each observation, localisation, resolution, to reduce omissions, and apprehend their contiguity in a pattern, thus reaching the particular as much as possible within the whole, rather than to the detriment of it.

Recapitulation

The indeterminacy of ongoing, ever-evolving phenomena is resolvable in instances: objective reconfigurations resulting from specific intra-actions. These may be understood as an interweaving of actions-reactions, specific instances of responsiveness that are accountable. Accountability arises when observations are objective, when 'we are able in an unambiguous way to *state* the conditions necessary for the reproduction of the phenomena' (Barad 2007: 196, my italics). What seems to follow from this statement is that observable phenomena are potentially (or perhaps only theoretically) reproducible; presumably what would be necessary is that the constitutive intra-actions be encompassed, or embodied, in a determinate 'apparatus of observation' through which observations can be repeated. That is, if an experiment is objective, if the conditions for its reproducibility can be stated unambiguously, could these not be configured in an 'apparatus' through which the experiment could be repeated? In my interpretation of Barad's rendering of Bohr's definition, objectivity only applies to particular observations; these are therefore only ideally reproducible, that is, they are objective as long as one can *state* the conditions for their reproduction, regardless of whether these can be actually (and accurately) retrieved or not. But what is actually meant by phenomena to be reproduced, conditions to be stated, apparatuses to be configured, and what is the role of repetition, are all aspects that still need clarifying, particularly in the context of performance research, where human behaviour is concerned.

We have seen that phenomena do not rely on pre-existing, transcendental human intellect or intentionality to get going nor to become intelligible:

> The basic idea is to understand that it is not merely the case that human concepts are embodied in apparatuses, but rather that apparatuses are discursive practices, where the latter are understood as specific material reconfigurings through which "objects" and "subjects" are produced. (ibid., 148)

What is more, it could be said that, should one of the intra-acting agencies be actually human, and even more so should the bulk of the apparatus be human (i.e., the human body-mind), intellect and intentionality may even get in the way of the objective observation of phenomena. In fact, such agency would have to fit quite 'impartially' in the apparatus of observation, that is, 'it' would have to somewhat dissolve its subjectivity to remain specific material-discursive configuration, responsive to the immanent experimental conditions, oblivious to any external intention that may be willing to take control. An external intention would be any predetermined intentionality extraneous to the apparatus, discordant with the experimental conditions and thus capable of interfering with the adequate reproduction of the phenomenon (since such 'intrusion' would *denature* its constitutive intra-actions). This type of interference manifests, for example, when one expects a result out of a repeated experience, in terms of say, feelings, sensations, and so on, but is frustrated because the expectation once turned into a predetermined intention, has effectively altered the experience from its original, which is therefore not properly reproduced, even had all other factors remained unvaried.[16] Indeed that intention to feel a certain feeling, or to sense a certain sensation, so precisely determined through reflection, for example because of the memory of an earlier experience, could not have been part of the configuration of the experience in the first place (i.e., in the 'original').

The issue for a human being in these circumstances is how to maintain a contemplative, responsible or response-able attitude—in other words a 'mode of wonderment'—against the invasive habit of reflecting, which may compromise the preliminary conditions of observation (in the sense of altering the relative apparatus inadequately). The preliminary conditions of observation of a theatrical phenomenon are the preliminary conditions of performance, namely the composition. Perhaps in the end it is a matter of emancipation more than exclusion; a behavioural switch: how to leave the mind free of one's will dominion, meaning by 'mind' a diffused intelligibility, diffused that is, across practices that are both physical and discursive.

Resolution

Different experiments imply different apparatuses, thus different intra-actions producing different 'agential cuts', and therefore different results in terms of material reconfigurations of the experimental conditions. Conversely, the same experiment, configured in the same apparatus, should produce the same results, that is, the same material reconfiguration of the experimental conditions (out of the repetition of the intra-action and the relative agential cut). However, agential realism poses a problem regarding establishing the concrete extent of this reproducibility; if we accept that subjects and objects, the component parts of phenomena, do not have pre-existing determinations, since they emerge distinctly only as a result of specific intra-actions, how can these be repeated?[17]

On the one hand, the problem might be addressed by not assigning 'a role' to the experimental conditions, namely a predetermined identity or meaning, leaving only their materiality at play in the relation to produce their discursive determinations. On the other hand, however, the contours of this materiality still cannot be defined in advance, since an apparatus, along with its components, is itself a phenomenon, itself a combination of dynamic intra-actions operating at different levels. It could be misleading in fact to part meaning from matter in this way; it would be like retaining the duality of matter and discourse that agential realism expressly supersedes: 'material apparatuses produce material phenomena (…) where "material" is always already material-discursive—*that is what it means to matter*' (Barad 2003: 824, italics in the original). Precisely because *that* is what it means to matter (i.e., the indissoluble entanglement of meaning and matter), we can only replicate the conditions that are under control, which *appear* in other words objective, at least at our everyday level of experience, and 'mindfully', or 'fictionally', exclude those that are not[18]; a way to seemingly exclude those conditions *whilst remaining open* to their mattering, could be to leave them to play out *as if* they were irrelevant variables in our models, or apparatuses. The process of materialisation, or reproduction, of an apparatus would thus be adequate, in the sense of open but nonarbitrary (Barad 2007: 203), as objective as agential realism allows the notion to be.

Where do we start from then, to ensure the reproducibility of an experiment, if no boundaries can really be set in advance to its material-discursive conditions, that is, to its apparatus? The only solution seems to be a matter of resolution: if reality is an ongoing entangled dynamic of intra-actions (i.e., a 'differential becoming'), the higher the resolution we are able to get at in the definition of its conditions, the closer we will be to an accurate description of an instance of it (i.e., to an accurate observation of 'a reality'). However, this statement does not necessarily imply that the more the relevant conditions (i.e., the conditions that 'matter') are accounted for, the more accurate the apparatus whereby the phenomenon can be reproduced; rather, it means that each resolution entails a different instance of reality, hence a different phenomenon.

In short, quantum theory seems to suggest that not all details need necessarily be unravelled for observations to be objective; those that are unravelled are sufficient to constitute the phenomenon which is being observed. Any more unravelling will constitute other observable phenomena, namely more complex but just as objective entanglements. Objectivity only applies to specific phenomena, hence always already to the *results* of specific intra-actions, once apprehended in their embodiment (i.e., through 'marks on bodies'). This also means that we should be responsible for all the incremental knowledge we can get at, as it changes our reality; by entangling ourselves more and more in the world that we inhabit, we ought to learn to apprehend that knowledge, and we ought to do so for our own sake, or we would be discordant with what knowledge we have already embodied (however unconsciously). For instance, how can theatre research reconcile its knowing of the indefinite nature of boundaries—that 'Outside of particular agential intra-actions, "words" and "things" are indeterminate' (Barad 2007: 150), that 'There is no absolute inside or absolute outside' (ibid., 377)—with this potentially contradictory idea of resolution, which seems to suggest the possibility of reproducing particularity, and therefore also the possibility of a generalised objectivity, not restricted to the particular observation? More explicitly, to what extent a specific performance can be reproduced, if its seemingly objective preliminary conditions, the composition, however its resolution, is itself made (out) of entangled phenomena? My suggestion is that objectivity lies indeed in the particular, but attempting to generalise it remains meaningful, if it is to notice deviations, or disturbances, within variable ranges of adequacy; if it is to mark diffraction.

DIFFRACTION

Given a certain resolution, a certain phenomenon can be reproduced: to what extent can we rely on this statement? How stable can the resolution of preliminary conditions be? These questions are critical to fully account for a physical phenomenon called diffraction, which fundamentally works against resolution. In the field of physical optics for example, 'The greater the diffraction effects, the less determinate the boundaries of an image are, that is, the more the resolution is compromised' (Barad 2007: 377). What is diffraction then? What causes it? Is it to be nullified for the sake of resolution, objectivity and reproducibility?

In physics, diffraction is the scattering of a wave upon encountering an obstruction, resulting in its spreading over different overlapping waves. Diffraction is a phenomenon typical of waves, which are themselves a 'propagation of disturbances', that is, dynamic phenomena triggered by changes to an existing state of balance. According to quantum physics, however, not only waves as such, but also particles display wavelike properties, and diffraction takes place with them as well. Without going into the physics of particles too, it could be said that diffraction is basically the interfering, or superimposition, of propagating disturbances of which matter is made. Diffraction has, in other words, to do with difference; not a difference between individualities, or determinations, but 'difference in itself', as in Deleuze (1994).[19] Not a relative difference then, but a creative one; an immanent force that can only be traced through its effects: the differing individualities, or determinations, that it creates. To trace the effects of interfering phenomena, to trace the effects of their entanglement, is to trace patterns of diffraction, 'patterns of difference that make a difference' (Barad 2007: 72).

Even without delving into complex abstractions, it is intuitive to associate diffraction with indistinctness; at the same time though, it might be less intuitive to envisage that it is not that diffraction affects the clarity of an image, shape, thought, sound, smell, etc., through disturbing effects such as shades, nuances, ambiguities, etc. intervening as in from without, but that it is rather that these 'disturbances' are already immanent, always already partaking in each image, shape, thought and so on. A certain level of resolution only manages to hide, or rather exclude deeper levels of diffraction (exclude that is, from mattering). It is clear, therefore, if this is the way the world works, that neither can diffraction be nullified, nor can an absolute resolution ever be achieved. There is, above all, an ontological indeterminacy, under which diffraction may incite further resolution, and the other way around, perhaps ad infinitum. And thus, although it has been said that diffraction is caused by obstructions, the entangled and interfering nature of everything seems to suggest that there are always potential obstructions to be encountered, and it is only a matter of 'choosing' which ones to resolve. Any such choice will depend upon the level of resolution accessible upon such encounter; in the life of human beings, that possibility of resolution may be called awareness.

Diffraction ought not to be nullified then, quite the contrary, since, as Donna J. Haraway claims, it 'trains us to more subtle vision' (Haraway 1992: 300), a vision of difference per-se, or more precisely, as already discussed, a vision mapping 'where the effects of difference appear' (ibid.) in the constitution of phenomena. Although the prospect of a 'more subtle vision' may mean acknowledging no definitive vision, it still incites research into improved resolution, improved awareness; such research takes place through training.

Difference and Repetition

Before Karen Barad had managed to 'upgrade' diffraction to the status of an actual lived phenomenon reliably describing not only wave behaviour, but also how we all intra-act with each other and the world's becoming (whether we are aware of it or not), the notion had been taken up more simply as an optical metaphor, useful to describe ways of welcoming difference, alternative to the ways of reflection, which were understood to be merely 'displacing the same elsewhere' and were therefore unable 'to make a difference' (Haraway 1994: 62–63). Whilst the latter ways would be typical of a 'representationalist approach' to the world, whereby everything is defined by and understood through representation, diffractive ways would imply a far more fluid practice, consistent with the newly theorised principles of 'agential realism', cautious, as we have seen, about given (and giving) determinations. Such an approach is fundamentally inter/intra-active and inter/intra-disciplinary; it calls for a 'mode of wonderment', a method of 'contemplation', a 'highly particularised' and 'curious attitude' of 'dynamic relationality', an 'embodied sensibility', able to sense and to sense itself sensing, and so on. In short, diffractive ways are the ways of a sensitive conscience: 'The misfortune in speaking is not speaking, but speaking for others or representing something. The sensitive conscience (…) refuses' (Deleuze 1994: 52).

That said, my take on reflection is not so much that it displaces 'the same' elsewhere, but that it aims, or claims to do so. Indeed, reflection offers a representation, but that is not mere repetition, not an objective copy. Reflection is rather a rendering, a reinterpretation; at best it attempts to reproduce a version of something. Its aim, however hopeless, is not to differ from that predefined rendition of the fleeting original. Repetition differs in that it embodies no intention to carry forward a predetermined interpretation; its theory is not to reproduce what is supposed to be the outcome, but to only repeat the configuration that already produced what is to be reproduced. Repetition's only intention, from the point of view of the repeating subject so to speak, is to reproduce the 'apparatus of observation', not the phenomena emerging from it. What repetition repeats, in theory, is a certain resolution of the experimental conditions seemingly under control, the playing-field of the intra-actions, perhaps a 'randomisation' of its real (indefinite) boundaries. It is upon these grounds that I wish to put forward repetition as a practical method of diffraction.

We have seen how an apparatus is basically a given resolution of the experimental conditions, whereby whichever the resolution, deeper levels of accuracy are always excluded from mattering. It is as if at these deeper levels, finer details, that is, all the unresolved obstructions, lay dormant. Whenever these levels get within reach of an observation though, potential diffraction effects are activated, and new difference released. This is the creative power of diffraction: the power to create difference, to disrupt a given resolution once its obsolescence (so to speak) becomes evident to a sensitive conscience. Now the question is: what is it that extends an observation so as to make obstruction effects manifest? What maintains, or rather expands the possibility of objectivity and resolution? What triggers diffraction?

We know that 'difference in itself' becomes intelligible through that mode of observation that Deleuze calls 'contemplation', and that this difference is not the result of a comparison of predetermined identities, but rather the apprehension of partitions, instances of proximity out of which identities are created, somewhat ‘extrapolated-within’ what is continuously entangled and in becoming; is this not to trace patterns of diffraction, ‘patterns of difference that make a difference’? Contemplation then is that faculty of the human apparatus of observation, that ‘bodymindset’, or immanent scanning agency, which triggers diffraction in a ‘sensitive conscience’. Still, this definition does not seem to help very much in practice: what does one actually do in contemplation? What is it that one contemplates? As we will see in the upcoming sections, since contemplation is a sort of ‘passive activity’, one has to actually try not to do anything more than just repeat and notice, that is to ‘repeat mindfully’; and what one contemplates is precisely what is being repeated.

To address the matter quickly, it could simply be said that ‘doing things differently’ is a way of diffracting, that the continuous introduction of elements of variation expands the reach of a known practice, as if in search of something not yet defined, a solution to a problem still unknown, or as if in search of a solution to an artificial problem, a self-imposed obstruction. But in order to variate without a predefined intention to do so, in order not to risk variating just for the sake of being different, in order, that is, not to represent variation, one still needs to maintain a certain attitude, a ‘mode of wonderment’, which I have associated with contemplation. Those ways of differing, like working with obstructions, ‘becoming-minor’, or expressing oneself as a foreigner in one’s own language (Deleuze in Bene and Deleuze 2002; Deleuze 1997) are indeed the ways of diffraction, but although these denominations perfectly describe what needs to be done, they do not explain how to do it; perhaps quite rightly, these ways rely on inspiration, on improvisation. However paradoxical it may seem, an alternative method of welcoming variation without risking to define it in advance, a possible way of accessing a contemplative mode and thus stir up diffraction, is repetition.

REPETITION (AND THE DIFFRACTIVE POWER THEREOF)

Repetition does not necessarily imply representation; rather, it has the power to diffract, provided it is contemplated; furthermore, it is precisely repetition that can make contemplation more attainable. The contemplation of repetition draws difference from it, by means of a spontaneous faculty of the (diffused) mind which we already touched upon, the imagination: ‘The role of the imagination, or the mind which contemplates

(…) is to draw something new from repetition, to draw difference from it' (Deleuze 1994: 76). 'Pure' repetition, the repetition of 'form', repetition without representation, is a form of observation working like a magnifying glass, diffracting the image, facilitating deeper knowledge, or perhaps a deeper awareness of 'non-knowledge', of the phenomenon under observation, which reveals itself differently as a result.[20] As in a sort of digging, or 'steady pounding', repetition unleashes subtler resolutions:

> Every one always is repeating the whole of them. Always, one having loving repeating to getting completed understanding must have in them an open feeling, a sense for all the slightest variations in repeating, must never lose themselves so in the solid steadiness of all repeating that they do not hear the slightest variation. If they get deadened by the steady pounding of repeating they will not learn from each one even though each one always is repeating the whole of them they will not learn the completed history of them, they will not know the being really in them. (Stein, 2009: 294)

'*Repetition changes nothing in the object repeated, but does change something in the mind which contemplates it*' (Hume as cited in Deleuze 1994: 70, italics in the original). As Hume taught Deleuze: 'independent identical or similar cases are grounded in the imagination', which is described as 'a contractile power: like a sensitive plate, it retains one case when the other appears' (ibid.). Upon repetition, the contractile power of the (diffused) mind, which is the imagination, 'contracts cases, elements, agitations or homogeneous instants and grounds these in an internal qualitative impression endowed with a certain weight' (ibid.). It is the imagination that allows us to overwrite without erasure, and thus produce ongoing difference, namely the experience of the living present (always different despite life's iterations). Contemplation enables us to access the imagination, and therefore to draw something new from repetition, to draw difference from it. Repetition presents something to contemplation, namely something to contemplate. The body-mind is thus 'faced' with something, and that something is already a doing; the point is precisely to what extent one's apparatus is able to face that. Contemplation could be defined as the ability to 'scan' the effects of repetition upon the contemplating subject, which means the ability to apprehend patterns of difference. Naturally, this 'passive activity' also allows us to bypass representation.

Repetition (as a Means of Contemplation)

Although Deleuze seems to suggest that repetition, along with difference, is actually at the heart of perception, the reason why I offer it as a method of diffraction is practical. Repetition gives the body-mind something concrete to adhere to, something to follow and not to direct. In order to work this way, in order to be passively attended to, this 'something' ought to be external to the sensitive conscience attending to it, or if it dwells within, it ought to be externalised somehow; it ought, in other words, to be rendered independent from the possible 'manipulatory' attempts of the reflective faculties of the mind. I have already mentioned contemplation's capacity to establish what Barad calls the 'agential cut' amongst otherwise entangled parts; repetition provides the ground for this parting by freeing room for the mind to merely check over the proceedings, abandoning itself to a pure noticing of the 'intra-actions'. Like an objective apparatus of observation, the mind is thus freed from any will to direct the results, and is somewhat enabled to operate diffusedly across the body.

How does repetition allow the mind (considered as a diffused physical-discursive apparatus of observation) this possibility, even when the object repeated is internal to the sensitive conscience attending to it? How can a movement for example, or a gesture, a sentence, or even a thought be repeated and contemplated, without being previously reflected? It would have to be learned so well as to become spontaneous, almost involuntary, like the beating of the heart; it would have to be impressed in the body-mind so as to leave permanent marks in it and thus become 'objective', readily retrievable without need for the active intervention of reflection. This learning is a sort of recording that happens through repetition; it is an act, a doing that abides by the principle of repetition instead of representation. The performance practice emerging from this would therefore be that of a Theatre of Repetition. Alternatively, the body-mind could also be so open and sensitive already as to mark the impression when it happens, sensing the 'agential cut' at first impression, at each impression, like an ideal Theatre of Spontaneity. But repetition trains us precisely for that, to reach that level of sensitivity: the ability to sense and make sense of our marks, to access our recordings directly at the source, without representation. Repetition can then be a mode of learning, one that happens through practice, through the direct involvement of both body and mind in material-discursive practices; a training that happens in a territory proper to performance research. Be it for a Theatre of Repetition or a Theatre of Spontaneity, for conventional or post-dramatic, individual or collective, text-based, devised or fully improvisatory theatre, repetition can serve as the underlying principle of new methods of actor training and performance composition.

The Performance of Repetition

When there is nothing to repeat, the passive faculty of the mind that Deleuze associates with 'spontaneous imagination' (Deleuze 1994: 77), still needs to *be faced* with something; and it is never the case that there is nothing to be faced with (experienced improvisers know this very well). Imagination is always *triggered by* something, and that something is an impression that might already be considered an instance of repetition, even if it is just the first, and even though its simultaneous 'observation', in triggering the imagination, makes a difference.[21] That the imagination is always 'passive' does not mean 'inert', quite the contrary: it means that it is always reactive and spontaneous (rather than proactive). Stimulations have already been marked when they are felt, manifesting in a reaction to an impression that has already happened, that has already been recorded in perception. But I suggest that when, by successive reiterations, the 'marks of repetition' lay deeper and firmer in one's body-mind, *as if* objectified, better 'resolved', or externalised more distinctly (however inwardly), the same body-mind is emancipated, in retrieving them, from its active and reflective functions such as memory and intent, which clears the way for the reactive, diffuse and spontaneous operations of the imagination.

It is a little like the relation between composition and performance: when the moment of performance is also that of composition, namely in improvisation, imagination and reflection need to work in synchrony towards a balance quite difficult to achieve compared to when the two moments are clearly parted. Improvisation could in fact be defined as the ability to react adequately and without premeditation to a stimulation. To be adequate an improvisation would have to have logic; it would have to 'make sense'. If an improvisation does not 'make sense', it means that it is 'not felt', that there is either no stimulation or no reaction, but only senseless action. Such senseless action 'makes no difference' because despite bypassing reflection, despite having not 'displaced the same elsewhere', it has not triggered the imagination either. On the other hand, when the moment of performance is formally parted from its composition, as is the case in text-based theatre, for example, representation is likely to interfere with the imagination, as far as the memories and intentions, carried forward from say rehearsals, are concerned. However, if the composition gets deeply impressed in the body-mind of the actor to the point that s/he is able to 'consciously forget' it, to observe/perform it anew, by contemplating its repetition, drawing difference from it as a result, performance may become an instance of 'creative repetition' instead of representation; an instance of diffraction. It would not be an instance of proper, or 'mechanical', repetition; it would be, so to speak, an 'attempted repetition', approached with an open disposition for accepting difference, yet without a predetermined intention to make a specific one; the body-mind of the actor is decided, but the underlying intent, instead of being predetermined, manifests in the reaction.

The deeply embodied knowledge potentially gained through repetition helps against our habit to represent; however, as Gertrude Stein warned us, there is also the risk to get 'deadened' by it. I suppose this 'deadening' to be still a matter of reflection, seeping in the 'steady pounding of repeating' with its memories and intentions, hindering repetition's intensity and propelling capacity. The result would be a sort of 'inert repetition', since the imagination would not be engaged in the process. In order to operate creatively, repetition must involve a sort of 'conscious forgetting': alongside its accreting aspect, repetition must also train us to suspend those proactive functions of the mind involving definitions; the mind ought to be able to critically check over the body *in* action, not before, and feed back into its material practices with new discursive elements, which in turn alter their materiality, and so on. In short, as long as the whole body-mind is *engaged* in repetition, there is no way to remain the same, no way to avoid variation and no way to plot it either. The mind is too busy catching up with the action.

As long as the notion of objectivity is safeguarded in the particular, and can be extended to a proximal generality through the notion of adequacy, this approach to repetition provides a concrete methodology for triggering diffraction. What is it then that the actor repeats in practice? The actor typically repeats a text, and a stock of gestures and movements, whose variety and variability depend on style and genre. The actor practically repeats vocal and physical actions previously fixed through a detailed process of composition. At first, these can be created in improvisation or under direction, but the main point is that they get eventually 'recorded' into a precise physical and vocal score. This recording does not take place on an external support but directly on the body of the actor. The process of rehearsal then becomes a process of scenic and sonic composition and 'recording', whereby memorisation happens not through reflection, but through repetition, in a manner that directly accesses 'body memory': the capacity of the body-mind (vocal organs included) to store/memorise not only the act, but also the emotions associated with it from ongoing and previous instances of repetition (i.e., the material and discursive agencies embedded in it). These 'associations' are the 'content' of the act, so to speak; a compound of meanings, emotions and physical sensations. Successive repetitions then both write and read over the previous marks, therefore not like the playing of a record, which would be an instance of 'mechanical repetition', but precisely like an instance that draws difference from repetition, an instance of 'creative repetition'. It is not easy, however, to record both act and association this way, since a certain 'engrained habit of the mind' would normally lead us to represent, to actively remember all details with the support of reflective memory.[22]

In order to address this difficulty, practice clearly showed that rigorous training is required and that it ought to aim at 'deconditioning' the actor from engrained everyday ('representationalist') behaviour, rather than at acquiring a new specific technique (Romanello 2020; Barba and Savarese 2006; Grotowski and Barba 1975; Moreno 1983; Linklater 2006, 2010). In composition then, only the acts that *have 'made sense' to the actor* during creation (be it improvisatory or not) can be 'fixed', since only those are likely to have been stored as both form and content, act and association, matter and discourse, in body memory. This way stored they can be 'consciously forgotten' and, bypassing reflection, spontaneously retrieved and accreted: not remembered by memory then, but retrieved 'by heart', and simultaneously diffracted, with openness and trust towards the experimental conditions. In this model, performance is considered experimental in the sense of a specific observation, whose results are not determined in advance, nor ought to adhere to an expected determination if reproduced (as in classic objectivity), but can nevertheless be assessed in terms of *adequacy*. Such assessment relies on the ability to apprehend the causal link, the dramaturgical logic, intercurred between the observation (i.e., the attempted performance of the repetition of the composition), and the phenomenon resulting from it (i.e., the 'diffracted' performance of the composition), and is made through the marks left on all the bodies involved, 'which define the experimental conditions'.

These marks signal the difference made to the preliminary conditions, i.e., the composition—which of course ought to be understood not as just the text, but as all those physical and vocal acts that are embodied in its apparatus—as a result of the specific observation, i.e., the performance. In short, according to this model, the theatrical apparatus of observation is the scenic and sonic composition, a specific and dynamic arrangement of physical and vocal acts constituting the 'objective score' (if we accept the fluidity of the term), whose function is not to serve as a blueprint for representation, but as an instrument for observation, for experimenting the effects of the composition on all the agencies involved in its performance.

To be sure, my use of the terms 'body memory' and 'association' come from empirical practice; although they may evoke somewhat active operations of either the body or the mind, it is clear that we are dealing with a material, discursive and spontaneous operation of the imagination, what Deleuze called 'passive syntheses'; and although the philosopher referred to it as a faculty of the mind, I believe he actually meant it as a diffuse faculty of the whole body, and not just the brain, since in the same monograph, he also made reference to a diffused 'contemplative soul' operating even beyond the human realm: 'contemplative souls must be assigned even to the rat in the labyrinth and to each muscle of the rat' (Deleuze 1994: 75).

Repetition is then both a training and a performance tool: it trains the actor to an attitude, an approach to performance that director Jerzy Grotowski described as a 'passive readiness to realize an active role' (Grotowski and Barba 1975: 57), eventually nurturing a 'contemplative soul'; in performance, repetition permits this 'soul' to flow bypassing representation, and to diffract what it reactivates. As we know, repetition facilitates contemplation and provides an 'object' to it; this object is a sort of 'randomisation', which is already a doing. This is, for the actor-repeater, the vocal and physical composition. In text-based theatre, this can be created, starting from the literary text, in a variety of ways, such as the classic *mise en scène*, or through improvisation. However it is developed, the important aspect is that it be detailed and that its details remain as much as possible unvaried, so as to allow their imprinting in the actor's body-mind through several repetitions, in a manner equivalent to the way a musician, singer or dancer would prepare a concert or a choreography. This may go as far as attempting to fix not only movement but also speech. Depending on the text, and the conditions of production, it may otherwise be useful to fix elements of only one of the two layers, and let the actors superimpose the other in reaction to it, using the former as the structure to improvise off from; I call these 'structured improvisations'.

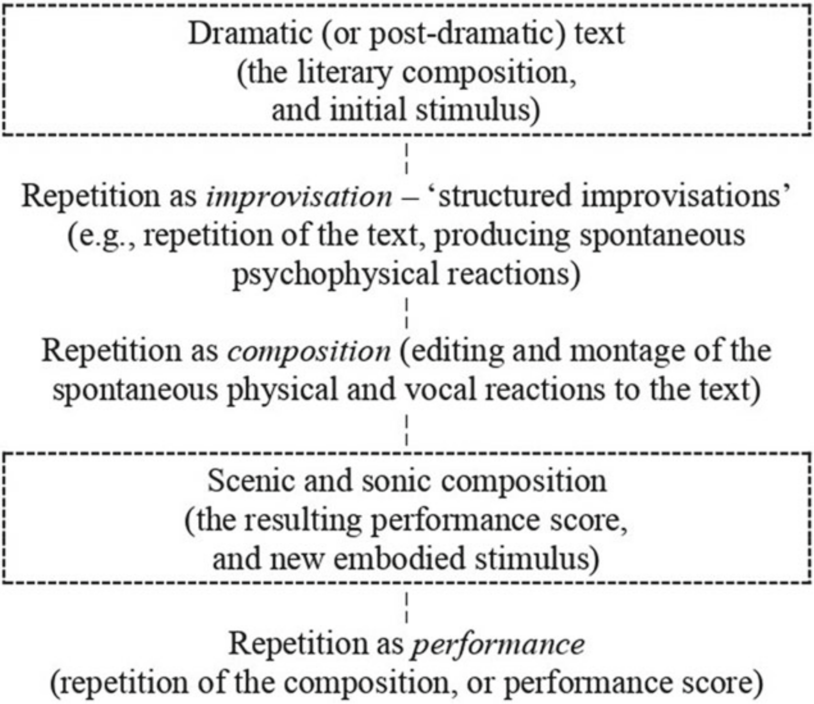
A common 'structure' an actor can improvise from is the text; the actor can react to it through movement or speech (or both). The text would therefore be what the actor repeats simply in order to sense what effect that repetition has on his/her body-mind. As in a sort of 'active meditation', the actor may verbally repeat a line of text until it triggers a mindful physical reaction, or it may repeat it mentally, and experience a mental event which may, in turn, trigger a gesture or movement, or a speech act. Another structure could be a line of movement, equivalent to Stanislavski's line of physical actions, provided by the text or the director, or simply improvised by the actor and then fixed; by repeating it precisely, engaging the whole body in the action, the actor may experience spontaneous associations that may trigger variations, further meaningful details, both internal-discursive and external-material (physical/vocal). Another structure may be a line of speech-acts, as long as it is detailed with specific musical qualities, such as tempo, pitch, resonance, volume and so on; by repeating these accurately, as in a sort of recitative, and engaging the whole body-mind in the vocal action, the actor may experience spontaneous associations triggering movement, subtle vocal variations, further meaningful details, again both internal-discursive and external-material. Other structures deriving from what is already external to the individual actor also include, besides the text, the work of other actors, and/or the larger physical and aural context of performance.

When a physical reaction is spontaneous, it normally triggers an association, which provides the material act with an internal dramaturgical logic; its adequacy can therefore be assessed with reference to the association it produces, which in turn reveals its intention and clarifies the action, also in its plasticity, or outer shape. At that point, it is as if body and mind reconcile, and the performer experiences a creative state, an instance of diffraction. When this happens, the recommendation would be to fix that element, that section of gesture, movement or speech, so it can be repeated, so it can be included as a detail in the developing composition, as there is likely potential to diffract even more. Little by little then, the details of the composition are created and joined together into a sequence. As it can perhaps be noted, this process simply objectifies a constitutive part of a phenomenon, in order to reveal another part, which 'makes itself intelligible' as a result (Barad 2007: 140). More specifically, it bypasses the reflective faculties of the mind by focusing on the material act (speech or gesture), namely the sign, rather than what it signifies, which is only, or more fully accessed as a result; the result in turn, but simultaneously, informs the act and thus diffracts it, and so on.

Repetition trains the actor not to worry about the effect of an action, since the only requirement, at least initially, is precision, or rather, attention to detail. The actor is invited to pay attention to what is done as it is being done, and not to alter it when it is being repeated (initially, it is precisely the invitation not to alter the details that makes the actor more attentive). Soon enough patience is rewarded through the emergence of spontaneous associations, that serve to motivate both the act and the actor. This training thus nurtures the necessary attitude of openness and attentiveness described by Deleuze's contemplative mode.

Besides learning the score precisely, however, the other challenge that actors face at this point, unlike musicians, singers or dancers, is how to coordinate both physical and vocal layers simultaneously, both individually and in relation to those of the other actors, whilst also remaining responsive to them. Without going into the details of the exercises that may train this ability, the overarching method is still that of repetition; the body-mind of the actor is treated (also by the actor herself) as an instrument, or rather as an apparatus, whose increasing sophistication allows increasingly sophisticate observations, increased possibilities of performance and diffraction.

The following diagram summarises the process for text-based performance:


Dramatic (or post-dramatic) text
(the literary composition,
and initial stimulus)
Repetition as *improvisation* – 'structured improvisations'
(e.g., repetition of the text, producing spontaneous
psychophysical reactions)
Repetition as *composition* (editing and montage of the
spontaneous physical and vocal reactions to the text)
Scenic and sonic composition
(the resulting performance score,
and new embodied stimulus)
Repetition as *performance*
(repetition of the composition, or performance score)

A way to achieve a good level of resolution in the composition is through the 'segmentation' of vocal and physical acts, which is an artificial separation of details to facilitate their accurate repetition. This process of 'parting' was first accounted for by Walter Benjamin in his descriptions of Bertolt Brecht's 'quotable gestures' (Benjamin 1998), and feature also in Grotowski's 'exercises plastiques' (Grotowski and Barba 1975).[23] A gesture can thereby be divided into several component parts, quite like a written scene may be divided by 'beats' into separate units. Segmentation can also be applied to speech, which could be divided into smaller units, even down to phonemes, in order to explore more closely the different effects produced by each composing sound, and by different resonations, tempos, volumes, etc. This vocal practice, however, requires preliminary work on deconditioning individual manners of speech, cadences, intonations, and so on, developed over the course of one's everyday life's conventions as psychophysical habits and blocks, which is perhaps even more demanding than physical training. Examples of this can be found in late Kristin Linklater's exercises aimed at releasing what she referred to as the 'natural voice' (Linklater 2006, 2010).

An actor may therefore work on a small, manageable section of physical or vocal action in order to refine it, and thus better embody it; the more the details of the action, the higher its resolution, the higher the sensitivity required to perform it. This work of composition made by the actor is often referred to as the 'actor's dramaturgy' (Barba 1997). In the case of a physical action, for example, this means breaking the act down potentially to its smallest components, whose boundaries may be indicated by anything as subtle as a shift of weight, or impulse. Similarly, in the case of a vocal action, a line of speech may be broken down to its smallest components, which are the phonemes, in order to work on each of them separately, and then reassemble them together, with a renewed awareness of their intra-acting potential.

This practice works like a magnifying glass diffracting our senses, our embodied knowledge of the dynamic details composing each act, which necessarily reveals all those differences that would have been missed otherwise, in the misrepresentation that a generalised engagement through a predetermined intention would have caused.[24] This deeper engagement facilitates an improved awareness of our actions, and also of course, of their implications in the overall drama, increasing the actors' responsibility towards it, towards the overall dramaturgy, the interweaving of dramatic actions (Barba 1985). This mode of repeating is indeed a 'change in attitude' (Thiele 2014: 204), consisting in a renewed attention to the materiality of the sign, along with what it signifies; it allows the actor to *notice* all those signals, all those constitutive changes that an 'entanglement' with the dramatic world invariably produces. Attending to the details constituting an act, ever-increasing at each repetition, increases our awareness that the materiality of the sign, and its signification, is always in becoming.

What is objectivity then in theatrical terms, if these no longer abide by 'representationalism'? It would no longer have anything to do with the (appropriate) representation of an (appropriate) interpretation, but rather with the adequacy of the reaction to the repetition of a specific resolution of the experimental conditions (the 'given' conditions of the drama, which like the boundaries of Barad's 'apparatus of observation' cannot really be fixed), namely the composition, made of 'intra-acting' physical and vocal acts, eventually defining the dramatic action of the fragment explored, or indeed of the whole drama, with all its subjects, objects and motivations. It is fair to object that such a methodical approach is not properly objective, since it attempts to generalise what we have learned pertains only to the particular; a configuration can never be entirely isolated from the rest of the world, thus never precisely repeated, never fully observed or manipulated as if from without, not even under scientific laboratory conditions, let alone in live arts. But that is no matter: difference is welcome, provided it is a difference that is not sought, not predetermined, but emergent out of this persistently creative level of indeterminacy. To train to bypass the representational habit of mind, to train diffraction, it is sufficient to *attempt* the repetition of the material composition and 'wait' to see the result of the relation, which indeed does not need to be always the same in order to be effective. In other words, attempting the reproduction of the particular, attempting to generalise objectivity, remains meaningful if it is to notice deviations within variable ranges of adequacy (namely, if it is to notice diffraction). Perhaps it is precisely because repetition is not possible that we can accept the idea of diffraction: the impossibility of fully apprehending indeterminacy resolves in an attempt. What determines the extent of these ranges of possible variation? The extent of repetition's power to make a difference, to stimulate the 'spontaneous imagination', to trigger those associations whilst retaining the causal link with the preliminary conditions of the drama; such link is safeguarded when the principle of repetition is adhered to.

Objectivity then no longer involves the reproduction of the same, but rather the safeguarding of the natural logic of relations, namely their spontaneity; if in representation a subject is led to aim at a predetermined result, and therefore at representing it, in this new realm of difference there is not even a subject to start with, but a contingent material arrangement that produces its subjects, objects and meanings the very moment it is observed, namely when it is performed. The performance then becomes a 'phenomenon' determined by the (attempted) repetition of the scenic and sonic composition; not a representation of it then, but its diffraction, operated by applying the principles of repetition. It is paradoxical therefore that even in a Theatre of Repetition, performance can truly become shared *poiesis*: a collective processing of the composition whose sense is not represented but determined in its repetition, and thus multiplied, diffracted through an interactive language of the stage that expands beyond its apron and aprioristic linguistic conditions.

NOTES

1. The affordance of accessing the 'spontaneous imagination', of exploiting the generative nature of relations, through repetition.
2. As well as in Barad's new materialist framework.
3. Thereby excluding not only predefined responses (i.e., representations), but also those inconsistent and arbitrary reactions that for Antonin Artaud were 'left to the caprice of the wild and thoughtless inspiration of the actor' (Artaud as cited in Derrida 2001: 239–240), and that JL Moreno defined as 'undisciplined or pathological' in his *Theory of Spontaneity-Creativity* (Moreno 1955: 109).
4. The significance of pursuing this im/possibility should be corroborated throughout this paper, and particularly in the section on 'resolution'.
5. In the transposition I replaced 'unambiguous communication' with 'unambiguous performance', aware that in a theatrical context (but perhaps also in agential realism) 'reproducible' may simply mean 'nonarbitrary' (Barad 2007: 203). Citing Bohr again: '"Objective" means reproducible and unambiguously communicable–in the sense that "permanent marks... [are] left on bodies which define the experimental conditions"' (ibid., 119): whether these marks can be traced back as isolated from the rest is precisely the issue.
6. I.e., through those objective marks 'left on the bodies which define the experimental conditions' (ibid.).
7. There are other examples of practices based purely on improvisation, which exclude any form of predetermined structuring, like improvisational theatre, or 'improv'. For the purposes of this study however, the most interesting alternative is perhaps the form of 'collective improvisation' designed by actor Ingemar Lindh (Lindh and Camilleri 2013), which nevertheless presents some issues: Lindh refers to 'impulse' as a physical phenomenon involving the nervous and muscular systems, but still considers 'intention' as a separate mental activity preceding it; also, his practice seems to rely heavily on the work of an ensemble.
8. However paradoxical it may seem at first consideration, that pure repetition may trigger spontaneity, the method proposed in this paper is the result of an extensive practice-as-research carried out by the author over the course of four years, substantiated by studies in psychology, philosophy, phenomenology and natural science (Romanello 2020).
9. I.e., 'passive' as in 'not proactive', and diffuse across the body.
10. Again 'mind' is to be understood as a diffused apparatus, or as 'body-mind'. Deleuze referenced Hume as the source of this assertion (Deleuze 1994: 70; Hume 1978).
11. See also Freud's *A Note upon the 'Mystic Writing-Pad'* (Freud 1961) and Derrida's critique (Derrida 2001).

12. How this difference without referents has to do with diffraction will become clearer later on.
13. It is pre-intentional since it precedes intention, or rather bypasses the reflective faculties that would lead to its predetermination.
14. In the Deleuzian sense of spontaneous above, namely a 'mindset' for dwelling in the present, for noticing the results of ongoing relations (those 'intra-actions'), without engaging its more proactive faculties. According to Deleuze, the active and reflective faculties of the mind, such as memory and understanding, are 'superimposed upon and supported by' the imagination; the 'passive synthesis' of the imagination happens first (Deleuze 1994: 71).
15. Although it is true that Eastern philosophies have been offering several practices addressing questions like these, with methods of meditation which have endured through the centuries, and which are nowadays quite diffused also in the West, and whilst not denying either the existence of spiritual practices of early Christianity, not too dissimilar in their purpose, which on the contrary have been mostly obliterated over time, this essay still aims at contributing with new material-discursive practices specifically addressed at the theatre community.
16. Incidentally, this is what Kierkegaard also seemed to infer with his experiments in *Repetition: An Essay in Experimental Psychology* (Kierkegaard 1983).
17. By denying the validity/possibility of any predetermination of subjects and objects, quantum and new-materialist theories seem to infer that they cannot be repeated either.
18. Somewhat ideally acknowledging quantum behaviour despite experiencing a '"randomization" of it "for all *practical* purposes" (but not in principle). This randomization process is called "decoherence"' (Barad 2007: 279).
19. Diffraction might also be understood in terms of Derridean 'différance' (Derrida 1997), as already pointed out by both Kirby (2012) and Thiele (2014).
20. The term 'form' is perhaps used improperly; it is to be understood not as complementary to 'content' but rather as 'apparatus', the formal arrangement of an experiment, which despite containing meanings, does not project results. Another lens through which diffraction can be approached may be found in Georges Bataille's *Unfinished System of Nonknowledge* (Bataille 2004).
21. It is certainly not an instance of representation, as that would involve active reflection, which only comes afterwards.
22. Artaud referred to it as a 'formal habit' of an epoch, 'which it[the epoch] absolutely cannot shake' (Artaud as cited in Derrida 2001: 301).

23. Although their source were experimental approaches to physical actions previously developed by Vsevolod Meyerhold (1874–1940) and Konstantin Stanislavsky (1863–1938).
24. Which recalls the requirement of having a sensory experience, namely the passage from 'comprehensive vision' to an 'observation' (Merleau-Ponty 2005: 262).

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Excavating the Present: Time as Diffracting Ghost in *We Dig*

Kit Danowski

From 4–19 October, 2019, at Ovalhouse in London, Emma Frankland leads a theatre project entitled *We Dig* (Ovalhouse, 2019). She, accompanied by five other trans women and trans feminine artists (Travis Alabanza, Morgan M. Page, Gein Wong, Tamarra, and a special guest every night), perform in and around a three-metre construction hole in the theatre's floor. Ovalhouse is slated to be torn down later that year, and they have commissioned groups of artists to perform in the space for what is then considered to be its final season. Frankland's group has been granted permission to perform in the space of excavation. For two weeks of performances, they work in and around the three-metre hole. At one point, Frankland works a jackhammer in the upstage playing area, and throughout the performance Page shovels dirt out of the centre stage hole. Each of the performers has their moments when their stories are the central focus, and the stories overlap and twine in and around each other. The narrative structure is not so much a linear plot than it is a cloth with various threads, where individual performers create their own narrative threads that start to overlap and speak to and through each other. The

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performance is ‘a literal representation of a queer community needing to bury itself for protection’ (Ovalhouse, 2019).

It is hard to imagine more appropriate metaphors for this time, this moment before we knew what Covid-19 was, than digging (for burying and unburying). Time seems simultaneously frozen, moving through molasses, and caught in an unbearable loop. As a means of attempting to suggest this sense of time, and as a means of suggesting something of diffraction in the narrative strategy, I use a couple of different tenses for this chapter: generally speaking, the past tense is for the traditional narrative for this kind of writing, and anchors ideas and moments in place. The present tense is used for the moment of performance (likewise with ritual, where time can slow or stop or otherwise behave in ways that are perhaps harder to predict). The present tense is also for the moment of reading, to suggest that this experience now is also somewhat outside of time. Likewise, there are some concepts that I will introduce without much explanation but will expand upon later, in order to, again, help lead the reader towards a sense of approaching this as moments of almost clarity and partial glimpses. This is, again, to reflect a subjective, relational, diffractive experience of time. Specifically, time during a live performance, and as it plays over in memory afterwards. This performance time contains the sense of repetition of the shovel, or the hands, in the dirt, moving ever closer to the bottom of the hole, or the discovery of the buried object. In digging, we move closer to the realm of the dead, where linear time (and linear narrative structures) matter less and less, and repetition moves us towards deeper contemplation and reflection. Like Hamlet encountering the skull of Yorick in the graveyard, we see ourselves in relation to history and mortality, both inside and outside of time, almost on the verge of outside.

For me, remembering the performance during multiple phases of quarantine, these repetitions refuse to completely lead me out of the time we are living through. Death counts rise and ease and rise again, and a global pandemic has not quelled bigotry or hatred in favour of global unity. Anti-trans violence has escalated under lockdown. Transphobic hate crimes quadrupled between 2015 and 2020 (Chapple, 2020). 2020 was the ‘most violent year on record’ since the HRC began tracking in 2013 (hrc.org, 2021) and at the time of this writing is on track to surpass this for 2021. Anti-trans rhetoric legislation continues to slip under and over the wire both in the U.K. and the U.S., as far-right extremism continues to build from nearly all corners of the world.

This performance took place at a different time; a few months before the pandemic. Not a simpler or better time, just different than now. I saw the show with theatre-making friends and colleagues, and we were all profoundly moved. We did not know then that this would be part of a swath of the last things we saw live before the world shut down the following March; we did not know then that this was a moment that would be, in effect, the last time theatre was going to be this way. Now it is part of the way theatre used to be, if that is possible to imagine (yet). It has not quite become part of our imagination (yet), but it certainly lurks in my own imaginary.

In this chapter, I am reflecting on this performance using Karen Barad's diffraction as a methodological tool. Drawing from Donna Haraway's ideas and extending them through principles in physics, Barad's diffraction is a useful metaphor for articulating how art speaks. Rather than comparing the reflections of ideas, I am looking for differences and witnessing the patterns that emerge, while also participating through entanglement in that emergence. A first step in looking at performance diffractively is to understand that the performers, the space, the spectators, and time, are all agential and are entangled with each other. By entanglement, I draw on Rey Chow's description, in that '(e)ntanglements are the linkages and enmeshments that keep things apart; the void-ings and uncoverings that hold things together' (Chow, 2012, p. 12).

I find myself entangled with a very specific moment in the performance, where several moments in time collapse on each other. In this way, I will consider how diffraction might serve as a conceptual metaphor for a performance that works outside of the cartesian conceptions of time and space, upsetting progressivist historical narrative in order to help locate ourselves in a present that contains both the dead and the ones not yet born. By this triplicity (the living, the dead, the not yet born), I am referring to an experience of the world through a particular lens, one based in principles that come from West Africa, from Yoruba cosmology, brought to Cuba through the horrors of the Transatlantic slave trade and then modified through generations of ritual practitioners who call themselves Lukumí. In this cosmology, time is different than cartesian experiences of time. I am an initiate in this tradition, so this sense of time also plays a part in this diffractive look (with connections that will be clearer as this goes on). Looking at how differences are differenting here, is a way of rethinking dramaturgy, as '(d)iffraction queers binaries and calls out for a rethinking of the notions of identity and difference' (Barad, 2014, p. 171). To articulate how diffraction is used in thinking about performance, I borrow from Amba Sayal-Bennett, where:

> A diffractive analysis can be understood as a wave-like motion that takes into account that thinking, seeing and knowing are never done in isolation but are always affected by different forces coming together. (2018)

Entangling form and function, this writing is also diffractive, entangled in thinking, feeling, and being.

History of Ovalhouse and '*We Dig*'

Ovalhouse, formerly Oval House Theatre, located in Kennington Oval off the Vauxhall line, opened in the 1930s, by graduates of Christchurch College as a sports centre for young people from disadvantaged neighbourhoods in South London. In the 60s, the emphasis shifted from sports to drama. It has since then built a reputation as a place of activism, experimentation, sanctuary, and as a place for LGBTQIA voices (Brixtonhouse, 2021). Ovalhouse moved from Kennington to Brixton in 2020. *We Dig* was part of the 'destruction party' (Alblas, 2020), the closing season where performers were given permission to destroy part of the theatre and 'take it with them' so to speak. For the communities whose voices had been part of the construction, there was graceful poetry in being part of the destruction, where performances that were very local had wider repercussions in ever-widening circles. This performance would see:

> Trans people making a mark on history and our mark on history was meant to be the destruction of the like loving destruction of part of this venue that has been so important to so many different groups of people. (Page, 2021a)

For Frankland, the call for destruction as an act of creation, this was immediately appealing:

> …when I read the Ovalhouse was having this 'demolition party season', and they need artists who can have a performance that demolishes the building in some way, I was like, 'Fucking hell, this is exactly right', and I want to dig the hole…this metaphorical hole that I've been dealing with and talking about…I want to really dig a hole. (Frankland, 2021)

Frankland is an award-winning performance and theatre artist, and has performed in Brazil, Canada, Indonesia, Europe, and the U.K.. She was a featured artist in the British Council Showcase in 2013, and has earned praise and respect for her work with epithets like, ‘Brands don’t lead revolutions. People like Emma Frankland do’ (Wyver, 2019). Some of the inspiration for *We Dig* came to Frankland when she was at a conference in Sao Paolo:

> I remember this person from Brazil talking and they said, ‘You know, there is a genocide happening… there is an apocalypse. And all we can do is bury our knowledge, until the apocalypse passes’, and that sentiment, then stuck with me really for the for the next five years…there is this apocalypse, there is this genocide, and we’re kind of both in and outside of it at the same time, that we have to bury the knowledge that we have for people who come after us. And…we’re trying to hear what has been left for us. (Frankland, 2021)

Notions of origin and beginning are extremely problematic. Following somewhat along the lines of Michel Foucault’s genealogy, a diffractive approach loosens the fixed notions of origin in favour of descent and emergence (Foucault, 1984), ‘interference patterns’ (Thiele), working towards Page’s counsel (explained further in the chapter) to resist the ‘trans first’ (Page, 2021b).

The Performance

As we watch, all the elements are present. With earth, air, water, and fire, there is a suggestion of a kind of spell at work. There is literal earth (the hole they are excavating), the sparks that come from Frankland’s jackhammer, and the persistent drip of water that builds through the performance, as ‘the air around us fills with dust’ (Ressort, 2019). This all adds to the elemental layering in the show, but the dust in particular, as that also means the show is demanding that we entangle ourselves with it, aware of our own obscured vision. Watching through dust makes me aware that I am looking through my own particular frames of reference. Dust affects my seeing, and (as would become much more conscious when COVID and ‘I can’t breathe’ would become part of the fabric of our waking lives in a few months’ time, when the murder of George Floyd at the hands of police officers would unearth attempts to bury structural racism in the U.S.) my breathing. By participating as a witness, there is a risk, however mild. It is a little hard to breathe. Audience members were given the option of having face masks from the ushers at the start of the show (though of course, we didn't realize then the quotidian role face masks would soon play in our lives in the months to come). In breathing this air, we become aware that we are all breathing this same air, in a shared space, and for this particular, fleeting moment in time. Further, like Page, I am an initiate in Afro-Latinx ritual traditions, and coming from this perspective, the dirt has other layers of significance:

> as a medium of energetic memory storage. Dirt, contextualized in this way, functions as a kind of cumulative backup drive of charged events, particularly those connected to death, trauma and other forms of intensity. (Russom, 2021)

The guiding aesthetic embraces genuine diversity. There is no central narrative here; there are threads that twine together, tangling and untangling in time, and time does not progress so much as allows for the revelation of connections. The narratives do not serve a singular linear plot:

> The bottom line? This play could be the five of us digging for an hour and that's all it needs to be. Anything else is extra and in the end, we were narratives that came together. I mean there came a point where, because of differences, the group wasn't … going to be a united kind of chorus. (Frankland, 2021)

During the performance, and in subsequent replayings of my memory of the performance, I notice a point where time seems to stop, almost freeze, it loops, it moves slowly. My attention, my own apparatus of operation, makes an agential cut between subject and object (Barad, 2003, p. 815) This is a particular moment where time, space, performer, and spectator became deeply entangled. Page, who has been digging in the hole centre stage, suddenly uncovers something, that turns out to be evidence of the remains of a human being. This is a historical reference to the discovery of the remnants of a castration clamp that was found in the Thames in the eighteenth century (Francis, 1926; Wainright, 2002). There is evidence that this belonged to a member of the cult of Galli, brought to the U.K. during the Roman colonization in the 3–fourth century A.D. The cult of

Galli worshipped the Phrygian goddess Cybele, and members practised ritual castration. Page, also a historian, with a podcast on trans history, *One From the Vaults* (Page, 2021c), notes that 'this is probably one of the earliest documents we have of what we might today consider a trans related surgery right and it comes from the Thames, and then not only that…' (Page, 2021a). She continues, talking about the tomb of a Galli worshipper, discovered in Catterick in Yorkshire (Wilson, 2002):

> …we have these two pieces of evidence that these people existed in the UK and the piece in the show is really about the fact that, as far as we know, this is the very first, this is the very foundation of trans history, that we have archaeological evidence of in this land right. (Page, 2021a)

In Baradian terms, this is not so much a question of first in terms of origin, but instead of matter 'threaded through with materializing and sedimented effects of configurings of spacetimemattering, traces of what might yet (have) happen(ed)' (Barad, 2014, p. 168). As diffraction 'troubles dichotomies', where '(t)here is nothing that is new; there is nothing that is not new' (Barad, 2014, p. 168), one of the binaries troubled here is that one between past and present. This moment of discovery brings the past into the present, and brings us in the present into the past. Time is out of joint, and we are in this frozen moment, a moment that also loops, a moment that is fluid as molasses.

Digging here is both literal and metaphorical for the experience of excavation, 'going after trans history, ultimately, like our trans ancestors' (Page, 2021a):

> We first dig up Marsha P. Johnson in Hot Peaches and maybe she was part of Hot Peaches when they came here who knows…that kind of starts us heading back, and then we end up all the way down with you know, the oldest trans ancestor we can find here. (Page, 2021a)

This moment carries a certain weight of difference. The difference here is temporal—the temporal moment in the performance, and the temporal moment of discovery in history, and the unknowable moment of burial, along with Page's moment of discovery. How these speak to each other and what they say about time. In this way, time collapsing here also prefigures a global experience of temporal collapse, and points towards new ways of working collectively, and new directions for performance. Not only polyvocality and equality and diversity of cultural experience, but of temporal experiences that are more varied and multiple, and changing. Furthermore, they do not serve to represent a singular moment, like an x or a crossroads for time and space; moments of difference are distinct entry points into this temporal experience. These moments connect this present moment to what has come before, the moments when we recognize not that we are unique or new, but connected to all that has come before (and by extension, after). Perhaps it is because of Hamlet in the graveyard, although it did not originate there, but the image of a character on stage, looking at bones has deep resonance in theatre. The performer looks at bones and feels a connection to those bones, leads them and us as spectators to become at least momentarily aware of our own mortality—that we will one day be a matter for excavation.

Along with being a historian and performer, Page is a child of Oshun in the Lukumí tradition. Part of this initiatory tradition involves an active relationship with the dead, with the ancestors. In that tradition, she is also a medium, and any relationship to the dead comes through a particular cultural set of frames of reference. In this instance, the body or the excavation becomes what Solimar Otero refers to as an archive of conjure:

> Work in archives of conjure disrupts the desire to create a neat timeline, to relate a linear narrative that will fall easily into recognized canons of knowledge-making in terms of the past and culture. Rather, one engages with the dead more precisely by paying attention to confusing clues and unfinished accounts in the archive. I am arguing that they (the dead) put those clues and accounts in front of the researcher, urging her to perceive, much like a spirit medium uses her vista at a séance, certain details that complicate, engage, and make manifest the archival ancestor. (Otero, 2020, p. 41)

The moment when Page unburies the dead was the most profound moment of diffraction for me, when I felt the density of differences differencing. Frankland's performance methodology, with multiple identities intra-acting in a particular kind of setting, is loose enough to allow for all kinds of intra-actions, and all kinds of patterns to emerge. I realize that while focusing on one, I miss many others, and that this is in part the result of my own entanglements. I know Page, and am already a big fan of her work on trans and Afro-Latinx ritual history. As a Lukumí initiate myself, I have a particular kind of lens that resonates with bones. I am also a Palero, another Afro-Latinx ritual tradition that is oriented towards the dead. Through the Palo line, I work with spirits of the dead, with dirt, with bones, in an active and ongoing conversation where the distinction between the living and the dead is more than a little slippery. So of course the pattern I am seeing is related to the dead, seeing performance as a message from the dead to the living, or sometimes also the opposite.

Diffraction and Difference

Following Barad, I am engaging with diffraction through the notion of entanglement, the entanglement of the research and the researcher. In diffraction, we consider how processes of observation and reflection are material practices that become entangled with the research. I am entangled, the audience is entangled, the reader here is entangled, we are all agential, in that 'wave-like motion' (Sayal-Bennett, 2018), thinking, seeing, knowing together, co-constituting reality (Hill, 2017, p.7).

Frankland has written about the problems with origins, and Page has written about the importance of resisting a tendency to look for firsts, so although I am looking at a performance, and a particular moment, neither of these are breakthroughs, peaks, beginnings, or origins. The performances of *We Dig* are not the first, but part of a long lineage. That lineage is one that is not easy to find in written history, so part of the task of the historian then is to uncover what is already there:

> And what does that mean for us today, when we live in an environment where we're constantly told that we're new, and that's not real and kind of dangerous. it's like actually we've been here for 2000 years I don't know what your problem is like I can show you the evidence we have been here for 2000 years, so. We're not new, you're just being a bigot'. (Page, 2021a)

History is not linear, and seeing history through these lenses is itself a kind of diffraction—the traces and the patterns are absolutely there. The resonances between historical excavation and living bodies are complex, revealing a complex relationship to time.

Of course, time (in a pandemic world) is not what it used to be, and a more nuanced and complex understanding of time is one of the characteristics of phenomenological experience. This reflects many other cultural understandings of time, and space, where linearity and causality are part of a larger whole, one more polyvalent than we could have ever imagined:

> Phenomena are not located in space and time; rather, *phenomena are material entanglements enfolded and threaded through the spacetimemattering of the universe*…The world 'holds' the memory of all traces; or rather, the world *is* its memory. (Barad, 2010, p. 261)

Diffraction draws upon Haraway's notion of 'situated knowledge', a type of knowledge that is specific to a given situation, one that accounts for both the agency of the knowledge-producer and that of the object of study' (1988). I am entangled through particular webs of relationship. I met Page ahead of the project, through a mutual friend, experimental electronic composer Giovanna Rayna Russom, who goes by Rayna, and is also initiated to Oshun in the Lukumi tradition. I do not share their same lived experience in relation to transgender identity, but I do not identify as cis-gender, and our paths are entangled through a series of connections in our ritual ancestral lineages. Following the example of Sayal–Bennett in their practice of diffractive analysis, this is how I understand these worlds from within:

> Unlike reflection, diffraction is a critical practice of engagement. Diffractive practices aim to understand the world from within…They have a performative dimension, and are involved in the production of the world rather than offering a neutral and objective description of it. In this way, diffractive analysis accounts for the entanglement of researcher and researched, rather than considering the researched object in isolation, from a distance. (Sayal–Bennett, 2018)

The way ancestral lineages intersect among Lukumí practitioners is already a study in difference differencing. In every ceremony, there is at least one invocation to the ancestors, and every initiate has its own version, where we recite the ancestral line back as far as is traceable. They are ultimately traceable to a handful of 'originary' ancestors (whose ancestral lineage of course extends back much further but is buried in opacity), there are overlaps, and having multiple common ancestors is not surprising. This is a point of difference differenting, where the engagement does not 'base itself on reflexivity and reflection, i.e. on the mirroring attitude that 'only displaces the same elsewhere, setting up the worries about copy and original and the search for the authentic and really real' (Haraway, 1997,

p. 16, as cited in Thiele, 2014, p. 204). Neither is the invocation of the ancestral line a search for origins, but instead 'aims at the multiplication and dissemination of differential powers in order to produce other, unexpected, and (hopefully) less violent interference patterns. It habit(u)ates difference(s) differently' (Thiele, 2014, p. 204). One's ancestral lineage can play a big part in one's identity, and the way ancestral lineages intersect also play a part in social relations within the spiritual communities. The way ancestral patterns intersect speaks to one's present identity, and the patterns also speak to buried histories of transmigrations through the colonial violence of chattel slavery. These patterns are 'patterns of difference that make a difference – to be the fundamental constituents that make up the world' (Barad, 2007, p.72).

In the moment where Page unburies the dead, there are several temporal zones crossing simultaneously—the deeper past, the more recent past, and the present. Add to this perhaps another past—before the 3-fourth century, that past that is also evocative of Glissant's Opacity, as 'that which cannot be reduced' (1997, p. 191). This is another ancestral line, one that cannot be traced because of the histories and centuries of colonizations and violence. The history is unrecorded and unavailable; it cannot be touched, but is there, it is certainly there. Page as historian uncovers threads of a story of a forgotten ancestor during the rehearsal process. Page as performer digs in the theatre ground in 2019, and starts to uncover the body. This happens in 2019, but it also happens in the 3rd or fourth century, and it happens during the excavation in the 1800s. The effects of difference happen in 2019, but not only in 2019 but in a present moment that loops. The performance is before the pandemic, this is written during the pandemic. It happens right now, the processes of difference (layers of time talk to each other, the same event happens, the same burial and uncovering gets repeated through time, none of this is the first time).

I repeat myself. I wonder what diffractive writing might be like. It could be like a two-slit experiment (this is a central concept in diffraction theory, to be explained further below), where we see it happen, and then we have to keep going back and looking at how things behaved and when they differed, looking at interference patterns. And if we were looking at a particular behaviour, like time for example, then we might notice that it loops, and it freezes, and it flows.

In the process of looking at performance through a diffractive methodology, 'new directions are marked out in the very intersection between the data, theory, methodology and the researcher. In these diffractive crossroads, the original “wave” partly remains within the new wave after its transformation into a new one’ (Taguchi and Palmer, 2013, p. 676). In this crossroads, the entanglements (performer, time, space, spectator) are ‘read through one another in ways that help illuminate differences as they emerge: How differences get made, what gets excluded, and how those exclusions matter’ (Barad, 2007, p. 30). How differences get made are entangled with the apparatus.

Apparatus

Following Barad’s description, apparatuses are material-discursive practices, ‘specific agential practices/intra-actions/performances through which specific exclusionary boundaries are enacted’ (2003, p. 816). They are ‘open-ended’, with ‘no outside boundary’ (Barad, 2003, p. 816). Part of the task of this method or methodology is in ‘(b)uilding apparatuses to study entanglements’ (Barad, 2007, p. 74), as a means of catching a glimpse into its effects. This chapter is constructed as a kind of apparatus, an experiment in diffractive writing that focuses on a moment in an experimental performance piece, moving in and out of linear explanation in order to draw connections as they emerge. Time as a duration of performance, as cycles of history, as a moment in the present reflecting on moments in the past, is also an apparatus. My own perceiving apparatus as subject making agential cuts with the performance, moments, and performers as an object, starts to fail; or perhaps better, as the entanglement becomes more apparent, the binary between subject and object is queered, as ‘(d)iffraction queers binaries and calls out for a rethinking of the notions of identity and difference’ (Barad, 2014, p. 171).

This is material that is already entangled, engaging in a kind of ‘diffractive process of data analysis, a reading of data *with* theoretical concepts (and/or multiple theoretical concepts) produces an emergent and unpredictable series of readings as data and theory make themselves intelligible to one another’ (Mazzei, 2014, p. 743).

Finally, in the performance of *We Dig*, there is a scaffolding that takes up the entire stage left area that serves as a unifying apparatus for the performance and performers. As the performance progresses, there is a drip from the ceiling. Alabanza performs on the scaffolding, in precarious conditions:

> And like incredibly dangerous to move around, we moved very quickly at some points and then throughout most of the show there's a leak of water coming down that's making mud that's making like and Travis is climbing up on this scaffolding that's wet. With no like nothing to catch them if they fell, so it is very dangerous and I'm amazed, nobody got seriously injured, I mean we all hurt ourselves at some point, but nobody got seriously injured, thank God'. (Page, March 2021)

The scaffolding becomes a site where the mechanics of multiple identities intersecting come together. Eventually, the performers work together to stop the leak with glasses filling with water, and ultimately constructing a tributary to divert the leak. If '(d)iffraction is an optical metaphor for the effort to make a difference in the world' (Haraway, 1997, p.16) then this moment is where the optical metaphor is most pronounced. The collective effort here is not some easy answer, but a present revelation of entanglement, and what could be considered a quantum entanglement:

> *Quantum entanglements* are generalized quantum superpositions, more than one, no more than one, impossible to count. They are far more ghostly than the colloquial sense of 'entanglement' suggests. Quantum entanglements are not the intertwining of two (or more) states/entities/events, but a calling into question of the very nature of two-ness, and ultimately of one-ness as well. Duality, unity, multiplicity, being are undone. 'Between' will never be the same. One is too few, two is too many. (Barad, 2010, p. 251)

The apparatus of the scaffold serves as a metaphor for the view from above, for collective action, a singular collective action that is arrived at through multiplicity. This is where polyvocality of the living is most present, where '(e)veryone comes together and uses those drain pipes that then direct the water from the drip that extinguishes the fire and actually, 'Okay we're all fragmented, but we can come together in these moments of crisis and we can we can feel united' (Frankland, 2021).

Much of Barad's framework for diffraction comes from the two-slit experiment (The Royal Institution, 2013). Briefly, there are two slits in a screen, and atoms are sent through, where they move around the slits and gather on a second screen. They can behave as particles or waves, depending on the observer, and there are a number of odd behaviours, like forming particular patterns, that suggest they are aware of each other, and can anticipate movements:

> Erasing past information on the nature of the encounter – it still contains the traces, … *Its past identity, its ontology, is never fixed, it is always open to future reworkings*! (Barad, 2010, p. 260)

This is a kind of time travel; they do not share the same ontological assumptions of time as linear and space as fixed. In the same way, individual identity here is not fixed in linear time and space. Page as a performer is entangled with the identity of the Cybele worshipper, with excavation as invocation, but this is not a direct 1–2–1 relationship, she is also entangled with every transgender body who lived here before her, before this specific trans ancestor, and also entangled with those who come after. There is a history and an ancestor, but not at all singular, not at all orginary. It is an entanglement with a past that is not past, and a future that is imagined and becoming. Suffice it to say, there are ghosts.

The Lukumi Connection

Lukumí (also known as Santería) is a ritual tradition developed and innovated in Cuba as a result of the forced migration of African peoples during the transatlantic slave trade. In Cuba, Yoruba-descended people blended traditional practices with some of the practices of other African nations as well as local indigenous practices. It continues to develop and innovate in the twenty-first century, drawing upon other traditions and practices. Although it is primarily a Yoruba-descended practice, part of its survival has been through adaptation and innovation. In a sense then it is a kind of diffractive tradition. It also contains some influences from the Catholicism brought to the island from Spain during the conquest; hence the name Santería, which marks its connection to Catholic saints. Lukumí is an older term and has been recuperated and revived, sometimes as a decolonizing move to untie it from Catholicism and reinforce its roots in Yoruba cosmology. From there, it has practitioners throughout the Americas, and throughout the world for that matter. It is impossible to provide a capsule definition, but there are some distinguishing characteristics: there is a pantheon of divinities, the Orishas, who contain individual elemental energies. Communion with the divine is through trance possession, divination, and other ritual practices. In the cosmologies (and its variations) there is an active and ongoing relationship between the living and the dead, as well as awareness of the ones not yet born. There are many rituals that emphasize the relationship to the dead; they are honoured at every ceremony. Because of a particular mix of circumstances, the rituals connected to the dead absorbed some of the teachings of French spiritist Alan Kardec, and it is not uncommon for Lukumí practitioners to work as espiritistas, who can communicate with and channel the dead.

Lukumí is an earth religion, properly called henotheistic rather than pantheistic, where matter has aṣe, divine energy. This is a very important distinction, that matter has power and objects are not merely symbolic nor representational. Bones are not simply representations of ancestors, they contain that energy. I stress this because under colonial thinking there is a tendency to consider the fetish or icon as a representation; this is an ontology where the space between the object and its representation does not exist. In this cosmology, 'existence (iwa) has two aspects: the physical or tangible and the spiritual or intangible' (Lawal, 1996), and both are implied in the same object at once.

In the moment of excavation in the performance, then, the ancestor is simultaneously both physical and spiritual. There is already dirt, and digging, even before the excavation, and dirt has significant power in Afro-Latinx ritual contexts, 'as a medium of energetic memory storage' (Russom, 2021). That which is buried is perceived as contained, frozen in time. Decomposition is a slow movement, like through molasses, but it is still movement. The memory of the dead is a loop that replays. These are present in the ritual contexts, but more, the dirt that contains the dead also contains the power of the dead, and importantly it is one that does not diminish over time. In some ritual situations, you can make an object infinitely more powerful by burying it.

The dead are present. This moment happens before our eyes, in a 2019 present, carrying the moments from before. This moment also carries a moment in Page's research process, where she 'only discovered they made it to England, while we were in production on the show, so it was a late written piece in the show it wasn't like I came into the show knowing it' (Page 2021a). She elaborates on this further, and it is necessary to quote at length here because there are so many layers of excavation, and so many places of entanglement:

> And it was something that had profoundly affected me in a way that I wasn't expecting because my ancestors are from this land and, like my ancestors are mostly Welsh and English and Scottish and…I mean that's why I'm here, like my mother literally was born and raised in Wales, moved

> to Canada when she was 25. So that's why I've made the return. For me, as someone who you, as you well know, is deeply involved in ancestor veneration practices, it was really, really powerful to realize that actually the people who walk the land that my ancestors walked also, had trans people, you know, because one of my big problems spiritually throughout my life, since I was really young and I started getting interested in spiritual things is that we don't have almost any information at all on the Celts. It doesn't exist because they didn't have written language. What we have of the Celts is all propaganda written by Romans about what backwards country bumpkins they are. And, like the Romans writing about how the Druids were cannibals and blah blah blah blah blah like, it's just, it's propaganda for the city people to hate on them and justify taking over their place. That's what the Romans always did, it's their whole vibe. But with the Celts, we have nothing, so the furthest back ancestors in my ancestral line are a giant mystery to me, and though the Galli were Phrygian, and probably I don't have any like blood relation to them there's still that kind of…This is still an ancestor of this land, this is still someone who lived here and was part of the culture here and had an effect here, one way or another, and to me that's hugely powerful. (Page, March 2021)

In invoking the dead, all the dead become present. Because of my own entanglements with Lukumí (I became a practitioner in 1991, received the elekes in 1995, and was initiated to Obatala in 2008), this moment signified a shift from performance to ritual (if such a distinction can exist—although that is a different conversation). A hole in the dirt is an invocation, an opening of raw and dangerous power. Time collapses. In ritual, calling up the spirits like this is a move 'to recreate the past and participate in it' (Brandon, 1997, p. 148). Recreating the past in these contexts is not a retreat to an idealized time that might not have ever happened, but an invocation to time itself, to call the past into this moment. Ritual can function 'to keep the past and present aligned, like two mirrors facing each other' (Brandon, 1997, p. 183).

Russom, excavating her own childhood experience across the ocean in Providence, also during the pandemic, describes a search for:

> what lies beneath the surface of what we perceive as the present. This requires thinking about time differently, and also understanding that the body is a finely tuned divining rod and amplifier that connects to time in a way that exceeds linear temporality'. (Russom, 2021)

This is ‘the play of indeterminacy in energy and time’ (Barad, 2015, p. 395). The ghost of difference in this moment of time travel, is not the idealized past, not the one where the clamps went into the Thames 1700 years ago or so, not the moment they were found in the 1700s, not the moment Page learned about them, or even the moment of excavation in the performance, but the future. In the Derridian sense, hauntology is to be haunted by a future that has not yet happened. I have written about the term hauntology elsewhere, adding that the term can:

> refer to the ghosts and ghostings that are peculiar to performance, in particular as they emerge through frictions inherent in a collision of ontological and cosmological systems (Western theatrical performance traditions and African-derived conceptions of spirit possession)’. (Danowski, 2020)

By these accounts, there is something hauntological happening here, folding into José Esteban Muñoz, conceiving queerness ‘as an ideality that can be distilled from the past and used to imagine a future’ (Muñoz, 2019, p. 1).

Again, this is not to say this production is a breakthrough or a pinnacle, and certainly not a first. Page has written about ‘resisting the intoxicating trans first’ (2021b), where the idea of the first contains an embedded assumption about progressivist notions of history, when any form of representation signals that things have changed for the better:

> Each time, people - trans and cis alike - rush to plant the flag of the *very first*, to mark the significance of the moment as being unlike anything that has ever occurred before… In order for trans people to be constantly discovered, we must be always and immediately cast off, forgotten. (Page, 2021b)

It is essential here to refuse to call such moments pivotal or tipping points, as ‘(t)here can be no such thing as a tip, or a tipping point. We are not mountaineers, we are tightrope walkers. We step delicately backwards and forwards along our timelines…To be trans is to be a time traveller’ Frankland (2019, p. 11).

The diffraction here, the difference, is temporal, where these meet and collapse and leave marks on each other, backwards and forwards in time. This moment of excavation is less like a two-slit experiment, and more like sea foam, as Solimar Otero describes it in Archives of Conjure. It 'evokes memory because of the many ways we hear, feel, smell, or see it. As a rhythmic aftermath of a wave, it acts as a residual transcript' (Otero, 2020, p. 178). Here the archive is complex, and is contained in diffractive patterns: the performance collective, Frankland's vision, the moment of excavation that unfreezes a past (that was never really frozen), but in my memory becomes the frozen moment of live performance before I started to watch and make performance over zoom. The archive is the dead as they speak through the living, where:

> …there is a greater power in the tug of the lineage that connects us back through centuries. One that, if tapped, could fundamentally change not only the artistic conditions of transness but its social condition. To realize, on a broad cultural scale, that people we call trans in this moment have existed through thousands of iterations across the world and back to before time, would make our liberation unstoppable. (Page, January 2021)

One of the appeals of performance is its capacity for haunting, and a diffractive view is where entanglements start to matter, start to cut together/apart. I cannot quite distinguish any more between my moment of watching in the theatre and the many, many moments afterwards. I can't put my finger on the moment, but I know it was there, 'a felt sense of différance, of intra-activity, of agential separability—differentiatings that cut together/apart—that is the hauntological nature of quantum entanglements' (Barad, 2010, p. 245). This is enough for me to consider this '(e)mpirical evidence for a hauntology' (Barad, 2014, p. 181). And it does not matter so much whether it was the moment of watching, or one of the moments of recollection, whether I was subject or object, because:

> Agential cuts never sit still […]. Inside/outside is undone. […] An uncanny topology: no smooth surfaces, willies everywhere. Differences percolate through every 'thing', reworking and being reworked through reiterative reconfigurings of spacetimematterings […] each being (re)threaded through the other. Differences are always shifting within. Intra-actions don't occur between presences. Intra-actions are a ghostly causality, of a very different order. (Barad, 2010, p. 268)

The performance ends. The space we were just in together is one that is coming apart. In that space, time seems to loop, to freeze, to move like molasses, where we are experiencing that uncanny sense of time, where hints of repetition are felt in the body, in a shared space where we are all entangled. We come from birth families and we have our chosen families; likewise, we have our inherited lineages that carry their weight of constructive and destructive patterns, as well as those ghosts whose hauntings feel just like love.

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In/Visible Relations: Feminist New Materialisms for (Post)Pandemic Arts Pedagogies

Hermione Wiltshire and Annouchka Bayley

SPELL-CASTING: DIGITAL WORLD-MAKING PRACTICES

> What might be interesting about the idea that the concept of 'knowledge' is itself often a means to knowledge.
>
> (de la Cadena and Blaser, 2018, p. 23)

> We are not the stuff that abides, but patterns that perpetuate themselves (Weiner, 1950). *Seventy years later, patterns – or precisely, pattern recognition – have a bad name…*
>
> (Lushetich, 2021, p. 1)

'*The world has moved online*'. Whether you are reading this during the pandemic or the much anticipated[1] wake of the pandemic, our organisations, events and educational practices have been largely migrated to

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online platforms. *The world has moved online*, appears like a refrain on UK news channels, on social media and in online meetings with casual regularity, acting as an incantation, casting its spell like a giant shadow that envelops our actions, our plans for participation and our waking hours. When we, the authors, convened to write this paper, we both felt that we knew that we were supposed to be *migrating* somewhere, but to where exactly? Where is this mythical space those of us involved in education and academic research are being asked to migrate to? Not dissimilar to other quasi-mythical spaces such as the 'art world', ~~the~~ 'commercial world' and the 'world of academia'—we found ourselves asking where this location actually *is*?

For many of 'us'—by which in this context, we mean educators, artists and academics—shut up in our homes counting our lucky stars that 'we' *can* continue to participate in the ongoing hum and buzz of institutional and commercial worlds via our screens, finding ways to answer the demand levied upon us to move our teaching, research and all our associated academic practices online instantly has, been wildly challenging. Conducting endless meetings on video calling platforms, preparing students to sit exams online, responding to (often absent, always changing) government and school or university policy, teaching arts, sciences, humanities and/or technical, practice-based and laboratory skills via our screens set up inside our homes, this 'new normal' has demanded that we accelerate not only our digital know-how overnight, but our ability to connect with students and colleagues in ways that are somehow meaningful without proximity and without our bodily presence in the places of our classrooms, studios or office. Instead we 'meet' online. We meet inside the fold of algorithms; our encounters, our relations and our practices taking place entirely 'inside' coded platforms. Again, a location is implied. We meet, teach and even live our daily lives *online*. We haunt this place without the fullness of the body. In effect, in this mode, we have all become ghosts in the machine, a machine that we are being asked to develop (ghostly?) practices for.

What is perhaps interesting is not just that we engage in code and coded spaces, but that for a moment we are written *as* code—our voices, our faces, our movements and bodies are translated and migrated into this place that isn't exactly a place and yet inside which we share, work and practice. In such a migration, we move from being *represented* online to be *performative* flashes of code in the endless stream of inducements for signals to flow, moving through the coded gates of the platform. Like any space suffused with ambiguity, the online *world* has its own codes, points of access and denial. It requires hardware, connection and data, but it also requires we learn its languages in order to participate. In this sense technology has never been innocent. For those familiar with feminist new materialist and decolonial studies, such matters of the innocence of materiality have long been brought into question (Benjamin, 2020; Golding et al., 2021; Noble, 2018).

So, what happens when we bring this kind of critical engagement to the practice of online education? As digital education moves from being a thing of the future to very much a thing of the present, questions emerge about what this migration is, what it requires and how we might practice new relations with power in this *space*. In order to do this, perhaps we first need to ask: what is the *space* we talk about when we say 'I'll meet you "online" in twenty minutes'? Are we migrating to a space or an idea? What constitutes *spaces* and *ideas*? What if these two phenomena were ontologically *entangled*? (Barad, 2007). What if the online was not conceived of as extra-material or even non-material and thus a space without bodies? And what would all this mean in terms of building new practices for new worlds?

Perhaps, if we really think about the phenomena of being online—the codes, the processors, the algorithms, the lights and all the quantum entanglements, the distributions and economies of technology they are suffused with and which make it possible for me to 'meet you online in twenty minutes'—what those of us lucky enough to occupy a position of access are doing is nothing short of a complete relational overhaul. We are meeting in a different kind of space, made up of different kinds of material that relate our materiality in different kinds of ways. Furthermore, we meet 'here' to develop new knowledge and new practices together through a mode of being that has a very different take on what knowledge is, how that knowledge is made and how that knowledge *matters*. In short, everything is different. And everything *differences*. The primary units and building blocks of this online 'world' are made of microscopic 'movements' of code; data; information firing away, moving through gates built in the shapes of '0' or '1'; a binary universe whose incantations are dynamic inducements to move and which find their micro-journeys' ends through a series of gateways and patterned pathways. These patterns scribe worlds where we meet and make. Worlds that are in a unique way, material. Worlds that have always been material and *material-discursively* engineered.

As Karen Barad (2007) might have it, these worlds are not at all simply ideal or conceptual, existing somehow ethereally. They come into being by marking bodies, *as* marks on bodies. In Barad's conception, bodies themselves are patterns of *embodying*, differenced in the way they emerge. The body does not stop abruptly at the layer of skin, a finished *thing* that interacts with other finished things; it is always being made, marked, materially discursively *mattering* in the world's ongoing process of configuration. Expanding on the corpus of Donna Haraway's work, Karen Barad states of the body:

> situation is never self-evident, never simply concrete, but always critical, the kind of standpoint with stakes in showing how 'gender', 'race' or any other structured inequality in each interlocking specific instance gets built into the world – ie not 'gender' or 'race' as attributes or as properties, but 'racialized gender' as a practice that builds worlds and objects in some ways rather than others, that gets built into objects and practices and exists in no other way. Bodies in the making, not bodies made.
>
> (Barad, 2007, p. 159)

The way we practice material-discursive enactments of being in the world *is* the way we participate in the materialisation of the world. This is no small assertion and is the foundation of Barad's principle of onto-epistemology: the notion that *being* (ontology) and *knowing* (epistemology) are entangled and never have been entirely ontologically separable. Applying this concept to the digital allows for a configuration where the 'digital world' is not somehow separate or separable from the 'material world' but rather that these are unfolding arrangements of practices, not ontological givens in their own right. The digital itself is part of the ongoing flow of materiality. It's just a very different and differencing kind of materiality that comes to matter. We who are engaged with it, accelerating our dependence on this 'world' even as we participate in building our dependent practices in the here and now, are simply not used to participating in a world where the rules of materiality are so different from those we have been habituated to seeing, understanding and practising.

This becomes particularly relevant when we educators, artists, activists and students start (re)inventing modes via which knowledge might flow, extend and even create itself in and for education. In this context, our practices are built upon different engagements with the platforms we use *and* that we are creating through our practices. Our practices are tracked and coded and used to inform new modes of building this 'world' even as we stumble our way through it. Such a mode of participation—the mode where production and consumption are entangled inside the same practice even as it takes place—has arguably never been more highlighted than in the data-driven digital. Data is the thing we are sold; data in different configurations, different add-ons, different platforms and so on. But in a sleight of hand *we* are also the product—the thing being sold. As Mbembe states, the unfolding processual phenomena of migrating online is structured through:

> the frenzied codification of social life according to norms, categories, and numbers; and various operations of abstraction that claim to rationalise the world on the basis of corporate logic…There are no more workers as such. There are only labouring nomads. If yesterday's drama of the subject was exploitation by capital, the tragedy of the multitude today is that they are unable to be exploited at all…With little distinction remaining between psychic reflexes and technological reflexes, the human subject becomes fictionalised as an 'entrepreneur of the self'. This subject is plastic and perpetually called on to reconfigure itself in relation to the artefacts of the age.
>
> (Mbembe, 2017, pp. 4–5)

The way we inhabit and practice life online is a valuable commodity in its own right, tracked, bought and sold by companies. We become artefacts that perform, creating the artefacts that we in turn (re)consume. *We are the machine, we're not just 'in' it, or just consuming of it.* The spell of life lived online is perhaps therefore a kind of cannibalistic one—one that starts to make a mockery of the idea of a 'dialectic', consuming *itself*. The binary building blocks of code cannibalise the data they produce *with* us and consume *of* us even as they create a world *for* us, absorbing 'us' into their digital body. What madcap neo-liberal-colonial practices are these? But arguably, at its core there is nothing really new here. Matter has been colonised by data-driven capital. So, what would it mean to apply a feminist new materialist, decolonial intersectional practice here? Are we satisfied to remain patterned by codes—once codes that existed inside the spoken and unspoken rulebooks of white patriarchy now that exist inside the 'online world' even as we programme it? Lucretius offers a fascinating take on the flows, folds and entanglements of matter and meaning, written far back in clock time and yet still appearing clearly ~~appearing~~ in present-day discussions on what patterning is and does in practice:

> Matter continually folds and weaves itself into new and changing material configurations, but it does so in very specific patterns, shapes and forms…the form of matter therefore nothing other than the shape produced by the patterned flow of matter itself.
>
> (Nail, 2019, p. 206)

Such approaches to understanding flows of matter, meaning and power have existed in our analogue histories as much as in our digital presents. But perhaps the issue at stake here is that *migrating* online has in some ways rendered how power and patterning have been bound up together more explicitly. The issues of power and patterning have arguably become *visible* in the way data in 'the digital world' flows, not least because as we try to migrate our existing practices online, we come up starkly against how codes are made and practiced in this online world. Indeed, as Houlden and Veletsianos (2019) suggest, emergent issues in online learning include contention around its 'flexibility'. Whilst offering students increasing flexibility can be framed as pedagogically beneficial and more inclusive, 'flexibility can be understood as part of a wider neo-liberal project, one that positions learners as always needing new training– a word itself that suggests a particular kind of disciplining and flow of power relations (Ball, 2013) - new credentialing, in order to fill "gaps" identified in their portfolio of learning and make them more employable. As such we need to be conscious of the ways that something like flexibility (or openness) might also be a means to draw more labour out of bodies' (Houlden and Veletsianos, 2019, p. 1010). Here, a 'flow' of matter at the deep ontic level, can emerge (agentially) in forms of power relations that only serve to re-inscribe neo-liberal growth agendas, scoring them into the ways we create and share our digital materiality.

Further issues emerge in everyday problems such as: what we can and cannot 'replicate' online no matter how hard we try—for example habitual analogue organisations of being together as fleshy bodies, the body's relation with clock-time and how objects of space/place disappear in favour of other versions of traveling how the platforms we use structure not only the ways we come together, but also how we *think* together; and crucially who gets access and who doesn't according to what were previously less visible circumstances (for example access to data packages, coverage, private space and time. If we continue down the path of rendering such modes of material-discursive patterns and configurations visible, what kind of ways might we re-imagine what education online might be, do, and effect in the world? In the main, the provocation here is this: it's not enough to create new ingenious tools, platforms, strings of code and so forth. The answer isn't necessarily in a more sophisticated EdTech (Dare, 2021a, 2021b) but in the *way we make visible and respond to patterns of power, matter and meaning implicit and (re) performed here*. What is required as we 'migrate' to this new global 'place' called '*online*' is that we rethink (and thus materialise differently in our onto-epistemic rethinking) the practices we are engaging with that make us and drive us.

Dimensionality I: Platforms and In/Visibilities in Practice

> So what counts as relations? That's the question that makes relations something of an unknown actor. It's an interesting question, I think, for cosmo- or pluriversal politics. For in Euro-American thought, relations are what keeps the world and all our worlds comprehensible…
>
> (de la Cadena and Blaser, 2018, p. 28)

To start thinking about how we might practice the digital as part of a patterning flow of relations differently, as phenomena that are ontologically inseparable from materiality, we might need to consider more deeply the *nature of information* in platforms as part of what constructs those platforms (a digital material-discursivity, if you will), asking how this changes human material-discursive practices as we migrate further online. Rather than fixating on 'what' the content of our practices are – what should we upload online, which platform is most accessible, how does this or that pedagogic practice 'translate' online—at this level of critical engagement, the questions rather become: how are multiple material configurations of the world being made *right now*? How am I *practicing* modes of in/visibility[2] and thus bringing or obscuring new material configurations to light? In short, *how are things, human and nonhuman, being made in multiple heterogeneities as we migrate?*

We will start this discussion of heterogeneities by reconsidering dimensionalities of the image—where the image on our screens is more than flat and in fact points to a multi-dimensionality that includes but is not limited to affect and sense and how these flow in what is commonly (mis)understood as a two-dimensional world *ipso facto.* Thomas Nail's provocative discussion of the image as a material flow rather than a thing cut out and reproduced provides some fascinating entrance points into the discussion of what materiality *is* and how, therefore, we might start to reconceive of radical new practices for complex digital contexts.

> All sensible material images are composed of electromagnetic fields that have folded over and interacted with themselves in the form of discrete sensible images. The manipulation of electromagnetic flows in various interactions, folds and patterns of circulation that define the digital image are therefore not radically new aesthetic practices. Every distribution of sensibility and images presupposes the kinetic manipulation of the electromagnetic field. All sensible matter circulates charged electrons…to treat the digital image as a category that exists only after this threshold is an arbitrary historical, disciplinary and conceptual bias. It is like saying that steam is something categorically different to water.
>
> (Nail, 2019, p. 323)

The idea here is that the digital doesn't come to flatten and supplant the material, nor is it somehow ontologically entirely different from other forms of life and living and being in the world, but is part of an unfolding process, a new diffraction of electromagnetism; sensation, image production and thus *materiality*. This is particularly important when we come to the notion of *form*, where form is understood as a patterning of matter. Nail moves us away from Platonic and Aristotelian ways of constructing epistemic practice in his interpretation of Lucretius' famous poem *De Reum Natura* where he relates that form isn't pre-existent as Plato might have led us to believe and this move becomes vital when trying to rethink what the digital *is* and therefore how we might practice it differently. According to Nail, the 'image' is not a question of abstractions that are cut away from the unfolding continuation of flows of matter and preserved in a kind of conceptual amber, rather this mode of thinking eschews Plato.

> This theory of formal genesis is distinct from Platonic formalism in three ways: 1) form is not immaterial or ideal; 2) form is not a purely active and pre-existing model by which matter is passively stamped as a copy of this model; and 3) form is not immutable. Lucretius rejects the triple cross

> upon which matter is crucified: idealism, identity and immutability…Form and matter are united in the same kinetic process of materialisation. (ibid.)

The point is brought into the discussion here to shake the foundation of *thinking* about what the digital *is*, so that we can start to build radical practices from the inside out. Why is this important? Because, when it comes to policy and practice we are often stuck in the trap of thinking that if we add technical expertise to a form or patterning that is already producing age-old sexist, racist, colonial in/visibilities in a feedback loop, we will somehow develop, change, create a new kind of digital for the twenty-first century. Stuck in a hall of mirrors reflecting patterns of power and domination that have created so much in/visibility, if we don't rethink the foundations, the repeating patterns, the codes and codexes, how can we radically depart from producing the same old in/visibilities that so many of us are labouring to challenge? As the world becomes increasingly digital and digitalized, these 'same olds' get *reflected*. And in such a hall of mirrors, reflection reflects only that which has been given permission to be visible. In the context of developing practices in and for the digital every-day, we find that as education becomes colonised by EdTech companies stuck in such a hall, adding technical expertise without rethinking, reformulating and reconsidering the patterning *inside the projects* simply will not do. Thus, rethinking *requires* re-practising, an event which from a feminist new materialist view that entangles matter and meaning, ontology and epistemology. '[F]orm is not stamped on matter from above by God, but kinetically transferred through the movement of matter and its active creation' (Nail, 2018, p. 210). Patterns are material-discursive configurations that make worlds. Heterogeneity in motion. Dimensionality *as* practice.

Dimensionality II: How to Build (and Undo) a Pedagogic Past/Present

At first sight, the digital screen presents as flat, one dimensional even with no form at all, but the rectangular frame contained by our computers, phones and monitors, is an all too familiar signal for the potential of a formal move—one form, the frame, anticipates another within it, a picture or portal. This is already a pattern, a patterning of matter. The frame is a window but also the gentle edge over which our gaze passes to look beyond, a sort of shoreline from which to view the water[3] It beckons a new extended view but also a change of form from frame to picture. For centuries that pictorial space has been rendered with the aid of geometric perspective—an infinite smoothing over of a Renaissance wire frame that supports an illusory world. Renaissance architects, mathematicians and artists, almost entirely European men, clearly invented these structures and the pedagogies that supported them, in their own image to great effect. Spectacle, mastery and the potential for endless (representational) space obscured less dramatic renditions of the world. This functioned as a form of erasure for any other view, form or social practice that did not adhere to the socio-theological systems that organised fifteenth and sixteenth-century society. Exquisite golden mosaics depicting biblical scenes from the Old and New Testament in Monreale Cathedral in Sicily, Italy are precisely the right scale in relation to the congregation who would view them from the [29] floor. The narratives of the scenes, each framed by their own rectangle, were designed to teach an illiterate community how and what to think in a Christian society. The overriding pedagogical objective is clear. The architectural apparatus (or wire frame) on which the mosaics were built in the twelfth century produces forms, pictures and patterns for a reason. Those patterns do a job, they teach. They teach us what to look at and how to look at it. They teach us how to make in/visibilities. The haunting has already begun.

Knowledge is passed on, exchanged, and ever contingent. The Ancient Greek model of the university foregrounded discourse as a pedagogic tool—the conversation, the exchange of views is one that is still in use today. But who was the conversation between? The teacher, the older man with status and power and the beautiful boy, again, a very familiar set-up, clearly producing exclusions. Forms of exchange varied from intellectual, sexual mimicry and an almost dynastic reproduction of more of the same: learned white men. Knowledge certainly flowed, just as it does today in similar educational settings, but only between a designated few. We are returned once more to our hall of mirrors, our feedback loop that constructs finite visibilities. But those excluded from the few, nonetheless still engaged in multiple forms of knowledge-making, sharing knowledge in different patterning of practice. Thus, whilst this silent majority might not figure in the elevated designated discourse, they still remain present in different and differencing forms of *practice*. They still *haunt* the pedagogic machine. These other/ed knowledges continue to be enacted, felt, shared and passed on—still lived, only made invisible—an invisibility that marks bodies and practices that don't *count*. These bodies that 'know' but are not seen as being able to know, feel this invisibility acutely and it can be the source of great pain. Excluded bodies and all their mattering knowledges might not be visible, exceeding the pattern of the coded system of culture they inhabit, but they are most definitely integral to societal structures—the body that builds, marked by working with stone, the body that births the next pupil—they are essential to upholding the fabric of society, they are hidden in plain sight. Visible *and* invisible in their heterogeneities. Now technical labour adds to the churning wheels of in/visibilities. New peoples and communities emerge and are *seen* even as others fall away.

Just as the congregations of Monreale, Sicily, must have done for centuries, we still engage collectively, but with a difference: we 'go' online. In a similar vein, all the labour generated by our participation online is also rendered invisible; algorithmically cataloged, patterned and re-patterned by a mixture of invisible code and only partially visible humans. Humans whose bodies are rendered in code, who create cataloged and sold data trails just by virtue of showing up. In the midst of the coronavirus pandemic this age-old practice of gathering together remains, only it has migrated to a so-called 'safe space', a clean space, a space where contact is apparently devoid of all contact. A collective material gathering, a being-together that is so very different from the ones we have practised throughout history, where my seemingly flat image meeting yours on the screen is a strange kind of performative proxy for the 'real thing'. A flattened, pictorial representation of the 'real you'. Except, this representation is itself *performative*. This representation is doing something agentic. As discussed earlier above, it's practising the platforms, configuring them even as it exists inside them, patterning them. Furthermore, it's practising 'me'. This has huge implications for posthuman ontologies, but it also allows for a very practical pedagogic opportunity: an entrance point into deep learning conversations about how patterns and patternings of power in pedagogy rehearse the same old narratives that mark bodies and create invisibilities. As Audre Lorde's famous eponymous essay states: *the master's tools will never dismantle the master's house* (Lorde, 1984). If tools can be understood here as patterns of code that build the 'online world', how might: (a) a rethinking of what the digital *is*; (b) what human practice as an entangled part of this digital can do; and (c) what it is therefore to practise human and nonhuman entangled life (post)pandemic, dismantle the houses that make so many of us invisible for so long—the world that marks and scores us into violent invisibilities?

Questions are world-making. They make practices *as* practices; critical, ethical, unfinished and lively. Here are some of ours.

Practice 1:
One of the authors of this piece (Annouchka) recently asked MPhil students following the Arts, Creativities and Education course at Cambridge University, to define, in breakout groups the difference between themselves in real life (IRL) at their desks looking at their screens, and the little boxed image of themselves that they could see on the screen—their digital self. 'What's the difference between "you" and the "you" on the screen?' I asked. The pictorial world was instantly turned on its head—the self on the screen was somehow different, they reported. Moreover, when they watched it they modified their IRL behaviours, thus changing it yet again. The 'pictorial' self thus began to puppet the other self. *It had its own kind of agency and this was both ghostly and exciting.* When the students returned from the breakout session, ready to perform their critical/affective response, the conversation quickly became deeply critical, fusing practice-based research with deep epistemic considerations.

Some rendered the task itself into multiple languages through google translate until a total polyphonic cacophony reached us whilst students' cameras made them invisible and gave visibility to a global image. The discussion turned to multiple worlds and how multiple sources of data flow chaotically in practice, rendering other meanings invisible and thus blurring the lines of a clear pedagogic flow of knowledge in light of such digital multiplicities. Some cut little peepholes into sheets of paper that they collectively held over their cameras so that, in the sea of faces appearing on the screen, a few looked through paper slots of varying sizes, everything obscured but their eyes as they hid, offering only glimpses of their bodily presence. Interestingly, each one of the students in this group also moved the paper they held over their cameras, slowly. The affective experience wasn't quite captured if it lacked the sense of *movement*, even though we had all been seated in front of our screens for so long. The doorways via which we could see them (and through which they could see us) were eternally *on the move*, shifting, folding, migrating. In the gap between the multiple selves made visible online, multiple movements also exist. The endless flow of materiality is cut into performative moments that not only have real-life consequences, real-life in/visibilities that score us into political selves, but that are life itself. Thus, *matter and meaning are entangled and always-already on the move.*

But how do these new, online material configurations of togetherness move us to create new modalities of resistance, of identity in the changing patterns of in/visibility that the digital 'world' is creating?

Practice 2:

In 2020, both the authors of this paper (Hermione and Annouchka) held a conference at the Royal College of Art to explore the idea of digital materiality, sexuality and power. In part, this project sought to engage with scholarship that placed the body in stark and irreparable contradiction to the digital body, without losing either to *language*. Indeed as Enriquez-Gibson (2016) suggests, 'despite the materialist focus, the materiality of the body has not been adequately considered. The subject's body has been addressed and analysed as non-corporeal construct, primarily at an abstract, theoretical and textual level' (p. 1127). Contrasting this notion of new materialism's work with digital bodies, we worked in the spirit of Karen Barad in our development of practices via this conference and its investigative workshops: '*language has been given too much power…the only thing that doesn't seem to matter anymore is matter*' (Barad, 2007).

[36] Whilst we did have some formal papers given which were then allocated equal discussion time in round-table style, much of the conference was dedicated to 're-imagining' sessions and physical-digital workshop experimentation sessions.

In one such workshop, we all experimented with what the digital did to our *desire* to touch—to touch each other, feel connected through our desirous bodies. We did this to encounter or experience the bodily presence of another *online*, inviting participants to literally reach out to each other across the collective flat plane of our own rectangular frames and pay attention to what the 'lack' did to us and made visible on the platform. The uniform heads and shoulders across the grid of digitally produced 'tiles', became a tangle of arms moving towards each other—tentacles that were abruptly cut and made invisible at the edge of each frame; a Procrustean tile that 'disappeared' any part of bodily self that did not fit its prescribed frame. But in a significant shift from the pictorial dimension we *thought* we were in, we realised that each of us was seeing a different version of our collective grid on our own devices, due to the fact the platform re-organises each order of tiles according to who's looking. For example, my screen offered a different order of participants, therefore when I (Hermione) reached out to touch the person I saw on the tile next to me, on someone else's screen, I reached out to a totally different participant.

What a strange way to experience collectivity! Whereas in analogue worlds I might turn to my 'neighbour' in a group circle and know that my neighbour experiences me, turning, being 'there', in the digital platforms of 2020, when I turn to my neighbour, I am in reality, turning to exponentially differencing others. What a multi-worlded practice! Something new to account for, a totally different way of being together and of understanding how multi-worlded ways of being in the community really function in this new 'place' we call 'online'. Rather than see this as limiting, as *lacking* in reality, we would like to invite you the readers reading this *here, now* to consider this phenomenon not as a weird technical disturbance to be 'worked around' as we all teach online, but as a capturing of a *different kind of reality*—a reality that, as Deleuze and Guattari state, affirms that 'we have always been more than one', diffracted into different dimensions, different patternings of collectivity. Returning to our discussion of dimensionality, pictorial space does not seem adequate to explain this new dimension we now operate in. As Hestor (2018) writes,

> The relationship between technology and social relations is complex, mutually shaping, dynamic, and dependent upon continuous conversation. Shifts in one area will influence the evolution of the other, which in turn feedbacks into further developments, in an ongoing process of co-constitution.
>
> (Hestor, 2018, pp. 10–11)

In many ways, the single screen laptop usage so ubiquitous now during this pandemic and as the vehicle for online education, has atomised the shared experiences of analogue worlds. It has patterned the flow to a one-way system. For example, watching a film in a packed cinema, a sell out play in the theatre or indeed a lecture or conference, encourages a form of pedagogic interaction which is more candid and internal than in many seminar rooms, lecture halls and studios. The public nature of speaking and listening bodies with all the incumbent relationships of power at play, are embedded in the architecture of, for instance, a lecture theatre, whose rigid patterning often reduces opportunities for the sharing of students' internal creative worlds, placing the expert teacher at the centre, pulling focus both perceptually and ideologically. It takes skilful educators to bring students into different, heterogeneous forms of exchange. This can and is still taking place online, however, as the material configuration of the world is different, it requires new tools to affect the same kind of epistemic change that changing the physical arrangement of space in analogue worlds attempts. The one-to-one tutorial on 'Zoom' can feel more akin perhaps to a telephone conversation once trust is established, but either way, participants are always at one remove, always some distance in between. And, it is within that very 'in between' space that this new digital dimension is experienced.

As bell hooks suggests (1994), teaching can after all be profoundly intimate. To enter multiple flows of listening, to be taken to an unknown place by another, in short, to build new worlds together in pedagogic encounter is the kind of intimacy we are speaking of here. We are talking about pedagogy as being-together, world-building in that in the entanglement of matter and meaning we find brave new forms of knowing together and building practices together, practices which produce worlds in their own right. The creation of knowledge through being taught by another (on both sides of the power dynamic in traditional classrooms) has a thrill to it that extends through university and beyond. And that thrill is dynamic and precarious within its interactive space, where multiple agencies act simultaneously in real time presenting, proposing, listening, responding and reassessing. The format of conferences designed around papers, thematic presentations and keynotes thrives in the performative spaces of learning and teaching. Telling stories and being told stories is enthralling just as being wound into a carefully crafted arc of an educator is a pleasure however abstract the subject matter. And all this can still take place online. For the authors of this paper, learning and teaching are practices not just of knowledge 'acquisition' in terms of acquiring a degree certificate, but ones that are dynamic material configurations of being together even as we build the very world we share together. The question is how to understand the online 'world' as a performative agent as part of these encounters, rather than as an obstruction to them. How might this performative agent come to pattern us *and itself* differently in the pedagogic encounter?

Framed by the notion of 'encounter', teaching and learning require a deep consideration of care. This heightened invitation into each other's interior worlds is the material practice of teaching and it can and does incorporate the affective aspects of this intimate encounter for both the one who learns and the one who teaches, for whom the stakes are just as high. Encounters may even have the interpretive depth of a psychoanalytic session but that the ethics that hold the structures of those unfolding worlds together are robust enough to flex is politically critical. 'What it allows us to emphasise is that a politics of care engages much more than a moral stance; it involves ethical, hands-on agencies of practical and material consequence' (Puig de la Bellacasa, 2017, p. 4). Online, these different modes of interaction are still operating but the forms of these worlds are different. The platforms we use, the practices we engage in, they enter into our interior and exterior spaces—our private homes which we reveal or block with background filters, our inner rhythms through our sense of time—where respect of time zones fall away and our bodies are invited to be alert at all times *should we wish to participate*, and no doubt infinite other diffractions of intimate experience.

Practice 3:

To explore such intimacies *in practice*, we refer again to our case—a moment during our 2020 conference where we discussed and workshopped relationships with power, intimacies, sexualities and higher education in digital contexts. During this session, designed to engage our participants and collaborators with the affective experience of teaching and learning online, an impromptu performance was spontaneously conducted by one of the participants, Anna Nazo. Anna had created software capable of reading brain waves through a bespoke headset worn by herself which enabled us to see inside her brain. The headset picked up the continually fluctuating electromagnetic impulses produced by her brain and mapped them onto each of our screens. Stimulated by conversation, and as we continued talking, we could watch the ebb and flow of her brain waves rendered and then displayed on a wire frame broadcast to our screens in real time—our discourse in time and motion, performed as it is created, 'co-constituted' like Nail's 'sensible image'. At once, the digital flat plane, the 'not' pictorial space, extended way beyond the architecture of Zoom (the conference venue) and also beyond Anna's digital skin on our screens. Not only was it mesmerising to watch the movements, the ripples and peaks of her brain waves, but when Anna spoke or laughed as she read her own poetry, it also felt unusually intimate…

To be able to 'see' inside Anna's brain—inside her body matter and particularly her brain in real time (IRT) was unexpected and entwined It is important to note that this was not scheduled or planned in advance.

As the conference was taking place online, Anna was—like we all were—in her own home ~~bedroom~~. In response to a query on digital intimacy, she simply raised her hand and responded by grabbing her equipment (stashed in a drawer) and set up the experience for us. That this could take place unscheduled is testament to the immediacy of the digital in practice. Anna could literally grab her tools from her desk and take us into the interior of her body then and there, enabling the conference participants more able to view her work than under usual IRL conditions. Anna, her brain and her apparatus, performed a material performance, co-constituted by her, all the technologies present and us. The effects were surprisingly digitally intimate, even though we remained, nonetheless, on the other side of a screen, lulled, slightly hypnotised. The conversation moved on and Anna disconnected her headset and screen share. The moment of shared intimacy passed the second the screen flicked to 'stop share' and we were all transported back to our usual 'tile' view of the collective.

What was perhaps most interesting about this experience was the way Anna's impromptu performance invited us to approach the act of looking. We saw inside her body, we saw the rendering of the movements of that body through the mapped brain waves, but she had also attached a camera to a small drone that flew around her room, giving us a 'bird's eye view' in motion of both her, the surface of a screen that her brain waves were being shown on, and the rendering happening in real time. The intimacy was *distributed*, bringing to light the multiple agents involved in this moment of sharing. Rather than assume a back-and-forth pattern of relations—ourselves and the performer creating new ways to *inter*-act, we were invited to see how multiple agencies and actants function *intra*-actively together, *through one another*. This is perhaps reminiscent of what Macgilchrist (2021) calls a 'post digital assemblage', where 'postdigital assemblages would flag the ways data assemblages are held together, rather than describing their elements. Which kinds of political economy do postdigital assemblages drag inside them?' (p. 3).

Anna was, in the performative moment, reacting to her own perception of us, which was changing the shape of her brainwaves and thus the performance itself. Furthermore, the performance was also being literally shaped by her memories. Each line of poetry she spoke was haunted by the memories and images that had initially shaped the writing and which still lived inside the reading. This is performativity at its rawest, dissolving the spectator-actor binary by practising affects, agencies and ways of looking digitally *in distribution*. This is potentially quite the disruption to power relations that have hitherto required an ontological divide between an empowered subject (or in Anthropocentric terms, *man – or indeed white, of European/-decent male*) and a disempowered subject (everybody else) in order to maintain neo-liberal business as usual.

Being moved by any kind of artwork is an internal materialisation of affect, a touching of something inside us. Perhaps the key in the English phrasing is in the idea that we are *moved* from one location in affect, to another. Another kind of distribution, where our sensations and responses flutter across our electrons and photons, changing their shapes and thus changing us. It lingers well after the end, moving along with each of us differently, into our futures, it has a different kind of shelf life—a half-life. A presence that haunts us like a spell, just in the way that deep encounters in our lives do.

Practice 4:

The last part of our summer 2020 conference brought out what *hauntology* (Barad, 2007) in performance might have to teach about digital practice, pedagogy and participation. Florence Peake, a dancer, artist and educator presented a lecture performance called 'The Breaking Spell'. The spells cast by teachers can be as liberating as they can be oppressive, or even violent in its ideology as can the institutional structures that authorise them. To set the scene, to clear the decks and prepare us to be *spellbound* by her performance, she asked us to stand up from our seats and perform some movements with the express purpose of stretching and waking our bodies up from a long day of sitting, looking and listening on Zoom. Florence went on to explain how classical ballet training 'cleanses…our bodies to be repurposed for ballet' producing eating disorders in dancers, remarking that the discipline of classical ballet refuses to deviate from what she called the 'neutral body' which is exclusively white and able, excluding other bodies and rendering different kinds of movement or alternative ideals invisible. Thus, a particular kind of knowledge becomes, through the training, lodged in the very 'tissues' of the body, sometimes attempting to erase other kinds of knowledge as the body is patterned 'correctly'.

To the camera, Florence went on to perform a demonstration and retelling of where in her body these knowledges are stored. She relayed the memories of teachings and teachers who lodged knowledge in her bodily presence, and where and how they still live now, incorporated into her life, into her present and future. She wove us around her past and present body in a combination of movement and narrative, discussing the marks and moves encoded by teachers' and the practising of knowledge in the pedagogic encounter. She spoke of 'falling in love' with the way her teachers moved, their voices and even the critical feedback she received. In speaking of a deep feeling of admiration for teachers, an aspect of learning and teaching rarely mentioned, 'The Breaking Spell' was transgressive, giving way to a frank discussion on practices of ethics and care in pedagogic encounters. Transmitted through the digital closeness/distance of 'Zoom', we, the conference participants, not only recognised aspects of the clandestine thoughts being spoken through microphones and cameras but crucially, sensed them in the different registers of our own bodies. Her voice, moving through different registers, protested and soothed us through our own laptops and into our learning bodies which continue now to be inscribed by her. A *material* experience that was both tender and shared online, giving way to a critical appreciation of just how close and far we can encounter each other's bodily presence online that challenges stereotypes of the cold, clean, distant online 'world'.

Lastly, Florence's performance brought to the surface what pedagogic memories were haunting *us* in the register of bodily engagement online. After experiencing her performance, we were invited to consider what pedagogic encounters still haunted *our* own bodies through our gestures and patterns of movement. The distribution of experience here was not patterned primarily through performativities of *looking* necessarily, rather these were patterns of personal *bodily experience*, shaped by folding of time (an invitation to remember and feel again in the present and a sharing of intimacies of memory through bodily gesture). Dancing *with* Florence at the same time as we danced with our own ghosts—*dancing to remember life-changing pedagogies and pedagogic encounters*—the intimacy moved through the screens and into our own spaces. Such a link is not some pseudo-psychic phenomenon, but it is perhaps in some ways magical nonetheless, as it allows us to experience bodily encounter together—by remembering together, moving together, affecting each other and ourselves through this strange distribution, *through the digital body in practice*. Each one of us, in the digital space, was just as 'ghostly' as the teachers we were remembering—we were not bodily present together in all the usual ways, but all images of performativities were not quite present, but not quite absent either. Ghosts in the digital machine. But alive and *lively*, performing our own in/visible patterns through the code; through multi-dimensional, affectivities of moving 'images'.

If, as is commonly suggested during this pandemic, the lack of physical spaces and face to face interactions IRL depletes the experience of learning and teaching, Florence Peake's lecture-performance confounds this assumption and so must be operating in other ways. We can lament the absence of the apparatus of the institutions, the buildings and the architectures of learning and teaching, but 'The Breaking Spell' demonstrated how these intimate, bodily and performative encounters are still operating with profound effect online. What makes this interesting is the presence of the digital as pedagogic becoming a partner, distributing patterns of human-nonhuman encounter in multiple flows, selves, experiences, worlds…

Endings and Beginnings

The practices discussed here have been nothing more than lively experiments—small inroads that fold outwards and inwards into unique critical conversations on how we might as educators and academics start to rethink digital, online pedagogic practices from a feminist new materialist perspective. [54] Furthermore, these discussions point to what such a rethinking might do to our notion of what this digital *is* and therefore what the digital *does* in practice.

Indeed as Dare (2021a, 2021b) states,

> Such intervention, however, will only be meaningful if we challenge a pervasive business ontology which has been naturalized by the same technologically determinist ideology which threatens to transform students into commodities and disembodied data points. The mass move to online learning of art and design education risks a reversion to the pedagogy of the nineteenth century, disembodying and declarative, centered upon a world of facts and rules, which is accompanied by a loss of experiential and relational knowledge. (p. 257)

These notions *matter*. They offer new modes of being-with that redefine digital ontologies through the ways we practice being together in online pedagogic 'spaces'. Encountering the things that online education is making visible, paying attention to what it makes invisible and how such patterns of in/visibilities are nothing less than world-making, is our primary urge. To stay with the trouble of acceleration, EdTech and lives lived online require that we ask vital questions about what world we are creating, not in practice, but *through our patterns of practice*.

NOTES

1. At the time of writing, the UK, where the writers are based, is undergoing its third national lockdown.
2. The '/' here refers to Barad's use of the '/' to show that 'visibility' and 'invisibility' are entangled (2007). Thus the concept of something being visible can only exist in the context of invisibility being another possible arrangement of the phenomena.
3. The Optical Unconscious, Rosalind Krauss, 1993. Krauss describes how as a child John Ruskin 'can not take his eyes from the sea'. and that 'The sea is a special kind of medium for modernism because of, it's…opening into a pure visual plenitude…'.

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